

May 25, 2006

MEMORANDUM TO: ACNW Members

FROM: Michael R. Snodderly, Chief **/RA/**
Technical Support Branch, ACRS/ACNW

SUBJECT: TRIP REPORT ON NEI DRY STORAGE INFORMATION FORUM,
MAY 9-11, 2006 BY ACNW STAFF ANTONIO F. DIAS

Attached is Dr. Dias' trip report to the NEI Dry Storage Forum held in Key Biscayne, Florida, on May 9-11, 2006. This trip report includes the Agenda and the Participants List.

cc: J. Larkins
A. Thadani
ACNW Staff
B. Sosa
S. Jones

Attachments:

- 1) Trip Report
- 2) NEI Agenda
- 3) Participants List
- 4) Addendum Participants List

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**Trip Report on the
NEI Dry Storage Information Forum
held in Key Biscayne, Florida, on May 9 – 11, 2006**

On May 9 through 11, 2006 Antonio Dias attended a Dry Cask Storage Information Forum in Key Biscayne, Florida. The meeting was sponsored by the Nuclear Energy Institute (NEI) and its main goal was the exchange of information among nuclear plant fuel managers, vendors, service providers, regulators, researchers and industry representatives. The meeting agenda as well as the list of attendees (more than 200) is provided as an attachment. Also to be provided in the near future is a CD containing slides from all the presentations during the 3-days meeting. This CD is not available yet and should soon be received from NEI, the meeting sponsor. Of most interest for the ACNW were two sessions where issues related to Yucca Mountain and transportation, aging & disposal (TAD) canisters were discussed. Following are some notes from these two sessions:

Panel Session II (on Wednesday May 10 from 1:30 to 3:00pm):

Technical Challenges in TAD Canister Design and Licensing, Including Materials, Criticality Analysis, Potential Canister/Cask Drop Loads and Thermal Requirements

Chair: Rod McCullum (NEI)

Panelists: Marissa Bailey (NRC)
Adam Levin (Exelon)
John Kessler (EPRI)
Robert Quinn (EnergySolutions)
David Zabransky (DOE OCRWM)

Rod McCullum's opening statements:

DOE performance specification about TAD is near the end. Application needs to be built on performance requirements and not on a TAD design per se. DOE wants competition among possible vendors and expects multiple designs for TADs. Performance specifications need to be well defined to support NRC's review of applications. Part 63 & 71/72 reviews to be pursued separately. Need to minimize licensing risks.

Marissa Bailey's statements on Considerations for HLW Repository:

TAD specifications are being influenced by utility needs as well as performance based assessment. To cut down in regulatory risk, it's important for DOE to get regulatory feedback early and often, which is currently happening.

The following scenarios are expected for the TAD canister in the Geological Repository Operations Area (GROA):

- Canister arrives in NRC-certified transportation cask
- Canister transferred to waste package or aging cask
- Aging cask placed in aging pad
- Waste package emplaced in drifts

- Permanent closure

The first three bullets above are similar to Part 71/72 operation procedures. This simplifies NRC's review effort but, under Part 63, these operations are not immediately acceptable.

Pre-closure considerations: DOE must identify whether TAD design is important to safety, identifying potential hazards, initializing events, event sequences and consequences.

Post-closure considerations: DOE must determine importance of TAD canister to waste isolation, addressing its features, events, processes and their effects. There is a concern about effect of water chemistry on spent fuel dissolution as well as criticality. DOE seems to be taking credit for cladding barrier capability. There is a need to establish temperature limits as well as definition of damaged fuel. There is a need to address how cladding will assure that criticality calculations do not need to be performed.

Key Message: Performance specifications need to be linked to pre-closure safety analysis as well as post-closure safety assessment. NRC, DOE & industry do not want a cask that's OK for transportation & storage but not for disposal. NRC must ensure no conflicting regulations. NRC formed a Technical Advisory Group to support this effort.

Adam Levin's statements on Utility's Perspectives:

Among utilities, there is a strong support for handling bare used fuel one time only. He recognizes and appreciates simplification of YM surface facility design brought in by the TAD approach. However, the "devil is in the details": licensing complexities when satisfying Parts 63 & 71/72, together with the choice of exotic materials & fabrication may lead to high costs. No one wants ISFSI operations more complex than what is performed with current cask designs.

Licensing and commercial milestones are required before utilities will commit to procurement of TADs. DOE must accept all responsibilities for obtaining Part 63 license.

Robert Quinn's statements on Canister/Cask Event Scenarios:

Part 63 handling events include 23-foot drop of cask and bare canister onto unyielding surface. Parts 71/72 use different events but only cask drop is considered. Assuming such events apply to TADs, a probabilistic assessment and consequence analysis will be required to support Part 63 performance. Where would NRC expect to see demonstration of safety margins in TAD canister and cask? Challenge: NRC Technical Review effort must be consistent under Parts 63 & 71/72.

John Kessler's comments on Post-Closure Criticality Issues:

DOE must consider criticality for at least 10,000 years after repository closure. Criticality can be screened out if probability is very low. Otherwise one must do criticality consequence analysis, which brings up issues like: spent fuel condition thousands of years from now, effects of nearby packages, enhanced source term. DOE's current approach is conservative, so it is more difficult. Note that there is a low probability of waste package failure, a low probability of water entry/accumulation in failed waste package. At the same time, it is difficult to

demonstrate that current neutron absorber material will retain geometry. Suggestion: DOE to change approach.

David Zabransky's comments on TAD Cask System Development & Implementation:

DOE is considering providing incentives for early use of TADs by industry. TAD standardizes at-reactor SNF storage, transport, adding and disposal. When repository site is approved, DOE will procure TADs and deliver them to utilities.

TAD performance-based specifications to come out later this summer addressing: canister, transportation overpack, transportation skid, ancillary equipment, shielded transfer cask, aging overpack, aging system on-site transporter. Specs may also include other requirements to improve efficiency of TAD system operations at the repository.

What utilities will do at their sites is up to them. Cask vendors will work directly with utilities and NRC in order to receive certification for Parts 71/72. DOE is responsible for demonstrating compliance under Part 63. Any modification that results from NRC's review process will be communicated to vendors.

Question: Who pays for the TADs? DOE will not pay for onsite storage due to recent court ruling. Can utilities sell TADs back to DOE by shipping time?

Answer: no firm information

Question: How is DOE considering TAD's effects onto profits for vendors?

Answer: no firm information

Question: TADs may require 10 years of aging. Is DOE looking at all utilities and how this will affect them?

Answer: TAD may not be for everybody.

Question: How is back fitting going to be addressed? There is plenty of non-TAD stored fuel.

Answer: DOE's current position is these canisters will not be acceptable. It will depend on future agreements among interested parties. TADs will hold 21 PWR fuel assemblies and 44 BWR fuel assemblies.

Question: Why should utilities buy TADs ahead of time? What economic incentives are there? How do utilities go around the storage compensation that's being provided to Exelon?

Answer: no firm information

Question: Will DOE need to wait for Part 63 acceptance before it starts supporting TADs?

Answer: This is a balancing act. DOE may weigh the risk of when to fully support cask fabrication.

Session on Yucca Mountain Project (on Thursday, May 11 from 8:30 to 9:50am)

Chair: Steven Kraft (NEI)

Participants: Christopher Kouts (DOE OCRWM)
Lawrence Kokajko (NRC)
John Kessler (EPRI)
Rod McCullum (NEI)

Christopher Kouts' presentation on Status of OCRWM Program:

Summary of current activities: Schedule for license submittal will be out later this summer, after approval within DOE. DOE is moving forward with rail line (through Caliente) with an estimated cost of \$2 billion. The draft EIS for the rail line will be issued in the near future. One of Golan's main concerns is the safety of people on YM site, which led to improvements in site infrastructure such as phone lines, roads, fire protection, etc.

Note that DOE is still waiting for EPA standards & funding availability before it submits the license application.

TAD canister approach effort: spent fuel will primarily be delivered to site for aging and emplacement underground. TAD performance specifications are under development with Sandia as the lead laboratory, since it was so successful with permit for WIPP. Recently, Golan chose to have Oak Ridge as an independent reviewer of the technical work.

Recently Proposed Legislation has several aspects of interest for YM:

The permanent Land Withdrawal satisfies NRC licensing requirement. There would be no need to demonstrate permanent contract. Note that, currently, public lands are on 20 years cycle. The new law consolidates land control under the Secretary of Energy.

The new Licensing Capacity Limit repeals the original 70000 MTU. This current limit does not allow the maximum use of YM even if no new reactors are deployed. The 2002 EIS analyzed 120000 MTU. Preliminary studies indicate the site can hold a lot more.

Under Licensing, the new law allows for a more direct process by clarifying that the license application needs to address only those surface facilities required for initial operation of the repository. This eliminates a duplicate NEPA review. Later amendments will be provided in future. This new law facilitates prompt licensing, construction and operation.

The new law authorizes the Secretary of Energy to undertake activities necessary for waste disposal. These Infrastructure activities include site preparation, utilities, communications, rail line... Some of these activities may be funded with the Nuclear Waste Fund (NWF). Some of these activities could start ahead of NRC's approval for the repository.

The new law proposes Funding Reform by designating annual fees from utilities as discretionary off-setting collections. This is an easier funding process, with any excess not being used for other areas. It also clarifies the availability of the NWF.

The new law eliminates duplicative Regulatory Requirements reviews under RCRA when NRC-licensed containers and materials are used. Note that standards for WIPP and YM both exceed RCRA standards. It removes state (Nevada) regulatory status and eliminates

potential for regulatory delays without compromising the level of protection for public health and safety and the environment.

The new law clarifies that the Secretary of Energy can exercise authority under the Atomic Energy Act when addressing Transportation Safety and Security issues.

In the Water Provisions area, the new law declares the use of water for YM to be beneficial to interstate commerce and not detrimental to public interest. It places the Federal Government on equal footing with others seeking to appropriate water.

Under Waste Confidence, the new law allows licensees for new reactors (or life extension) to be considered to use YM.

Even considering GNEP, YM is still needed under any fuel scenario. Reprocessing may reduce heat loads, waste volume, and amount of long-lived radionuclides, but a repository site will still be needed.

Lawrence Kokajko's presentation on NRC YM Pre-licensing Activities:

Pre-licensing activities: consultation w/ DOE & stakeholders, development of standards, regulatory compliance, preparing for conduct of proceeding.

Pre-licensing consultations: monitor changes to DOE's repository program, monitor Q&A and technical issues, identify important technical and regulatory issues and pursue public interaction with DOE.

Part 63 is geared for repository only. It has little to do with TAD design.

Proposed public exchanges:

- PCSA
- Level of information
- Reliability of structures, systems & components
- DOE's seismic design methodology
- TAD canister
- Aircraft hazards
- Pre-closure source terms
- USGS matter
- OST&I
- Corrective action program
- TSPA (in the near future)

John Kessler's presentation on YM's areas of interest:

Future EPRI's works:

- Importance of colloid-aided transport (2006)
- Simplified approach to near-field geochemistry (2006)
- Revision of earlier EPRI reprocessing work (2006)

- Independent YM capacity estimate (2006)
- Continue prioritization and review of Licensing Support Network (LSN) documents

Final comments: Reprocessing provides lots of opportunities for adjustments to YM plans.

Rod McCullum's presentation on Industry Perspective on YM:

Expect license to arrive at NRC by end of 2007. The review process will be OK. It's the hearing process that may consume a lot of time. For instance, the state of Nevada can strongly participate in it. Expect fuel moving into YM by 2020 approximately, assuming 5 years for DOE to build the site (2014 to 2019). Optimistically, it can still happen in 2015, with new legislation. In fact, this Administration's new legislative proposal can be of help for the whole process that is to come. YM may be the only repository we will ever need.