National Transportation Stakeholders Forum
Denver, Colorado
May 11-12, 2011

Meeting Summary Notes

The second annual meeting of the National Transportation Stakeholders Forum (NTSF) was held in Denver, Colorado, and was hosted by the Western Governors' Association.

Day 1, May 11, 2011

OPENING PLENARY, Keynote: Cynthia Anderson, Chief Operating Officer, Office of Environmental Management, DOE – A Journey to Excellence

Ms. Anderson spoke about the Office of Environmental Management's (EM) Journey to Excellence. The mission of EM is to safely transform the environmental legacy of the Cold War into assets available for the Nation's future by completing quality cleanup work on schedule and within cost, delivering demonstrated value to the American taxpayer. Priorities for EM include:

- Activities to maintain a safe, secure, and compliant posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal
- Spent (used) nuclear fuel storage, receipt, and disposition
- Special nuclear material consolidation, processing, and disposition
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities decontamination and decommissioning (D&D)

Ms. Anderson stated that, building on the momentum from the American Recovery and Reinvestment Act (ARRA), EM will:

- Complete the three major tank waste construction projects
- Reduce the life-cycle costs
- Disposition 90% of legacy TRU waste by 2015
- Shrink the EM legacy footprint 90% by 2015

EM has a clear vision for the future. In 1989, EM had 110 sites in 35 states. Today, there are only 18 sites remaining in 11 states and the vision for 2020 is one remaining site – Hanford – with some other minor cleanup of legacy waste in 8 states. Although EM has achieved much, Ms. Anderson said EM must focus on what needs to be done.

Transportation: One of the most important components for the cleanup activities is transportation. EM uses both on and off site disposal, treatment and storage. Partnerships with corridor the states and tribes has contributed to the completion of over 100,000 safe and compliant shipments since 2004 traveling over 83,000,000 miles. EM has learned the importance of communication and transparency and uses forums such as the NTSF for that purpose.

The Office of Packaging and Transportation is tasked with DOE-wide responsibility to develop the systems and technologies to ensure packaging and transportation activities are safe, economical, efficient, secure, and meet applicable regulatory requirements; resolve packaging and transportation issues safely, economically, and promptly; and develop, manage, and coordinate policies and procedures for packaging and transportation activities for DOE materials, including hazardous materials (particularly radioactive), substances, and wastes.

Another important component that involves transportation is the safe shipment of TRU waste. All legacy TRU waste will be shipped to WIPP by 2020, except for Hanford. To date, 65% of the legacy TRU waste has been disposed at WIPP and EM is planning to complete 90% by 2015.

ARRA: ARRA demonstrated value through $7B in future savings and cost avoidance, created or saved more than 11,000 jobs. Ms. Anderson said $1.8B in Recovery Act funds were awarded to small businesses, in addition to $1.7B in Base funding awarded to small businesses in FY10.
RAM waste priorities – transportation issues

On the subject of low-level waste disposal, Ms. Anderson said Waste Control Specialists (WCS) in TX could be another avenue for EM to dispose of waste. A new mixed waste disposal cell has been constructed at the Nevada National Security Site (NNSS).

Ms. Anderson's presentation concluded with a video on EM progress. You may view video on the NTSF website at: http://www.em.doe.gov/Pages/Spring11NTSF.aspx

Questions & answers:

Q. Bill Craig, State of Utah: Is EM still holding to the zero tolerance policy at the disposal sites? The concern is that if the policy is to return noncompliant shipments back to the generator site, there is a potential impact to the safety and risks because you are increasing the miles traveled and time on the road.

A. Yes – EM still has the zero tolerance policy and noncompliant shipments will be returned to the generator site. This was implemented primarily for shipments that arrived at NNSS that did not meet the Waste Acceptance Criteria. Based on concerns raised by the states about the risks, a subsequent letter was issued to the sites stating the need for returning the shipment would be reviewed on a case by case basis. At no time would a noncompliant package be put back on the road. The disposal sites just do not have the resources to handle noncompliant shipments and the responsibility has to rest with the generator sites.

Q. Bob Halstead, State of NV: Enjoyed the presentation, one of the best on EM progress. Two items that were not covered: (1) the pending budget crisis – will EM be able to stay on track with cleanup; and (2) for transportation activities, will EM continue the commitment to extra regulatory transportation (WIPP model)? One of the real successes has been the collaborative efforts with the State Regional Groups (SRGs) and tribes, and there is really a need to maintain the effort of at least the NTSF and the funding for the SRGs since they are the only ones that address the transportation activities of the massive cleanup program.

A. EM is working with OMB and the Hill on the 2011 and 2012 budget. In 2011, we have a 6 percent cut. EM is reviewing their budget to ensure compliance activities, including the commitment to safe and compliant transportation activities. While we have a 2020 vision, it is just that, a vision. One of the valuable lessons learned during the ARRA activities was the importance for communication with our stakeholders (both states and tribes). The message will be taken back to EM-1 about the need to continue these important activities.

Q. Willie Preacher, Shoshone-Bannock: On one of your slides, you state that transportation uses air for shipments. What is shipped by air?

A. Air shipments include samples, radioisotopes for medical purposes, and sources, shipped primarily by the Office of Science and NNSA.

Q. Jane Beetem, State of MO: We are one of the transportation corridor states and I would like to follow up with some of Bob's comments. In a number of your slides, you stress the importance of the coordination and collaboration with the stakeholders. With the closure of the Office of Civilian Radioactive Waste Management, a major source of funding for the SRGs and tribes was lost (about two-thirds of the funding). While we recognize that EM has taken a 6 percent reduction and that is difficult to absorb across the board, is there a way for EM to assist us to ensure the continued dialog with the states and tribes?

A. I understand your comments and will take your concerns back to EM-1.

Q. John Heaton, New Mexico: With EM's 2020 vision for cleanup, leaving just Hanford, does this include high level waste? There appears to be no clear path for HLW so how will EM accomplish the 2020 vision? What is EM doing to get funding for the research side to identify a repository – the best opportunity at this point is salt – but NE is the financing source for research, so how are you going to get EM funding into the research to get the final repository designated?

A. The 2020 vision was for the WIPP TRU waste and the site cleanup activities. The decision for final disposition of HLW rests with the Secretary of Energy and the White House, which established the Blue Ribbon Commission to look into this issue, which will be issuing their final recommendations in the next several months. The funding issue for research rests with DOE's Office of Nuclear Energy (NE). The goal for EM is to have the legacy waste from the sites cleaned up. For those materials/wastes with no disposition path, they will be in a safe storage configuration and will be monitored until a path is identified. It should be noted that EM had a White House goal of achieving 40% cleanup of sites by 2011. To date, EM has surpassed that goal and has achieved 45%.

Q. Melanie Rasumusson, State of Iowa: Throughout the presentations, we have heard about the notable success in the area of transportation, and stressed the vigilance, communication, and partnerships with DOE and the stakeholders that have contributed to that success through the dedication of the collaboration of DOE with the states and tribes. All of us in this room are dedicated and motivated to the project because it creates safety for the public and the continued success in our states and tribes; however, while we appreciate the issues with budget cuts, we do feel that some key personnel are absent from this meeting and we feel it is important to have the

face to face meetings. While these individuals make themselves available by phone on a regular basis, we believe the success of meetings such as this is dependent upon having the key individuals in attendance.

A. We agree with you on the value of having key DOE staff members here at the meetings because of the value of the face to face meeting and networking, and the take aways that lead to follow-up activities when they return to their offices. It is unfortunate that due to budget cuts we were limited on the number of attendees. We will look for ways to ensure we have key individuals in attendance at meetings such as this.

Q. Tammy Ottmer, State of CO: Do you have any plans for developing a lessons learned paper on the recent issue surrounding the community of Antonito, CO? This was a situation where a new route was being used, and a new mode of transport using a transload facility in Antonito. The community was not involved in the planning for these shipments and was surprised when placarded Class 7 shipments began rolling into their small community. Lawsuits were filed and the shipments were halted. We know that early involvement is a key to success of the transportation activities, and feel a lessons learned paper would be appropriate.

A. We agree a lesson learned paper would be good to develop, and when we get back we will look into having that done. We have addressed with this our field sites through our monthly conference calls, but a paper is a good way to ensure our sites understand the importance of the planning activities that are outlined in the DOE M 460.2-1.

Q. Tim Runyon, State of IL: Following up with what others have said, we are disappointed that key individuals are not here, and wonder how those decisions are made. We understand about budget cuts, and we appreciate the positive comments here today. As I look around the room, I see a lot of familiar faces representing significant institutional memory and experience. We lost a good partner and funding source when RW went away – and our focus is now on EM. Although we have always been engaged with EM, we feel it is important that other programs step up. Funding for the continuation of the SRGs is small when you consider the wealth of experience. To put it into perspective, the funding for the groups is probably less than one month's rental on the 10-160B.

A. We have heard you and agree with you 100 percent. We will carry the message back to EM-1 about the need for the continued support of these types of activities.

Q. Alex Schroeder, WGA: Much as been discussed here today about the cleanup efforts and the effect of the ARRA funding. We understand the issue of budget reductions, and wonder if EM has done any sort of analysis on the impact of budget reductions based on commitments to the states, compliance milestones, etc., and if this has been communicated to Congress and the administration.

A. EM has developed an analysis and business plan on how to address our cleanup commitments to the states and our compliance agreements with reduced budgets. EM-1 and others have been at many meetings on the Hill to discuss the funding issues. We recognize that given our country's

economy, budgets will not be the same, but we are working to make the case about addressing our commitments to ensure cleanup activities continue.

NTSF ACTIVITIES AND ACCOMPLISHMENTS: Stephen O'Connor, Director, Office of Packaging and Transportation, EM-45; Lisa Janairo, Senior Policy Analyst, Council of State Governments-Midwest

This session covered the progress since the first NTSF meeting held one year ago. The NTSF was established to bring together all parties – states and tribes, other federal agencies, DOE – to address the Department's packaging and transportation issues in a collaborative manner. Feedback from the first NTSF meeting identified key emerging issues and led to the establishment of several working groups and holding focused webinars on topics of interest.

Working Groups: There were four working groups established:

- ***Financial Guidance***: Jane Beetem led this effort, with support from all the regions and tribes as well. States and Tribes provided recommendations for development of a guidance document that WIPP will use for those receiving financial assistance from CBFO. Recommendations were provided in February, and CBFO is working on the guidance document.
- ***Prospective Shipment Report (PSR) Improvements***: Lisa Janairo led this effort with support from Ella McNeil and Julia Donkin, EM-45, as well as the four regional groups and several of the tribes. The PSR is produced twice a year by EM and it identifies shipments meeting a certain threshold for long term planning purposes. The purpose of the group was to look at improvements to this document that has been in use since the early 90's. The group identified suggested changes, and EM-45 incorporated those comments into a new format, which was demonstrated through a webinar. The recommendations have been submitted to EM and are awaiting final adjudication.
- ***Notification***: Led by Cort Richardson, with support from the four regional groups, tribes, and DOE, this group will be looking at the current notification requirements for shipments (not to be confused with communication information from PSR) and looking to see if there are any improvement recommendations.
- ***Communications***: Led by Ken Niles and Lisa Janairo, with support from the four regional groups and tribes, this group will be providing input to DOE on developing, revising, or improving fact sheets, videos, and other information products. The group has already provided input to CBFO on a draft communications plan.

Webinars: The NTSF identified topics that would be suitable for webinars. The NTSF Planning Committee has recommended conducting webinars on a quarterly basis. During the past year, we conducted two webinars:

November 17, 2010, RFID Demonstration and TRANSCOM Enhancements: Our first NTSF webinar was attended by 47 people, and covered two topics that deal with monitoring of packages and shipments:

- Our first presenter was Dr. Yung Liu, Manager of the Packaging Certification and Life Cycle Management Group of Argonne National Laboratory, which supports the DOE Packaging Certification Program within the Office of Environmental Management. Dr. Liu discussed their

efforts in the development and use of Radio Frequency Identification for life cycle management of nuclear materials in storage and transportation.

- Our second presenter was Sharon Taylor, TRANSCOM Project Manager with Ma-Chis Tribal Company which provides oversight of the TRANSCOM Communication Center. TRANSCOM is the Department's system for monitoring shipments while en route. Ms. Taylor discussed a major System Upgrade and reviewed enhancements that have been made to the existing TRANSCOM system during 2010.

February 24, 2011, Communications for Waste Movements: Our second webinar was attended by 36 people and covered two tools that are used to communicate information to stakeholders about upcoming waste/material movements:

- The first present was Jonathan Kang, Office of Disposal Operations, EM-43, who discussed the Mixed/LLW Forecast: Baseline Disposition Data and Waste Information Management System (WIMS). WIMS is a publicly available system that identifies the generator sites for waste streams and the proposed disposition path.
- The second presenter was Julia Donkin, Office of Packaging and Transportation, EM-45, who discussed the recommendations from the PSR Working Group for improvements of the PSR. The webinar allowed Ms. Donkin to demonstrate the newly proposed format for the PSR.

The slides for both webinars, as well as a recording for the second one can be found on the wiki site. This is our third big accomplishment since the NTSF meeting in 2010. The wiki site is maintained by the Council of State Governments-Midwest; however, anyone with editing privileges can post pertinent information to the site (training info, exercise photos, etc.), post comments on the comments. The wiki allows everyone to stay connected and up to date on the working groups, webinars, and other activities occurring under the NTSF. It includes ad hoc working group call summaries and documents for review, information on DOE and other federal agency activities (e.g., NRC rulemaking). The wiki is a private site that requires participants to "join" in order to access pages. Instructions are available at: http://www.csgmidwest.org/MRMTP/documents/WikiInstructions.pdf. If anyone needs assistance joining the site, contact Lisa Janairo, ljanairo@csg.org.

NTSF Planning Committee: Overseeing all this work is the NTSF Planning Committee, which includes representatives from the tribes, four regional groups, various program offices with DOE, and NCSL. The purpose of the planning committee is to develop the agenda for the NTSF, decide on working groups and webinars, and to generally keep everything running. The official NTSF website is located at http://www.em.doe.gov/Pages/NationalTransportationForum.aspx. This houses the information on the meeting, the presentations, and the meeting summary.

Q. Earl Easton, NRC: I can see value to changing this group slightly to a DOE-NE/EM/NRC focus, to deal with spent nuclear fuel. The Blue Ribbon Commission will be coming out with their report in July and it seems prudent to keep the experts (those in this room) intact to address the possible results of the BRC, which may include extended storage or transportation for interim storage. Has any consideration been given to extend an invitation to NE joining this group, and NRC has interest and perhaps funding, to morph this group? It is something that should start quickly; what impediments do you see or have you encountered?

A. We have approached NE about the participation in the NTSF; however, prior to the final BRC report, NE is in stand down for transportation. However, this is not an EM NTSF – it is intended to be DOE-wide, which is why in the next session you will hear from NNSA and others. We have invited the other DOE program offices to the meeting, and have met with mixed success.

Q. Earl Easton, NRC: I know that NE is already working on long-term storage, developmental research, etc., and would not wait for the issuance of the BRC report to engage NE in discussions.

A. We are involved with them in the extended storage issues and what that will mean for transportation, an EPRI-led effort that involves NRS, IAEA, NE, EM and others.

Q. Bob Halsted, State of NV: Following on to what Earl said, there appears to be difficulty in NE organization to address their new mission, and NE has not thought about interactions with stakeholders beyond industry. So one thing you can offer and I believe is valuable is the NTSF as a way to complement what NRC and NE are doing in the spent fuel arena.

A. I agree, and we will take that as a take away to establish relationships with NE.

PANEL ON DOE PLANNED SHIPMENTS

Stephen O'Connor, Director, Office of Packaging and Transportation, EM-45:
Mr. O'Connor provided an overview of EM shipping activities over the past couple of years and planned shipping activities. With the American Reinvestment and Recovery Act (ARRA) funding, EM saw a significant increase in the number of shipments in Fiscal Year (FY) 2011, and this trend is expected to continue through the end of the FY:

	FY 2009	FY 2010	FY 2011*
TRU Waste	970	1,180	450
LLW	4,800	16,150	7,170
MLLW	530	420	170
Other	400	250	10
Total	**6,700**	**18,000**	**7,800**

To highlight some of the shipping activities:

- EM continues to work at the Moab UMTRA Project, which is responsible for relocating 16 million tons of uranium mill tailings at the former uranium-ore processing facility near Moab, Utah, by rail to an engineered disposal cell 30 miles north at Crescent Junction, Utah. Because of ARRA funding, the Moab Project continues to exceed its production rate and expects to hit the 4-million-ton milestone in early June. To date, the project has hauled 1,353,877 base tons and 2,234,724 ARRA tons, for a total of 3,588,600 tons of residual radioactive material from the Moab site to the Crescent Junction disposal site. The current base project is scheduled for completion in 2025.

- LLW/MLLW waste shipments continue to be sent to NNSS for disposal from DOE's major shipping sites: Oak Ridge (OR), Savannah River (SR), Brookhaven National Laboratory (BNL), Portsmouth and Paducah (PPPO), Idaho (ID), Hanford (RL), etc. A major activity has been the shipment of depleted uranium oxide from the SR to NNS for disposal. DOE has completed 169 truck shipments (24 drums per truck placed in supersaks) from SRS to NNSS of DUO, with about 211 shipments remaining. The shipments are expected to be completed before the end of FY 2011.

We routinely evaluate how we are doing against our industry counterparts. One organization we benchmark against is the American Chemistry Council. This group is a consortium of chemical companies who partner to share data on safety metrics and other information. Even with the increase in our shipments, our 49 CFR 390.15 reportable accident rate of about 0.12 percent remains well below the American Chemistry Council partner averages of about 0.5 percent.

Future shipping activities that EM will be working on with the states and tribes include:

- Shipment of the West Valley Demonstration Project (WVDP) Melter. This is Waste Incidental to Reprocessing and was used to solidify 600,000 gallons of liquid radioactive waste into glass by vitrification process (1996–2002) per the WVDP Act. The electrodes have been removed; the melter was removed from the Vitrification Cell, and packaged and placed on a hardstand for shipment. Radioactivity in the Melter waste package will not exceed Class C concentration limits. The Melter waste package will be in solid physical form and grouted for stability. The Melter waste package will be managed and disposed at an offsite low-level radioactive waste disposal facility in accordance with applicable requirements for low-level waste.

- Construction on the conversion facilities is nearing completion at Paducah and Portsmouth. The two Depleted Uranium Hexafluoride (DUF6) conversion plants are intended to prepare a total of 700,000 metric tons of material stored in thousands of cylinders at the two sites for disposition. The two plants are expected to operate for up to 25 years. Plants are still going thru operational readiness and are expected to begin full operation in CY 2011. No disposal path has yet been identified for the DUO. EM will store the DUO cylinders onsite for up to 18 months once production begins.

The DOE Directives Management System is undergoing changes and has eliminated the use of manuals. DOE Manual 460.2-1, *Radioactive Material Transportation Practices Manual,* will be incorporated into the revision of existing DOE Order 460.2, *Departmental Materials Transportation and Packaging Management.* Through the NTSF, a working group will be established to review the revisions to the Manual.

EM has convened a development team (from DOE program offices) to begin work on drafting a new order to establish physical protection requirements for the transportation of irradiated reactor fuel. DOE must follow the NRC requirements for all shipments that involved NRC licensed material (e.g. Research Reactor and Test Reactor Fuel). DOE will adopt equivalent requirements to 10 CFR 73.37 for all other shipments with the following differences:

- Reporting to DOE Operations Center

- Clearing drivers using DOE security processes
- Using local law enforcement agencies for escorts
- Limiting use of immobilization devices on conveyances

J. R. Stroble, Director, National TRU Program, CBFO: Mr. Stroble is the newly appointed Director for the National TRU Program, having taken Casey Gadbury's place. Mr. Stroble stated this was his first time meeting many of the attendees, and he looks forward to working with everyone in the future. Points covered included:

- Successes of the WIPP program, including the number of shipments completed to date since WIPP opened – over 11,000 shipments.
- WIPP will be issuing their revised TRU Transportation Plan later this year, which had input from the states and tribes.
- CBFO will have intersite CH-TRU shipments from NRD (Grand Island, NY) to ID this summer, as well as RH-TRU shipments from Bettis Atomic Power Laboratory in West Mifflin, PA.
- CBFO is projecting 48 intersite shipments this fiscal year, and 1,427 shipments to WIPP. Due to budget cuts, the number of shipments may decline in FY 2010. They will focus on the EM Journey to Excellent program goals.
- New containers include the gamma-shielded container assembly, which will be shipped in the HalfPACT. Use of this container offers flexibility in handling wastes. No date has been set to begin use of the new container.
- TRUPACT-III: Rectangular ISO container used for large TRU waste that will not fit into a TRUPACT-II. Certificate of Compliance issued by NRC on June 1, 2010. The TRUPACT-III will be used for SRS and expect to have five TRUPACT-III containers in use this year. Once SRS has completed their use of these containers, they will be available to other sites.
- CBFO completed a two-week roadshow of the TRUPACT-III along I-20 from SRS to WIPP.

Q. Jim Williams, WIEB: Will the waste that is shipped in the gamma-shielded container, which I believe is Remote Handled waste, be shipped as Contact Handled waste? Once at WIPP, is it placed in its own panel?

A. Waste that is shipped in the gamma shielded container assembly (SCA) is RH waste – the additional shielding allows us to ship it as CH waste in the HalfPACT. Once at WIPP, the containers can be placed on the floors like other CH waste and will not require emplacement in bore holes.

Q. Willie Preacher, Shone-Bannock: There is a potential for flooding of the Snake River in Idaho. Will that impact the WIPP shipments?

A. We will wait and see what happens. If there is flooding, we will work with the ID State Patrol (Capt. Reese) on how to handle the shipments.

Q. What is the range of surface dose rates for the gamma-shielded container, and where is that waste coming from?

A. The waste is on the lower end of the remote handled waste that will go into the gamma SCA. The higher end RH waste will still have to be shipped in the 72-B cask. Not sure where we will use the new container first. ID and ANL are candidates, but their programs are in motion now. We may want to save the CSA for Hanford RH waste. Much of that waste is not yet packaged, and the CSA could be used there. The advantage is that we have many more HalfPACTs than we do 72Bs, so we could double the amount of RH waste that we can currently ship.

Jeff Galan - Deputy Program Manager, U.S. Origin Nuclear Remove, National Nuclear Security Administration (NNSA): Mr. Galan discussed the Global Threat Reduction Initiative (GTRI) and the Current Status of Gap and U.S.-Origin Nuclear Fuel Removals 2011. This program used to be called the Foreign Research Reactor (FRR) Program. GTRI is a part of President Obama's comprehensive strategy to prevent nuclear terrorism and is the key organization responsible for implementing the U.S. highly enriched uranium (HEU) minimization policy. The mission for the GTRI is to reduce and protect vulnerable nuclear and radiological material located at civilian sites worldwide. To accomplish the mission, NNSA:

- Converts research reactors and isotope production facilities from the use of HEU to low enriched uranium (LEU);
- Removes and disposes of excess nuclear and radiological materials; and
- Protects high priority nuclear and radiological materials from theft and sabotage.

Points addressed included:

- Presidential direction to secure all vulnerable nuclear material around the world in 4 years.
- 4,722 kilograms to be removed by 2016 via Three Removal Programs; 3,086 completed (65%)
    - Russian-origin: 2,420 kilograms by 2015; 1590 completed (66%) GTRI has expanded its ability to ship HEU spent fuel to Russia and can now ship spent fuel by rail, sea, and air
    - US-origin: 1,364 kilograms by 2014; 1,244 completed (91%)
    - Gap-material: 938 kilograms by 2016; 252 completed (27%)
- U.S-Origin Nuclear Remove Objective –the goal is remove or dispose of excess WMD-usable U.S.-origin nuclear materials located at civilian sites worldwide.
- US-Origin HEU Removal – formerly the FRR program. The scope is to repatriate U.S.-origin HEU and LEU spent nuclear fuel. A Program Environmental Impact Statement permits return of TRIGA fuel and MTR fuel to the U.S. The U.S. will accept eligible spent fuel that is irradiated by May 2016 and returned to the United States by May 2019.
- Gap Removal: Facilitates the disposition of high risk, vulnerable nuclear material not covered by other removal efforts if the required conditions are met. Since the program began in 2006, approximately 252 kilograms of HEU and plutonium have been removed from Belgium, Canada, Chile, Italy, the Netherlands, and other countries
- Several shipments coming up yet this year – one from Canada and one from South Africa. South Africa built their own nuclear weapons program in the 1980's and in the 1990's dismantled their program and are nuclear-weapon free. South Africa leads the world in isotope production – Molybdenum-99. They are the only country to use their reactor to make Mo-99 by using LEU and LEU targets.
- Recently completed a shipment from Chile. All remaining HEU from Chile removed –South America is effectively HEU free. The fuel was placed in the casks, sealed, and put into the ISO

containers awaiting shipment when the 8.8 earthquake hit Chile. The containers were undamaged, as expected, but the port that was to be used for shipping was severely damaged. Within 3 days, a new transportation plan was developed to allow for the shipment of the fuel.

Q. Ken Niles, State of OR: You mentioned the one FRR shipment that used the west coast port and said everything else has been through the east coast; however, you did not say if there are any plans for future use of a west coast port?

A. I know of no plans to use the west coast port.

Q. Tammy Ottmer, State of CO: You mentioned this program used to be in EM. All of us in this room were actively involved in the program at that time, and assisted in the development of transportation plans, etc. Since the program is under NNSA, will there be opportunities for our continued involvement?

A. I certainly think so, that is why we were invited to this forum and I will definitely mention this when I get back.

Q. Kevin Blackwell, FRA: Do shipments into the Charleston, SC, port travel by rail?

A. It depends on the number of casks – some by train with material to SR; some will go on to INL. Some materials will go direct from the port to the recovery site (for the source recoveries).

Ahmad Al-Daouk - Manager, Nuclear Security Department, NNSA: Discussed the recent reorganization of NNSA. The goal of the reorganization is to become more efficient, and reduce the redundancy of the various programs. Other topics included:

- NNSA Certifying Official Role: NNSA Certifying Official authority was delegated to the NNSA Service Center in November 2010 for Packaging and Transportation Safety Directive.
- Offsite Source Recovery Project (OSRP), Oversight by GTRI and implemented by Los Alamos National Laboratory, Idaho National Laboratory and the Conference of Radiation Control Program Directors. OSRP has been able to recover over 25,531 sources (803,274 Ci) from more than 900 sites.
- Waste Shipments: Shipping projections are lower than those from last year, primarily due to a decline in remediation work funded by the ARRA. Currently planned number of shipments for FY2011 –1,000 (with the majority by truck) and for FY2012 –1,100 (with the majority by truck)
- Office of Secure Transportation: Over three decades of safe, secure transport of nuclear weapons and special nuclear material to and from military locations; Over 140 million miles traveled; Over three decades of 235,000 flight hours of accident-free flying
- Nuclear Materials Management Planning: NNSA's vision is for required forms of nuclear materials to be available, when needed, throughout their life-cycle and to be properly disposed of when no longer required.
    - Goal 1 –Assured Supply
    - Goal 2 –Consolidation/Disposition of Excess Materials
    - National Strategic Plan, to be issued soon, will address DOE's approach to meeting these goals

- Antonito issue: NNSA hired a subcontractor to handle the shipments. They were assured they had received all permits, etc.; however, it is apparent that communication was not part of the plan. Once NNSA learned of the community's issues, the operation was suspended and will not restart until they are assured that communication is handled properly.

UPDATE FROM FEDERAL PARTNERS

Earl Easton, Division of Fuel Storage and Transportation, NRC: Mr. Easton spoke about Developing a Regulatory Framework for Extended Storage and Transportation. The take away is an invitation for everyone to become involved in the extended storage discussions. Points covered included:

- Current storage for SNF is 20 years, looking at extended that to 40 years. The oldest stored fuel in the U.S. is about 40 years. Extended storage will look at taking it to 100 years or beyond. Current regulatory framework requires an aging management plant.
- 63 licensed spent fuel storage facilities, 10 more than last year. Moving to dry storage is largely an economic decision for the site.
- If Congress passes a law that requires movement of spent fuel into dry storage after 5 years, estimates of Dry Cask Loadings needed are 600-800 loadings per year.
- Waste Confidence Decision Updated in 2010 for licensed life plus 60 years. Commission directed staff to prepare separate long-term update for beyond life plus 60 years
- Extended Storage and Transportation (EST) would result in potential changes to regulations and guidance and presents an opportunity to improve integration of storage and transportation regulations and guidance. Issues include:
- NRC is developing a regulatory framework to better support long-term dry storage
    - Initial phase Identify technical gaps
    - Define research program of laboratory studies, modeling, and analysis
    - Encourage cooperative research
- Coordinated with environmental impact analysis for long-term update of Waste Confidence
- Opportunities for stakeholder input through public meetings, workshops, and draft reports
- Planning a fall workshop at NRC; however, looking at potentially having the State Regional Groups conduct their own workshops on extended storage.

Comment: Mark Abkowitz, NWTRB: Just wanted to make everyone aware that NWTRB has already published a gap assessment entitled "Evaluation of Technical Basis for Long Term Storage," which is available on the NWTRB website.

Q. Ken Niles, State of OR: You sparked the interest within this room, can you lay out the next steps – if we are interested, what should we do?

A. We are in the early planning stages, as mentioned; we are planning a fall workshop at NRC. I am working on the communications portion, and we are in the process of working out the details. We don't want to be in front of the BRC, but we don't want to lag behind too far either.

Q. Jim Williams, WIEB: To what extent will this effort extend for disposition?

A. NRC is the regulatory agency and sets policy. For example if the regulations require reprocessing and the cladding remains intact, when reprocessed you just chop it up, put it in a vat, and dissolve it, then cladding doesn't have to remain intact. We are working on ways we can license equivalent safety, but we don't license reprocessing. We are there (NRC) to make sure what is done is safe, but we don't have a role in deciding the ultimate path for the fuel cycle.

Summary of the Breakout Sessions:

Summaries of the breakout sessions are available on the NTSF wiki site. Summaries of the Communications ad hoc working group meeting and the Notifications ad hoc working group meeting are also available on the site.

- **Using Technology to Dispatch and Monitor Shipments During Adverse Conditions:**
- **Enhancements to Shipment Security**
- **U.S. Department of Energy Training and Exercises: Naval Nuclear Propulsion Program, Transportation Emergency Preparedness Program, Waste Isolation Pilot Plant:**
- **Rail Topics: Rail Inspections and Implementation of Routing Regulations**

Day 2, May 12, 2011

DOE-Idaho's Packaging and Transportation Perspective, Richard Provencher, Manager, Idaho Operations Office: ID is involved in receiving and shipping offsite – as well as onsite site transfers. INL is a multi-program site run by NE. Both the Navy and Army have a presence there. Most of the shipment activities are EM, which is responsible for conducting cleanup activities. The ID settlement agreement dictates cleanup activities and what is to be sent offsite.

In 2010, ID received 5 SNF shipments from offsite locations and completed 250 CH-TRU shipments and 18 RH-TRU shipments – about 18 per week – to WIPP.

Much of the TRU waste came from Rocky Flats in the 1950-80 timeframe and was initially placed in shallow burial from 1950-60, and in the 1970's it was stacked in above ground storage. DOE's efforts are now on retrieval of that waste, which will be packaged, certified and shipped to WIPP. Over 60% has been shipped. TRU waste has also come from smaller sites – like NRD. The reason was to not replicate the elaborate certification and characterization efforts that currently exist at ID. ID also has a supercompacter, which can take the waste debris and compact it to a 7 to 1 reduction ratio, which reduces the number of overall shipments.

ID is building an onsite haul road to eliminate the need for shutting down Highway 20 for transfers between facilities. The haul road is a 13-mile construction project and will allow DOE to ship up to 100,000 pounds and connects all facilities.

EM has state of art wet storage basin on site and various dry storage facilities. There are about 200 types of SNF from various test reactors over the years. Over past 6 years, about 3,000 assemblies have been moved out of wet storage into dry storage.

ID receives SNF from the Foreign and Domestic Research Reactor (DRR) Program. There is one DRR receipt planned this year. Over the next 10 years, ID is expecting 10-20 DRR shipments and 16 FRR shipments.

ID has reached an agreement with the state of ID for the ability to receive small quantities of commercial SNF for research. This allows ID to expand material and fuel diagnostics.

Lessons Learned Panel

Bill Mackie - Institutional Affairs Manager, DOE Carlsbad Field Office:
One lesson we learned was to identify shipments in plenty of time to assure interaction with the state, tribal, and local communities. We try to identify shipments 12-18 months in advance of the shipment dates so we have time to meet with the state and tribal representatives and discuss the types of shipments, prospective dates of shipments, training available, proposed routes, and make available road shows. We found allowing a year gives plenty of time to get all training done and meet schedules. Once done, we have time to go back to the state to meet with the local elected officials and local emergency management officials to identify training needs. We try to do that within 8-12 months of shipments. While we are doing that, we send out trainers from WIPP into the state to provide MERRTT training, dispatcher training, and other training that is requested along the routes. Our goal is to satisfy all training needs across the state and have that done usually 30 days prior to the ship date. Another lesson learned is that we need to ensure states and tribes are notified and kept current on what we plan to ship. We do that in several ways. Twice a year we send out the semi-annual notification letter. And this will probably be the first indication in writing that we will ship. This will tell you origin sites and the number of shipments, but does not tell you when the shipments will begin. Then, 8 weeks prior to the actual shipment date we put the shipments on the 8-week rolling schedule. Fourteen days prior to shipping, we send a letter to the state governors and emergency management to notify them what we will be shipping, when, and the routes. Once shipments begin, and one of the biggest lessons we have learned, is to keep an open line of communication with the states, State Regional Groups, and tribes about the planned shipments.

Willie Preacher - Shoshone Bannock Tribe:
One of the biggest issues we have with the tribes is communication. WIPP has a process that deals with the tribes very well. Under the old Transportation External Coordination Working Group (TEC/WG), 44 tribes participated – when we were addressing waste to Yucca – now we are looking at different types of shipments. We need to make sure all the tribes are included on primary routes. Because of our close proximity to INL, we are well aware of their shipping activities, as you heard from Mr. Provencher. The Navy provides bi-monthly or quarterly meetings/presentations on their activities. Under the RW program, we were looking at a funding source called 180c; with NTSF, this is not the case. So the issue is who pays for training. Can tribes get training? Who pays? We need to be informed of the types of shipments, hazards, how to respond, who to notify if an accident happens on our reservation. We can respond at first, but who comes in to assist? What is an affected tribe? Tribes

need to communicate to DOE the treaty rights with the federal government for federally recognized tribes.

Del. Sally Jameson - Maryland Legislature:
The NCSL has been involved in forums such as this all the way back to 1984. These forums provide us the opportunity to bring to the table our concerns, and for you to share your concerns and to make recommendations. It is now a time when nuclear energy is having a resurgence. It is no longer just legacy cleanup issues, or issues of TRU waste; but all things nuclear – new technology, the ability to site new reactors. The breakout yesterday on training discussed recent training here in Denver. They showed a flow chart of what to do in the event of an incident – the first phone call, who calls, etc. As you follow all the communication, what it got to was the local and state officials. Make sure you are working with local leaders. If a truck going down the highway is involved in an accident, our constituents are not going to try to figure out if they call EM or 911. They will call local lawmakers. Agencies in this room don't often get an opportunity to interact with lawmakers. NCSL provides a unique opportunity to talk to people that need to get concerns to us.

Paul Schmidt - Radiation Protection Section Chief, Wisconsin Department of Health Services:
Unlike a number of states here, Wisconsin sees very few DOE shipments. In 2008, we were informed of two spent nuclear fuel shipments that would occur in 2009 and 2010 – part of the GTRI that we heard about yesterday. This was coming from the UW-Madison research reactor to ID. We had several considerations. No historical knowledge to take advantage of; the last time we made a shipment was 1986, and no one was one remaining to draw from. We are not a corridor state, so we have no existing infrastructure to develop transportation plans. We don't charge fees, conduct routine inspections, and we don't routinely provide escorts. We don't provide routine training along the transportation routes. So, no real experience to draw from for high activity shipments.

We were aware of issues in other states – political, media (demonstrations), sharing sensitive information. The shipment was originating from Madison, WI, which is declared a nuclear-free zone. The Radioactive Materials Work Group of representatives from emergency management, health & radiation control, and our DOT took on the task for spearheading planning. Some of things we did were to invite representatives from all involved parties for monthly work group meetings. We included the licensee, NRC, DOE, DOE contractors handling the shipments, Council of State Governments (CSG) -- any one we felt needed to be involved. We leaned heavily on the CSG Regional Group for advice, contacts, and documents. We used the Midwest's *Planning Guide* as a template for what we needed to consider, and scheduled a number of briefings and training sessions for all state and local entities that might be involved. We took extra efforts to ensure no one was left out. We informed appropriate management levels up to the Governor's office. We developed a transportation plan, a separate security plan, separate public information plan, and an information sharing protocol.

There are three lessons learned from this:

- We chose to be proactive rather than reactive to the media. The licensee developed a press release that was balanced and informative – discussed this was a refueling that would benefit the reactor, and provided details that covered the entire shipping campaign. The press release was reviewed by the work group. There was very little media interest and no protests.

- The next issue was, do we have DOE do everything, or do we become directly involved? We made the decision to become involved. We used state and local escorts, provided health physicist escorts, and conducted inspections before the shipments were put on the road. This process was beneficial to us in developing new relationships and in building our infrastructure.
- NRC safeguards information requirements needed special attention. The NRC provided an HQ expert to attend one participant training session to brief everyone on applicable requirements.

This all led to no problems or surprises. We had a nice safe, boring, successful shipping campaign.

***Lt. Jim Epperson - Commercial Vehicle Section, California Highway Patrol*:**
I would like to discuss the recent TRU waste campaigns out of LLNL & GE Vallecitos. California has a lot of resources to pull from. We are the agency that is the Governor's designee for contacts and notification, we designate the routes, maintain the regulations for on and off highway hazmat, we do enforcement for both highway and the facilities, we issue hazmat license, we are the response agency and enforcement agency for all routes, and we have a radiation protection network within the state.

We conducted the Level VI CVSA inspections for the TRU waste shipments. On this particular campaign, we ran across one particular problem: the lock down was bent. It was removed because it did not appear to be seated correctly on the TRUPACT. We send out two inspectors to reduce the time.

We had not used this route for WIPP in a while so we conducted a reassessment of the route which involved physically driving the route, contacting all the safe stopping locations (and followed up by letters). Routine training was done by the CA Emergency Management Agency. Two weeks prior to the start of the shipments, we send out a message to the officers – everyday for two weeks prior – that includes information on what the shipment is, what protocols to follow, contact information in the event of an accident, specific information for the public information officer and contact and number. It is also helpful to have a designated primary point of contact for the campaign itself – someone who can make "go/no-go" decisions.

The reassessment identified road construction on the corridor just leaving the state going into NV. The escorts referred to this as "the gauntlet" – a 3-mile stretch with a steep canyon and on the right the river. Because of the moveable barriers that were set up, it allowed very little room for two trucks to pass. We developed an emergency action plan for this – created a safety zone for moving through. We had no problems. Some comments were to take a different route, but we decided to make it work.

Some lessons learned: cannot stress enough the need to reassess routes before a new campaign; have open and frank communication for all involved; and the need to have a need single point of contact for shipments.

Q. How can we more effectively share this information – lessons learned – with our community? Is there a preferred method?

A. Communication is key. For tribes Government to Government, at least quarterly. WIPP continually provides information to stakeholders mainly thru regional meetings twice a year in person or by phone.

Q. Do you find wide discrepancy in the lead time based on Federal agency, site, or state agency you are working with?

A. Yes – especially the various facilities. It depends on who is doing the shipping and how the facility will handle the shipment. The LLNL and GE facilities varied greatly. However, in working with CBFO (Bill Mackie), everything was consistent.

For the tribes, getting the same information that a state may be receiving, is a challenge. DOE has an American Indian policy which has become DOE Order 144.1. Perhaps better training of DOE on the communication aspects would help.

It helped tremendously in WI to have outlined a formal process and to invite everyone so they have the face to face meetings and can hear the information first hand.

Q. How would you recommend DOE communicate shipment information, and should the same information be communicated to the general public and other stakeholders?

A. The stakeholders (those involved in these types of meetings) will get specific information from WIPP on shipments (routes, etc.); however, the general public will not get specific information. Information provided to them is more general in nature because of security reasons.

For the tribes, the concern is they do not get information on LLW/MLLW shipments that adequately communicate the hazards.

Panel on Transportation for Private Sector Shipments

Catherine Shelton - Director of Transportation Logistics, Areva Uranium Services and Products:

Overview of AREVA Logistics Business Unit Capabilities and Expertise:

- Areva is fully involved in the entire fuel cycle.
- At the Logistics Business Unit, about 4,000 shipments are made per year, e.g., used fuel, MOX, low-level waste, compacted waste, etc.
- They design and manufacture packaging under strict quality assurance monitoring. More than 150 package types developed.
- They perform maintenance and fleet management. About 5,000 transportation packages worldwide. In U.S., we own about 1500 packages for fresh fuel mainly.
- Logistics – they own their own trucking company in France. In the U.S. they use a transportation supplier.
- For the front-end of the cycle, there are many international activities – main suppliers are in Canada, Kazakhstan, Niger, and Australia. This makes for a worldwide flow.
- For the back-end, France recycles fuel from other countries. By law, France cannot keep the waste, so it is shipped back to the origin country as vitrified glass logs.
- Used Fuel Dry Storage: some countries have elected to use dry storage, and we also provide dry storage casks and systems.

Overview of Transnuclear, Inc. Transportation Capabilities in the United States:

- 45 year old company, based in Columbia, MD, but have a facility in Aiken, SC and Richland, WA
- Core competencies include engineering and licensing, logistics, and services.
- One of the main functions is to provide dry storage in the US.
- Handle the transportation aspects of shipments, both domestic and international. This includes Scheduling, Permit and notifications, Shipment follow-up and security, and Carrier coordination.
- Use the carriers on the DOE Motor Carrier Evaluation Program
- In the U.S., 400 shipments annually.

Barb Englehart - Logistics Solutions Specialist, Nordion and Gamma Industry Processing Alliance (GIPA)

- GIPA is an alliance made up of 15 companies from the Medical Device Manufacturers, Cobalt source manufacturers, and one industrial processing company
- The alliance was created to advocate the development of responsible regulations that enhance the safe and secure management of Cobalt-60 sources and related irradiation processing facilities.
- Represents all the major gamma processing facilities within the US to the regulatory bodies such as the USNRC.
- There are two suppliers of Cobalt-60: Nordion which is based in Canada, and REVISS, which is based in England. About 50-60 shipments in and through the U.S. on an annual basis.
- Cobalt-60 is used to to sterilize 45% of all single-use medical supplies in the world; drug development and delivery (sterile lab ware); enhances food safety & preservation; treating cancer (45,000 treatments/day in > 50 countries), etc.
- U.S. is a major transshipment point for Cobalt 60 to the rest of the world
- Packages for transport are licensed by the competent authority of the country of manufacture
- Shipments comply with all applicable regulations
- The industry is trying to work thru several issues:
  - Lack of safe havens along state designated routes. Required by NRC, but it has been difficult getting a list from the states.
  - Lack of reciprocity between states with respect to Level VI inspections
  - Escort Fees – can add thousands of dollars to each shipment passing through a fee state.
- Impacts of the issues include:
  - Backorders will result in shortages of critical medical devices
  - Healthcare facilities do not have substitutes for these medical devices
  - Shortages of medical devices can result in irreversible medical complications including death
  - Additional costs associated with the transportation of Cobalt 60, drive up the costs of sterilization which then increases the cost of healthcare
- Demand for Cobalt-60 is increasing
- Desire to continue our partnerships to ensure delivery of Cobalt-60.

Blake Williams - President, Secured Transportation Services (STS)

- STS deals with the back end of the fuel system. Small company based out of Atlanta. Assist shippers of SNF with regulatory compliance.

- We work with those that don't do a lot of SNF shipments – such as universities, etc. Assist in training them so they can make a shipment. Recently worked with South Africa for the upcoming GTRI shipment.
- Work with NRC on their route approval – can be used for both DOE and commercial clients.
- Development of security plans for SNF shipments. Have worked with TRANSCOM.
- WI was a learning curve to their SNF shipments.
- Completed assistance on about 19 cask shipments in 2010.

Q. If we were to see a map of the locations of the Cobalt-60 users, what would we see?

A. There are about 100 irradiators scattered through the U.S. You would see them any place where you had a major medical device manufacturer.

Q. On lessons learned panel, we have heard that states and tribes don't always know about materials coming through. If you are planning to go through a new area using a new route, how do you notify the states or tribes?

A. We typically start out with the NRC publication of Governor's designees list and start there with initial contacts and ask for additional contacts such as law enforcement, etc.

Q. Within DOE, TRAGIS, a routing software system, is used to determine DOT routes. Do you have any internal routing software or technology that you use for your shipments?

A. GIPA: Shipments are done under contract with carriers. The contract requires the carrier to use a global tracking system to monitor the shipments while in transit.

Areva: For our front-end shipments, routing is done by the contractor, too.

STS: For the spent fuel, it is primarily the interstate highway system, and the routes are approved by the NRC. We physically survey the route, and compile the information and give it to each of the counties along the route. The information is sent to the NRC for approval. NRC highway route approvals are valid for 5 years; rail approvals are valid for 7 years. Of course, you need to validate the contact information prior to each shipment.

Q. How do you maintain the base of information? For the states, it is a lot of work; do you have different departments to handle this aspect?

A. STS – we are a small company, but we are only moving about 19 packages a year. The routes, as stated earlier, are good for a period of time. We do have to check for changes in contact information prior to each shipment, and we start with the *Federal Register* notice on the Governor's designees.

Q. In your presentation you said that Areva owns a tracking company in France – is it similar to TRANSCOM?

A. Must be my French accent, I said we own a trucking company; however, we do have a tracking system which is satellite based. In the US, we use the carrier's GPS systems for tracking.

Q. The need for information on safe havens – is there any interaction that you need from the states that would make your job easier?

GIPA: Need to know where the safe havens are located – need that list. Comments fed back to NRC on their Part 37 is that a number of the states have safe havens as part of their security plans so they are reluctant to publish the list. Also, this should be a state requirement versus a licensee.

STS: Safe havens are a moving target, we have them listed on NRC approved routes – but because of state funding issues some of the facilities are now being closed.

Q. Sharon Taylor – changes that have been proposed by NRC for Part 37, will they affect your shipments in any way – changes to security?

A. GIPA: For our Co-60 shipments, which are HRCQ, there is not much change. It is taking the RAMQC Transport Order and putting it into code. Just the safe harbors issue.

Areva: Small impact to the Cat I & II shipments. Security has been changing over the past 10 years. We need to remain focused on all shipments.

STS – On the spent fuel side, most of the changes are the guidelines already imposed are being put into rule changes. There were some compliance issues that we saw and submitted comments to to NRC.

The U.S. Nuclear Waste Technical Review Board Status Update, Mark Abkowitz, Nuclear Waste Technical Review Board

- The NWTRB was created by the 1987 amendments to the Nuclear Waste Policy Act (NWPA). The Board evaluates the technical and scientific validity of DOE activities related to (1) transportation, packaging and storage of SNF and HLW; and (2) site characterization, design, development, and operations of facilities for disposing of such wastes.

- The Board is not part of the DOE, to maintain objectivity.

- The Board has access to draft DOE documents to ensure recommendations can be made during the decision-making process, not after the fact.

- Although Yucca Mountain is in limbo, that has not change the Board's mission but has changed the focus. It has actually broadened our focus to cover dry storage, extended dry storage, to activities about other ways the fuel cycle can be used, and how the waste is generated and disposed.

- Five activities under way:

- Report on technical advancements and issues related to Yucca Mountain. This is not a backward look, but the Board felt there was an accumulation of information and activities over the past decade that was worth examining to come to some conclusions and lessons learned.
    - It is important to remember the nuclear fuel cycle system is heavily integrated and in many respects transportation is the glue that holds it together. It is imperative that as we do our planning, implementation and operation, the system be analyzed as a whole because you can run into serious problems with harmonization, which runs the gamut across the cask design, fleet acquisition, handling; all the way to access and egress operations.
    - An example is the decision to use the TAD at Yucca Mountain because of surface handling facility, which meant we had to rely on the use of rail. This decision put pressure on the different site to have rail access, relying on regional and short line railroads, having standard infrastructure, and building a 300-mile railroad to Yucca.
    - Transportation does not have a seat at the table as it should when everyone is working on the engineering of the situation. Everyone is encouraged to be aware of the plans coming out and be very vocal activists on how important transportation is in the planning.
- Report on Technical Basis for Extended Dry Storage and Transportation of Used Nuclear Fuel. This document talks about the issues of storage beyond 60 years and what that means to the integrity of the fuel and package. It talks about what is known, what is not know, and how do we fill the gap. This report is available at www.nwtrb.gov.
    - Technical basis for dry storage – thrust in two areas: (1) research – how the material in the packages will behave; and (2) monitoring and inspection – very little is known on what is going on in the dry storage cask.
    - We don't have regulations in place for the extended dry storage, and inconsistencies have been identified between dry storage and transportation. We will be encouraging the NRC to develop a set of integrated regulations.
- Systems analysis tool of waste implications of fuel cycle options (NUWASTE). This is a valuable tool to look at different scenarios and project what the waste management implications would be for those scenarios. There are discussions on reprocessing and recycling, license extensions, new reactors, and new reactor designs. This tool allows us to enter the parameters into NUWASTE to see what the waste management implications would be. NUWASTE is functional now and future NUWASTE activities include:
    - Evaluate other scenarios to understand the sensitivity of analysis results to program characteristics (e.g., facility capacities, operating schedules)
    - Include additional functionality – facility construction, operating & decommissioning cost
    - Expand NUWASTE scope to include transportation requirements at each stage of the fuel cycle; centralized storage capacity needs; disposition of DOE HLW and SNF; and alternative reprocessing and reactor technologies
- Just released an update of international nuclear waste management programs, which looks at 13 other countries and how they deal with waste management. It ranges from Sweden and Finland, who manage waste very well, all the way down to other countries who are just getting involved.

- Conducting a survey of facilities managing DOE-owned SNF and HLW. So much attention has been focused on the civilian and commercial SNF & HLW, but not other aspects of waste management. The Board has visited SRS, ID, Hanford, and West Valley. Information gathered will be used to compile a report that will be released later this year.

Closing

In closing, Steve O'Connor and Ken Niles conducted an electronic, on-the-spot evaluation to identify priorities for continued communication and cooperation, action items, and next steps for future NTSF meetings. Results of the survey are available on the NTSF wiki site.