WIEB HLRW Committee, Fall Meeting: Nov. 3-4, 2015, in Spokane, WA
Meeting Summary (Nov. 14, 2015)

The meeting was conducted at the Red Lion Hotel, just north of Spokane’s Riverfront Park, where the colorful dragon and other displays from a recent Chinese Festival of Lights had not yet been removed. The park includes a sign showing the directions and distances to Spokane’s sister cities, including Limerick, Ireland (4341 miles) and Jecheon, Korea (5319 miles). Spokane’s performing arts and convention centers are located south of the Park, as is the Davenport Grand Hotel and several good restaurants, including the Steelhead Bar & Grill and Soulful Soups & Spirits. Spokane is a bit hard to get to (direct flights for some, but by no means all), but the town is a bit funky, trying hard, and pleasure to visit.

Chairman Ken Niles opened the meeting at 8AM, and welcomed the 32 committee members, presenters and other attendees. He then outlined the agenda in five parts:
1. Two reports on the U.S. Nuclear Waste Program, from Mike McBride and Bob Halstead;
2. Two reports on technical issues, from Steve Self (NRC) and Dan Ogg (NWTRB);
3. Three reports from DOE or DOE contractors: Erica Bickford (NTSF). Steve Maheras (PNL) & Mike Wangler (DOE-EM)
4. A special report on Hanford (Ken Niles & Cheryl Whalen);
5. Two WIEB staff reports (Alaine Ginochio & Jim Williams);
6. A Wednesday AM discussion regarding directions for the WIEB HLRW Committee (Rick Moore).

1.0 The U.S. Nuclear Waste Program
1.1 Mike McBride, VanNess Feldman

Mike’s presentation was titled “The Current Status of Nuclear Waste Issues, Policy and Legislative Developments”. He began with a review of the program “landscape”:
- The BRC recommendations;
- The House insistence on moving forward on Yucca, creating an impasse between the House and the Senate on implementing BRC recommendations;
- The reaction of key Senators to the Nuclear Energy Institute’s July statement of “legislative principles;
- The NRC’s “continued (even “indefinite”) storage rule”, and challenges on NEPA (environmental impacts) but not AEA (federal obligation) grounds;

Mike then discussed the 2014 effort of the Bipartisan Policy Center to resolve the impasse in Congress. After completing Phase 1 without finding a consensus, the BPC issued a set of papers but did not prepare a report. The staff lead at BPC (Tim Frazier) is now staff to John Kotek at DOE-NE. The Co-chairs of the BPC Advisory Committee are Norm Dicks and Sonny Perdue—suggesting that the BPC may be a “player” when a new administration begins in January 2017.

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1 Newer than the Red Lion, but the Red Lion staff were friendly and helpful, and the room rate was quite reasonable.
Mike discussed current litigation of the NRC’s “continued storage rule”, noting that (so far) challenges have been made under NEPA (re environmental impacts), not under the Atomic Energy Act (re federal obligations). He also discussed litigation regarding the assessment of the Nuclear Waste Fee, and implications regarding access to the proceeds in support of program progress. Currently, utilities are being compensated for the costs of continued on-site storage, and they are not paying the fee. Further, they can expect hefty breach-of-contract payments from the Judgment Fund, paid by taxpayers.

The Yucca Mountain “mandamus” case, decided in 2012, compelled the government to “follow through” on the 2008 Yucca Mountain license application, but did not provide the necessary appropriations to either NRC or DOE. Nor did the mandamus decision address the 2009 DOE abandonment of the Yucca Mountain Project, making it an unwilling license applicant. NRC is proceeding within its limited appropriations available, but, Mike noted, this is “new territory” for NRC.

Mike reported on recent initiatives within DOE, particularly Secretary Moniz’ March 24 initiative regarding “de-commingling” the SNF and HLW disposal, and activating the search for consolidated offsite storage. Moniz’ initiative involved the appointment of John Kotek as Secretary of DOE-NE, with clearer authority to pursue these and other initiatives. Still, much awaits the installment of a new Administration in January 2017—over a year from now. In the meantime, a key factor will be Senator Reid’s ability to block appropriations funding for Yucca licensing.

Mike reviewed current legislative possibilities, issues and scenarios: Will there be more than one repository--one for HLW, another for SNF? Will there be more than one interim storage facility--one at Eddy-Lea, another at WCS, another somewhere else? Will the House negotiate with the Senate on a basis other than “Yucca or else”?

Mike reviewed the NEI’s revised “legislative principles”, issued in July 2015, one stating that off-site storage should be considered only after a final decision on Yucca licensing (i.e. 5-10 years hence), and another stating that industry does not intend to waive its Standard Contract claims in exchange for federal waste acceptance.

Mike’s presentation triggered numerous questions as well as numerous off-line discussions throughout the day and a half meeting.

1.2 Bob Halstead, State of Nevada

Bob followed Mike, providing a counterpoint to Mike’s “DC perspective”. He pointed to three “elephants in the (nuclear waste policy) room”:

- The significant contraction in the U.S. nuclear industry, whose only current profit center is in storage services (e.g. Holtec). Otherwise the industry (which had 100 operating nuclear reactors not so long ago) is fighting for its economic life.
- The significant recent waste disposition progress in Europe (e.g. France, Sweden), after wrenching re-evaluations leading commitments to “do the job right”. Bob implied that,
in its insistence on Yucca, the House is insisting on “doing it wrong”, and is responsible
for the impasse on Senate legislation reflective of BRC recommendations,

- Nevada’s commitment to a long-haul fight on Yucca—implying that insistence on Yucca
delays real progress on the real objective—final disposal of SNF and HLW.

The discussion raised questions about the WCS business plan, the ability of a state such as
New Mexico to consent to large-scale storage without also consenting to indefinite storage
and/or disposal, and the large-scale transport required to deliver SNF for storage in either
west Texas or southeast New Mexico.

2.0 Reports on Technical Issues

2.1 Steve Self, NRC
Steve discussed NRC’s 2013-15 activities to complete the Yucca Mountain License
Application (in the absence of an active DOE applicant), so as to provide the information
basis for licensing……if appropriations are made (to both NRC and DOE) to conduct
licensing hearings. He noted that the Yucca Mountain Safety Evaluation Report (NUREG-
1949) documents the NRC staff’s finding (“with reasonable assurance”) that the application
provides a basis for licensing. He did not, of course, address how DOE (or a newly engaged
DOE) would address expected contentions from Nevada and others—e.g. assured
installation of titanium drip shields after 50-100 years of operation, redesign for possible
direct disposal of dual purpose canisters (DPCs).

Steve also reviewed NRC work on which he is less directly engaged: aging management
(discussed later by Dan Ogg); cask testing, and the incorporation of testing results into
models for estimating cask performance under various stress conditions.

2.2 Dan Ogg, NWTRB
Before focusing on the June 24 NWTRB meeting and technical issues in SNF transport, Dan
reviewed the statutory mission of NWTRB—an independent federal agency, established in
1987, to evaluate the technical and scientific validity of activities undertaken by DOE (or,
presumably, a successor agency) related to the management and disposal of SNF and HLW,
including packaging and transport.

Dan noted that reactor pools are reaching storage capacity. Thus, continued plant operation
requires removal of SNF from pools (to on-site dry storage) in order to clear pool space for
additional discharges. For economic and employee exposure reasons, utilities increasingly
use large canisters (capacity 37 PWR or 89 BWR) for onsite storage. The loaded weight of
such canisters is 116,400 lbs or 58 tons (excluding the storage or transportation cask).

Of the roughly 70,600 metric tons of spent fuel discharged from US reactors, about 22,700
metric tons (32%) is now in dry storage. Over the next ten years, the total may increase to
over 90,000 MT, of which the portion in dry storage could be 39,000 MT, or 44%. Thus, the
prospective SNF inventory will increasingly be in large dual-purpose (storage &
transportation) canisters, and direct disposal of such casks is an increasing consideration in
waste disposition.
Dan noted that NRC requirements for transportation are greater than for (on-site) storage, and that about 11,000 assemblies in 427 canisters at 12 sites are in “storage-only” canisters. While DOE sees “no insurmountable technical challenges” in this situation, NWTRB has recommended attention now, so that—if on-site repackaging is required—reactor pools may still be in operation.

Dan also noted that “stress corrosion” in SNF canisters has been observed at ocean-side plants, and that stress corrosion cracking in dry storage canisters (and canistered SNF) is a potential. Research (at Sandia and EPRI) is underway, but results are not yet available. How many canisters and assemblies have what levels of stress corrosion &/or stress corrosion cracking? And, what are the implications—repackaging now or later?, transport despite stress corrosion uncertainty?

Dan also reported on DOE’s initiative to develop standardized “STAD” (Storage, Transportation, Aging & Disposal) canisters. The research has been underway for several years, and builds on previous MPC\textsuperscript{2} and TAD initiatives. However, even if sensible, implementation seems unlikely:

- STAD would not apply at shutdown sites;
- At still-operating sites, STAD would require repackaging of SNF already in dry storage.
- STAD requires removal of SNF now in pools to smaller STAD canisters, rather than to the much larger canisters preferred by utilities.\textsuperscript{3}

Finally, Dan discussed DOE’s set of system analysis tools, which were mentioned at the June 24 NWTRB meeting and “rolled-out” in a limited fashion by DOE on October 8. NWTRB has recommended that DOE should publish documentation of these tools, but has not volunteered to serve as the needed independent external reviewer.

### 3.0 DOE Reports

#### 3.1 Erica Bickford, DOE-NFST

Erica reported on the NFST Planning Project, noting recent changes in DOE leadership (e.g. the appointment of John Kotek as Secretary of DOE-NE), a current initiative on consent-based siting, the FY’16 NFST budget situation\textsuperscript{4}, and key FY’16 initiatives:

- Continued development of systems analysis tools;
- Support of the STAD initiative;
- A plan for (off-site) SNF storage;
- Support of ATLAS railcar design, and
- Engagement with Tribes and states.

Erica mentioned NFST efforts to have reports more promptly released for external review, but indicated that these are not necessarily intended for SRG review, comment, and response.

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\textsuperscript{2} Multi-Purpose Canister.

\textsuperscript{3} The MPC/TAD/STAD concept may be a good idea that cannot be implemented, due to DOE’s limited authority to design and implement an efficient-effective waste management system. The Standard Contract is another case-in-point.

\textsuperscript{4} “Awaiting appropriation” of $30 million, which is the Senate mark, and which would be a 33\% increase over FY’15.
3.2 Steve Maheras, PNL
Steve reported on the June 2015 San Onofre site visit. The number of casks to be removed from San Onofre is about 125, double the number from sites such as Zion (61), Maine Yankee (60), or Vermont Yankee (58), and over three-times the number from sites such as Crystal River (39), Kewaunee (38) or Trojan (34). In addition, decommissioning at San Onofre will involve removal of heavy equipment (reactor vessels and heads, pressurizers) as well as the demolished reactor shells. Decommissioning of SONGS Unit #1 involved an 11-day shipment of 4 steam generators to Clive, Utah.

Using numerous photos and diagrams (some collected during the site visit, some since), Steve reviewed:
- Current conditions at the site,
- Plans for a new (Holtec) ISFSI for SNF from units #2 & #3,
- Linkages from the site to the regional rail system (and its rather complicated management), and
- Options for SNF removal, “if and when”.

Clearly, this will be a very complex, long-term project for Southern California Edison, conducted on a narrow ocean-front site owned by the U.S. military, in a complex California institutional context.

3.3 Mike Wangler, DOE-EM, Office of Packaging & Transport
Mike reviewed recent DOE-EM work to update its standards for planning and executing offsite shipment of radioactive materials. The standards cover topics such as:
- Emergency planning,
- Routing,
- Security,
- Carrier and driver requirements,
- Shipment pre-notification,
- Operational contingencies,
- Tracking,
- Inspections,
- Safe parking,
- Emergency notification and response,
- Recovery and cleanup.

The standards will be required of all DOE organizations involved in offsite radwaste shipment, and will be implemented via DOE Order 460.2B, updating DOE Order 460.1A, which was approved on October 2, 1996.

4.0 Hanford Tank Waste Cleanup: Cheryl Whalen & Ken Niles
After summarizing the history of Hanford, Ken and Cheryl reviewed the extent of the Hanford clean-up problem as it existed at the beginning of cleanup in 1989:
- 60 million gallons of HLW in 177 aging underground tanks, many with urgent safety issues;
- Hundreds of burial grounds and liquid waste disposal sites;
• 500 contaminated facilities, including 9 production reactors and 5 chemical processing facilities.
• 80 square miles of groundwater contamination;
• 2,100 tons of corroding SNF, stored in water-filled basins within ½ mile of the Columbia river;
• 18 tons of plutonium-bearing materials.

They then described cleanup progress (significant, except when considered in relation to the extent of the problem). The footprint of active site cleanup is shrinking increasingly focused on a 10 square mile inner zone of the central plateau—not the outer zone (65 sq. mi.), the river corridor (210 sq. mi.) or the Hanford Reach (300 sq/ mi.). Of DOE’s high-level waste intended for disposal, 59% will come from Hanford, 37% from Savannah River, 3% from Idaho National Laboratory and 1% from West Valley.

Ken and Cheryl reviewed the troubled history of Hanford’s Tank Waste Treatment Project (WTP)\(^5\)—resulting (in 2013) in a revised, simplified proposal for separating low-activity from high-level waste, and for initially vitrifying only the low-activity waste. The project faces several major technical issues. Success is far from assured. Timely success (HLW removal in the 2040s?) seems unlikely.

Finally, they reviewed the Hanford Tank waste litigation:
• A 2008 suit by the State of Washington, joined by Oregon in 2009, settled in 2010 and resulting in a Consent Decree;
• Revived litigation in 2014 which is ongoing.
• Washington and DOE are far apart in their proposals to amend the existing Consent Decree.

5.0 WIEB Staff Reports

5.1 Alaine Ginocchio: Cooperative Agreement Renewal
Alaine reported on the current process for renewal of our Cooperative Agreement with DOE-NFST for the next four (or possibly five) fiscal years. The SRGs have collaborated in review of the existing “core program tasks”, which will be undertaken by all SRGs. In addition, WIEB (and other SRGs) will identify “regional program tasks”. In the case of WIEB, these will be based on the discussion scheduled for Wednesday morning.

5.2 Social Risks: Jim Williams
Jim discussed the need to follow through on the National Academies’ 2006 recommendation that “Transportation implementers should take early and proactive steps to establish formal recommendations for gathering high quality and diverse advice about social risks and their management on an ongoing basis.” He discussed the terms used in the NAS recommendation, reviewed assessments of technical versus social risks since 2006, briefly discussed the use of counter-examples to dismiss social risks, outlined a possible study approach\(^6\), and considered the program elements required to address (i.e. reduce to manageable levels) high social risk.

The presentation elicited vigorous discussion from the group.

\(^5\) The largest capital construction project being undertaken by the federal government.
\(^6\) Assessing social risks in a particular corridor community as a function of: a) System context; b) Local circumstances, and c) the community’s position in a proposed SNF transport campaign.
6.0 WIEB Nuclear Waste Primer Update: Rick Moore

Rick led a discussion that considered:

- The purpose of the WIEB HLRW Committee;
- The “WIPP Transportation Model” and its application to SNF/HLW transport;
- The 1985 “WIEB Primer” and its subsequent updates.
- The WIEB Rail Primer and the WIPP Rail Program Implementation Guide.
- The National Academies’ 2006 report on SNF transport to Yucca for final disposal.
- A previous WIEB effort to develop an online resource book.
- The Blue Ribbon Commission process, and resources generated.
- Other resources and the “electronic file cabinet” idea.
- Emerging and ongoing issues with transport implications.
- Goals for the WIEB HLRW Committee.

The discussion provided the basis for the following WIEB “regional program tasks” for implementation under a renewed Cooperative Agreement:

A. Resources. Building on past efforts, WIEB will work to develop an inventory of reference materials regarding SNF/HLW transportation and transportation planning, and provide electronic access for HLRW Committee members and others.

B. Recommendations: Drawing on Core Program Tasks A & B, and consulting with HLRW Committee members and others, WIEB staff will work to develop policy recommendations regarding SNF/HLW transportation and transportation planning.

C. Review: For recommendations prepared under “B” above, conduct a process for review with the Committee and the Western Interstate Energy Board.

D. Sharing: Results of step “C” above will be shared with other SRGs, DOE, and others.