

# **National Spent Nuclear Fuel Program Meeting**

**March 4-5, 2008**

**L'Enfant Plaza Hotel**

## **Summary**

**Written and Compiled by  
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**Idaho National Laboratory**

# National Spent Nuclear Fuel Program Meeting

March 4-5, 2008; Washington, DC

## AGENDA

### Tuesday, March 4

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|--------------|--|--|
| 8:30         | Introductions  | NSNFP (Jan Hagers)                             |
| 8:40         | Welcome and Key Initiatives  | EM (Gary Deleon)                               |
| 8:50         | * Actions from August 2007 Meeting   | NSNFP (Sandra Birk)                            |
| 9:00         | * Repository Program Update (Status of License Application)  | RW (Steve Gomberg)                             |
| 9:15         | * Status of Facility Design  | BSC (Guy Martin)                               |
| 9:45         | * License Application Defense  | RW (Steve Gomberg)                             |
| 10:00        | * EM Engineering and Technology Roadmap  | E&T (Steve Krahn)                              |
| <b>10:25</b> | <b>Break</b>   |  |
| 10:45        | * DOE EM License Support and Schedule  | NSNFP (Henry Loo)                              |
| 11:15        | * Quality Assurance <ul style="list-style-type: none"><li>• RW/EM Flowdown</li><li>• EM/Sites Flowdown</li><li>• QARD Updates</li><li>• Use of Qualified Data</li><li>• 10CFR Part 21 discussion</li></ul> | EM/RW (Kriss Grisham / BobToro / Larry Newman) |
| <b>12:15</b> | <b>Lunch</b>   |  |
|              | Site HLW Progress/Activities   |  |
| 1:30         | * <ul style="list-style-type: none"><li>• Hanford</li></ul>  | DOE-ORP (Albert Kruger)                        |
| 2:15         | * <ul style="list-style-type: none"><li>• SRS (SWPF, H-Canyon Impacts, LaB Glass)</li></ul>  | WSRC (John Owen)                               |
| 2:45         | * <ul style="list-style-type: none"><li>• INL (EPA)</li></ul>  | DOE-Idaho (Jan Hagers)                         |
| <b>3:00</b>  | <b>Break</b>   |  |
|              | Site SNF Progress/Activities   |  |
| 3:20         | * <ul style="list-style-type: none"><li>• Hanford</li></ul>  | DOE-RL (Sen Moy)                               |
| 3:30         | * <ul style="list-style-type: none"><li>• SRS (FRR/DRR Receipts)</li></ul>   | WSRC (Mike Dunsmuir)                           |
| 3:45         | * <ul style="list-style-type: none"><li>• INL</li></ul>  | DOE-ID (Ron Ramsey)                            |
| <b>5:00</b>  | <b>Adjourn</b><br>* <i>Electronic Presentation</i>   |  |

## Wednesday, March 5

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8:15	Opening Remarks	NSNFP (Jan Hagers)
8:20	* Update on DOE SNF Transportation Topical Report	NSNFP (Brett Carlsen)
9:00	NUREG-1536 Drying Standard	RW (Steve Gomberg)
	Miscellaneous SNF Issues	
9:15	* Na-Bonded	NSNFP (Henry Loo)
9:30	* DOE SNF Packaging	NSNFP (Henry Loo)
9:55	* SNF Database / ANA Development Update	NSNFP (Bill Hurt)
<b>10:30</b>	<b>Break</b>	
10:45	Integrated Acceptance Schedule/Total System Model RW/EM – Instructional Benefit	RW/EM
11:00	SRS/INL Fuel Transfers	DOE-SR (SRNL)
11:15	Meeting Summary/Actions	DOE-ID (Jan Hagers)
<b>11:45</b>	<b>Adjourn</b>	
Noon	Breakout Meeting on SRS/INL Fuel Transfers	

\* *Electronic Presentation*

## ACTIONS

#	Action Item	Designee	Due Date
1.	Ensure that the MCO drop analysis is coordinated (NSNFP, BSC, LLNL). Identify who is leading the effort. (MCO and Navy container will need further analysis and will need to be coordinated).	Gary Deleon, EM-14 NSNFP Mark Wisenburg BSC, Markus Popa.	April 4, 2008
2.	Analysis should be complete by the end of the NRC docketing review. (LA submittal + 90 days)	See Action #1	August 15, 2008
3.	Formal direction from RW needs to be issued to the sites on the process and schedule to implement the QARD.	Bob Toro / Kriss Grisham	April 4, 2008
4.	Establish a top level process to address 10CFR21 reporting requirements. (EM and RW)	RW – Bob Toro EM –	April 4, 2008- initial feedback. Complete by Sept 30, 2008
5.	Discuss the approval process for DOE submittals to NRC with DOE General Council.	Jan Hagers Gary Deleon Steve Gomberg	April 4, 2008
6.	Determine the date and location for the next NSNFP Meeting. (Sept 9-11 in Las Vegas is a possibility)	NSNFP	
7.	Issue meeting summary and post presentations on the website.	Lori Braase and NSNFP	

## ATTENDANCE

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## **DISCUSSION**

*(Associated presentation material will be available after April 1, 2008  
on the NSNFP Website, <http://NSNFP.INEL.Gov/Program/>)*

### **Welcome / Introductions**

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#### **Jan Hagers, DOE-ID, NSNFP**

Jan Hagers welcomed everyone to the meeting.

### **Welcome and Key Initiatives**

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#### **Gary DeLeon, DOE-HQ**

Budget issues are being worked. EM and NSNFP support to the License Application (LA) for Yucca will continue.

SRS H-Canyon operations are very critical for disposition of Pu, HEU, and Aluminum SNF. A business case was prepared to compare other alternatives to build a sound case and strategy. The SRS/INL SNF swap is also very critical to EM's success as well.

The NSNFP is a valuable resource to EM and is critical in meeting these challenges.

Q: How do we proceed with HLW program and at what pace?

A: Mark Gilbertson is reevaluating the HLW strategy from a risk based perspective. A new HLW Corporate Board is being organized to provide focus on the recommendations made by the Gilbertson team. There are other Corporate Boards for LLW, QA and, TRU.

The EM SNF Strategic Plan should be completed by May 2008.

### **Status of TAD/Transportation Cask**

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#### **Steve Gomberg, RW**

The TAD is certified to 80 GW 5 year cooled fuel. There is no capability to transport 5-year cooled fuel; however, it can put stored onsite on a pad. Why have a 5 year cooled fuel design for the mountain.

The MCO has not been fully analyzed for repository acceptance due to fragility issues. We expect it will be.

There are two opportunities to address the MCO.

- Before we submit the LA. (No updates can be submitted during the docketing review phase.)

- Amendments to the LA after the docketing process.

## **Technology Roadmap**

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**Steve Krahn, E&T**

The Interim report of the NAS was issued on the Technology Roadmap. They liked it as a planning tool, but were concerned with the 3-5 year planning timeframe. It should have a 15 year focus and more emphasis placed on long-term planning.

The Technology Roadmap should be a strategy document, not a budget document. It is a framework to look at challenges.

EM is looking for Technology Readiness Levels of 3 to 6 on a relative scale of 1 to 9, where “1” represents the initiation of basic research (“paper”) and “9” represents a mature, operating facility (refer to EM’s Technology Readiness Assessment Guide).

## **DOE EM License Support and Schedule**

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**Henry Loo, NSNFP**

Issue: The MCO analysis is not complete (pending). Does LLNL have a task to do this from BSC? Who is in charge from EM? National program and Hanford.

The MCO drop analysis needs to be completed; however, it is unclear who is leading the effort.

Action 1: Ensure that the MCO drop analysis is coordinated (NSNFP, BSC, LLNL). Identify who is leading the effort. (MCO and Navy container will need further analysis and will need to be coordinated).

Action 2: Analysis should be complete by the end of the NRC docketing review. (LA submittal + 90 days)

## **Office of Quality Assurance**

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**Larry Newman, DOE-RW / Bob Toro, DOE-RW**

QAMA review by industry experts said it was on par with what they would see at a commercial nuclear facility. Independent QA team.

Procurement of the TAD is through RW, not SNL.

Issue: QARD Rev 20 effective date of 10-1-08. If this means it will be effective at the site on this date; then time is needed for review, impact analysis, and implementation. This is contract issue with the contractor. RW just received the QARD update in

February. The sites just finished the impact analysis for Revision 18. Now we asked for Rev 20. It is unlikely that the contractors will have this implemented by Oct 1.

Impact analysis and remediation are outside of implementation. RW will formally send out direction to the sites.

Action 3: Formal direction from RW needs to be issued to the sites on the process and schedule to implement the QARD.

Sondra Wesley is standing up the EM Office of Standards and Quality Assurance. This will include the EM/QA Corporate Board focus on safety and the EM QA Training Academy. Performance metrics for the sites will be established this summer.

There are reporting requirements associated with safety nonconformances of the facility. 10CFR21 is not implemented until construction starts.

Action 4: Establish a top level process to address 10CFR21 reporting requirements. (EM and RW)

## **WSRS**

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### **Mike Dunsmuir, WSRS**

Funding concerns:

- In FY08, limited funding is identified, but not approved, for 70 Ton cask and rail road upgrades supporting future SNF transfers from L Area to H Area. In FY09, L Area and H Area are not funded for this activity.
- In FY08, there is very limited funding under special studies to support planning for the SRS/INL SNF exchange.
- In FY09, L Area does not have approved funding for the SRS/INL SNF exchange.

The planning for the SRS/INL SNF exchange assumes ~ 500 MTR and ~3500 ATR elements, which includes the current inventory and some future production. The final agreement on the total number of ATR assemblies to be included in the exchange has not been reached.

H-Area planning assumptions include processing SRS aluminum SNF beginning in FY10.

## **INL SNF**

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### **Ron Ramsey, DOE-ID**

Benefits for the Swap:

- Settle liabilities across the complex. Ship these materials to SRS.
- Supports plutonium disposition, HEU disposition, and Al-clad SNF disposition.

- If SRS processes their fuel, they won't have to build a handling facility for SNF.

The NSNFP should look at the options document written by Scott DeClue.

Other issues that need to be addressed include whether the sodium bonded fuel needs to be treated? Does epoxy have to be removed? If so, how much is enough?

There is no approved funding for 08 or 09.

## **Update on DOE SNF Transportation Topical Report**

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**Brett Carlsen, NSNFP**

Issue: How long will the DOE approval of Topical Report take prior to submittal to the NRC?

General Council has been involved in the review of documents (such as 10 CFR Part 72 license application submittals) prior to going to NRC. GC review may be required prior to submittal of the Topical Report to the NRC.

Action 5: Discuss the approval process for DOE submittals to NRC with DOE General Council.

The 10-year monitoring standard is not driven by NRC. This is a proactive approach by the NSNFP. We want to make sure we know what SNF data will be needed for storage, transportation, and disposal prior to sealing the canister.

## **NUREG-1536 Drying Standard**

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**Steve Gomberg, RW**

An interim change to Revision 5 of the WASRD applies only to SNF drying requirements; there is no impact or change to HLW.

NUREG-1567 applies to SNF packaged into a TAD or received at Yucca through the MGR.

The ICD has interface requirements that eventually turn into design requirements. It is essentially a Design Solution Document and can be used as a source document.

## **Misc SNF Issues – SNF Packaging**

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**Henry Loo, NSNFP**

Calcine options use a 2' diameter x 10' long canister. It is desired to maximize the amount of calcine that goes into a package. Using the 24" would optimize calcine

disposal. We have a lot of waste packages that don't have an 18' canister in the middle which could also be used.

## **Total System Model (TSM)**

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### **Steve Gomberg, RW**

The model is completed. Budgets were cut, so the office is down to 1 FTE. They are currently using the model for DOE-SNF.

The Integrated Acceptance Schedule Rev 0 was out of date and RW and NSNFP wanted to update it. Wanted to optimize the schedule and issue a new revision to consider operational considerations for EM and RW. However, the IAS was driven by NR and EM

The TSM is very flexible and can take any characteristic that you want to model. In the Total System Life Cycle Cost Model (TSLCC-2007), auditors found some concerns that the numbers of canisters for SNF/HLW are inconsistent between the EIS, IAS, TSM, and TSLCC.

RW wants to work with a consistent baseline. A set of HLW canister ranges needs to be developed, but this would not be the formal integrated acceptance schedule. EM would control the schedule and RW would use it to reflect the range (high and low) of canister counts to produce a baseline of costs, based on production as opposed to shipments. Work to a common reference point with a range of analyses.

EM is constrained by commercial emplacement rate. The 18 kw is a preclosure rate. The postclosure limits are driven by the mid pillar placement of 96 degrees C mid-pillar temperature limit.

There is more latitude on how they emplace the waste. The LA analysis shows the new waste packages are bounded by the TSPA. There is still a link between commercial and DOE waste. The 2 to 5 ratio is gone.

The current estimated TAD limit in the thermal analysis is 22 kW because that is the highest heat limit licensed for transportation of that size. We still don't know what the limit for the TAD will be. They will be licensed for what ever number applies to the specific fuel.

The Navy is staying with the old numbers in 11.8.

TSLCC assumes 48 reactors get 20 year life extensions. For the T Life Cycle Cost, they are looking at 109 to 130 MTHM limit for Yucca (not 70,000)

Aging pad construction is phased. EM may be able to emplace SNF faster than originally thought if you don't have to age it down.

## **SRS/INL**

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### **Jeff England, SRS**

Swap team has identified the stakeholders. (INL, SRS, Office of Science, DP, Rad Waste, Packaging).

The front end work for the project has been completed, including the project plan, QA, transportation, communication plan, Project Implementation Plan, supplemental analysis, draft ROD amendment, and draft schedule between INL and SRS.

## ACRONYMS

ANA	Advanced Neutron Absorber
ATR	Advanced Test Reactor (INL)
BEA	Battelle Energy Alliance, LLC
BSC	Bechtel SAIC Company
CFR	Code of Federal Regulations
CRCF	Canister Receipt and Closure Facility (Yucca Mountain)
CRD	Civilian Radioactive Waste Management System Requirements Document
CSB	Canister Storage Building (SRS)
CWI	CH2M/Washington Group Idaho, LLC (ICP Contractor at INL)
DOE	U.S. Department of Energy
DTF	Dry Transfer Facility (YMP)
DWPF	Defense Waste Processing Facility (SRS glassification facility)
EA	Environmental Assessment
EIS	Environmental Impact Statement
EM	DOE Office of Environmental Management
EPA	Environmental Protection Agency
FAST	Fluorinel Dissolution Process and Fuel Storage (INTEC)
FFTF	Fast-Flux Test Facility (Hanford)
FHF	Fuel Handling Facility (YMP)
FRR	Foreign Research Reactor
FW	Foster Wheeler (Proposed packaging and storage facility at INL)
GC	General Council
GROA	Geologic Repository Operating Area – Yucca Mountain. (Includes all area covered by the 10CFR63)
HEU	High Enriched Uranium
HFIR	High-Flux Isotope Reactor (ORNL)
HIC	High Integrity Canister (Proposed design for 'cats & dogs' SNF)
HIP	Hot Isostatic Press
HLW	High Level Waste
HQ	DOE Headquarters
IAS	Integrated Acceptance Schedule
ICP	Idaho Clean-up Project
IHF	Initial Handling Facility (Yucca Mountain)
IHLW	Immobilized High Level Waste (IHLW)
INL	Idaho National Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
LA	License Application (YMP)
LaBs	Lanthanide Borosilicate Glass
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
LWBR	Light Water Breeder Reactor
MCO	Multi-Canister Overpack (Hanford)
MFC	Materials & Fuels Complex (INL - Formerly ANL-W)

MOA	Memorandum of Agreement
MOX	Mixed Oxide
MTHM	Metric Tons of Heavy Metal
MTRE	Material Test Reactor Equivalent
NAC-LWT	Nuclear Assurance Corporation-Legal Weight Truck
NAS	National Academy of Science
NNSA	National Nuclear Security Administration
NR	Naval Reactors
NRC	Nuclear Regulatory Commission
NSNFP	National Spent Nuclear Fuel Program
NWPA	Nuclear Waste Policy Act
OCRWM	Office of Civilian Radioactive Waste (RW) Management
OET	Office of Engineering and Technology
ORD	Office of Repository Development (DOE)
ORP	Office of River Protection (Hanford)
PNNL	Pacific Northwest National Lab (Richland)
QA	Quality Assurance
QARD	Quality Assurance Requirements Document
R&D	Research & Development
RCRA	Resource Conservation and Recovery Act
RERTR	Reduced Enrichment Research and Test Reactor
RH TRU	Remote-Handled Transuranic (waste)
ROD	Record of Decision
RW	See OCRWM
RWMC	Radioactive Waste Management Complex (INL)
SAR	Safety Analysis Report
SBW	Sodium Bearing Waste
SNF	Spent Nuclear Fuel
SNL	Sandia National Laboratory
SRS	Savannah River Site
TAD	Transportation, Aging, and Disposal (Canister for commercial use)
TQAP	Transportation Quality Assurance Plan
TRU	Transuranic Waste
TSM	Total System Model
TSLCC	Total System Life Cycle Cost
TSPA	Total System Performance Assessment
WAC	Waste Acceptance Criteria
WHF	Waste Handling Facility (Hanford)
WP	Waste Package (YMP)
WSRC	Westinghouse Savannah River Complex
WTP	Waste Treatment Plant (Proposed facility at Hanford)
YMP	Yucca Mountain Project