

WM2012 Conference Panel Report

PANEL SESSION 83: Assessing the Blue Ribbon Commission Report and Recommendations - What Did They Say and What Does It Mean?

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Panelists:

1. James Conca, *RJLee Group, Inc.*
2. John Heaton, *Carlsbad Department of Development*
3. Glenn Paulson, *Paulson and Cooper, Inc.*
4. John Kessler, *EPRI*
5. Nigel Mote, *US Nuclear Waste Technical Review Board*
6. Steve Nesbit, *Duke Energy Corp.*

The Blue Ribbon Commission on America's Nuclear Future (BRC) released its final report on January 26, 2012. The report had both major and minor recommendations. The eight major recommendations to the Secretary of Energy can be summed up as:

1. Develop a new, consent-based approach to siting future nuclear waste management facilities.
2. Create a new organization dedicated solely to implementing the waste management program, empowered with authority and resources to succeed.
3. Assure access by this new organization to the funds nuclear utility ratepayers have paid and will continue to pay for nuclear waste management.
4. Promptly begin to develop one or more geologic disposal facilities.
5. Promptly begin efforts to develop one or more consolidated storage facilities.
6. Promptly begin to prepare for large-scale transport of spent fuel and high-level waste to consolidated storage and disposal facilities.
7. Actively support continued US efforts on innovation in nuclear energy technology and workforce development.
8. Provide active US leadership in international efforts to address safety, waste management, non-proliferation and security concerns.

Session 83 Panelists addressing this topic represented widely varying points of view. Glenn Paulson presented an insider's view since he served as a Senior Consultant to the BRC. Industry views were represented by Steve Nesbit of Duke Energy and John Kessler of the Electric Power Research Institute (EPRI). Nigel Mote represented the views of the Nuclear Waste Technical Review Board (NWTRB), an independent federal agency assigned technical oversight of Department of Energy programs dealing with high-level waste and used nuclear fuel management under the Nuclear Waste Policy Act of 1982 (NWPA).

Two additional Panelists, John Heaton and James Conca, represented non-federal government, non-industry insider views. Heaton, a former state legislator from Carlsbad, New Mexico, spoke on the preparations now being made in two southwestern

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New Mexico counties to establish additional nuclear facilities in the region, including some that could address several BRC recommendations. Conca, representing a lifelong individual study of energy economics, presented comparative cost estimates for repositories in several different geologic settings now under consideration by the Department of Energy.

James Conca “America’s Nuclear Future: The BRC and the Cost of Nuclear Waste Disposal” began by reiterating several of the BRC report’s key recommendations and suggested that, since the Yucca Mountain repository process is still under judicial review, there is a ‘first-repository’ project still in place as required by the Nuclear Waste Policy Act of 1982 as amended. This means the BRC recommendation to promptly pursue a geologic repository can be considered to be a search for a ‘second repository,’ and is therefore fully compatible with that existing law. Conca strongly endorsed the BRC recommendations to create a new organization dedicated to radioactive waste disposal, with access to the Nuclear Waste Fund.

The geologic environments that can safely house a repository were reviewed, and salt received special focus since it is the medium in which there is an operating repository now, and its characterization in terms of time, and its likely total life-cycle costs, made it a very favorable choice. In fact, a repository in salt for both civilian and government wastes was the only geologic-media choice that would not require the tax on commercial nuclear-generated electricity to be raised.

Conca noted that salt does not fare well in comparison to other media with respect to retrievability of the waste, but believes this should not be a discriminator because waste should not be emplaced before (i) verifying safety, and (ii) removing any resource (e.g., fissile material) that may be desired in the future.

James Conca Q&A: The relatively short timeline for starting a new repository in a salt formation was called into question by a member of the audience and defended by Conca based on experience gained as a result of salt-repository studies from the 1950’s to the present; in the US, that experience does not exist for other media. (Note from Paulson: studies in Sweden, Finland and France in my opinion provide a good deal of knowledge on other media, though it is true there is no actual operating repository yet in any of those countries.)

John Heaton’s presentation was made on behalf of the City of Carlsbad, New Mexico. It began with praise for the eight major recommendations and suggested strongly that the Waste Isolation Pilot Plant (WIPP) near Carlsbad was a “poster child” for four of the eight recommendations. The history of WIPP development with community and state involvement was outlined to suggest that cooperation and consultation took place as recommended, a third party regulator was brought in, the state was given a regulatory role, science was properly performed in terms of site characterization, design work assured both operational and long-term safety, transportation was properly planned and first-responder training properly done and maintained, etc. These are real, actual accomplishments, not just plans or hopes.

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The city, county and state are again supportive of an expanded repository mission either at WIPP or very nearby within the largely unused Land Withdrawal Area where WIPP is located. The State of New Mexico has indicated a willingness to consider a repository for heat-emitting wastes if it is supported by science.

The presentation next addressed a community-proposed Independent Storage Facility for spent nuclear fuel and high-level waste halfway between the cities of Carlsbad and Hobbs, in New Mexico, which purchased 1,000 acres of land for potential use, land already studied extensively during the Global Nuclear Energy Partnership site selection process. Using this site for spent fuel storage, with potentially other nuclear facilities in the region, assures a work force available for eventual movement of material to a reprocessing facility or to a repository, both of which can be sited nearby. The successful WIPP radioactive waste transportation system, it was suggested, could be readily expanded to address the additional routing needed to take civilian-origin wastes.

The BRC report was next addressed, with several critical observations:

- BRC missed the opportunity to recommend ending commingling of defense and civilian wastes. A strong case for ending commingling could have been made by the BRC.
- By shying away from making comparative statements about different geologic media, the BRC lost the opportunity to show the stark cost differences of repositories between media and also failed to engage the issue of why high-level waste is still being prepared as a very expensive borosilicate glass when that is a waste form only needed for repositories with the potential for some water flow, which is not possible in salt.
- The BRC also missed the opportunity to weigh in on the retrievability issue: recommending that there be interim storage to allow recycling to be considered in the future presented an opportunity to state that if a future spent-fuel disposal decision is made, the strict meaning of the word “disposal” ought to be respected, and retrieval beyond the operational phase ought not be required.

John Heaton Q&A: A questioner asked about the regulator for a new repository in Carlsbad since the BRC recommended that the current division between the EPA and NRC be maintained. Heaton’s answer was that a third party regulator will be needed, and it may be the NRC, but that is not currently clear since the EPA is a competent regulator for the current repository.

Another question was asked in response to Heaton saying the State of New Mexico needed to be at the table when standards are set for a new repository. The questioner asked if the state had the requisite expertise for such a task. The answer was that the state would hire experts and use experts from the national laboratories in the state for advice about safety.

A questioner asked why Eddy and Lea counties in New Mexico were pursuing a private rather than a publicly funded surface storage facility for high-level waste and used

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nuclear fuel. The answer was that the private route was more straightforward and efficient to implement, and the government would be welcome as a customer.

Another questioner asked why the community was so supportive. The answer covered the history of mining in the area, since the 1930s, and the generations that have now grown up with WIPP in the area providing work, promoting education and a safety culture, etc. WIPP winning mine safety competitions statewide is also a big plus in building support for another repository.

Glenn Paulson gave a presentation simply titled “What the BRC Said.” The presentation conveyed the complexity of the deliberations behind a number of simple BRC statements, so its secondary title was “And What It Didn’t Say.” For example, variations on the recommendation to seek “one or more” repositories or storage sites were thoughtfully deliberated. Similarly, as a result of the Fukushima accident, there was much deliberation behind the recommendation for an additional study by the National Academy of Sciences on spent fuel storage safety and security, rather than simply saying that the NRC was doing all that is needed. The simple statement that transportation planning and assistance—including funding—ought to start now, and not later, was also well debated within the commission. The recommendation that NRC should review and *potentially* revise the Waste Classification System drew back from telling NRC how to do this reclassification, although some commissioners felt the BRC ought to do just that. The simple statement that the NRC and EPA roles are OK as is did not reflect the deliberations on moving all authority to the one or to the other with additional state regulatory authority, or other options that were considered. Finally, the Secretary was urged to promptly review all aspects of the commingling issue; he was not told what the BRC thought the answer should be, because there were opinions in both directions among the commissioners.

Glenn Paulson Q&A: The first question was about the commingling recommendation made by the BRC, telling the Secretary to address it quickly rather than making a specific recommendation one way or the other. The answer was that the BRC could not delve into this issue to make a firm recommendation in large part because to do so would have required addressing national security issues outside the scope of the Commission’s mandate. Also, as a practical matter, the issue was forcefully brought to the Commissioners’ attention by several states and others only quite late in its two year period of work. When pressed on this issue later, Paulson explained that in addition most commissioners were not equipped to engage this issue either technically or in terms of their clearance levels. Vigorous discussions did take place behind closed doors on this issue, and the need to know more about Naval spent fuel and the Yucca Mountain waste acceptance criteria for defense wastes, among other factors, placed it out of the Commission’s reach. The Secretary has all the resources needed to address the issue.

A later question came back to this issue, but this time was specifically on whom could make a new commingling decision. The answer was that the decision to commingle civilian and defense wastes was a Presidential decision in 1985 that can be reversed by

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any subsequent President. In order for the current President to make a new decision on this topic under current federal law (including re-affirming the 1985 decision), he would need expert advice from the Secretary, hence the BRC's recommendation for the Secretary to take immediate action to fully analyze the many factors involved.

A clarification was requested about the statement that the BRC was not a siting commission. The answer was that the charter for the BRC was very clear that siting of facilities at specific locations was not to be addressed, and that Administration decisions about Yucca Mountain were also not to be addressed.

John Kessler presented an "EPRI Assessment of the Blue Ribbon Commission Technical Recommendations." EPRI was engaged with the BRC process in terms of providing both written input and oral testimony on several issues. EPRI's response to the final report includes:

- EPRI agrees that there should be prompt efforts to develop a new geologic disposal facility,
 - but strongly recommends that the Yucca Mountain licensing process be completed because the lessons to be learned from that effort are valuable
 - sees no problem with looking for other sites, but only one may be needed
 - agrees that whatever is done, it should begin promptly.
- EPRI agrees there should be prompt efforts to develop one or more consolidated storage facilities because of economic advantages that come from minimizing stop-gap measures the utilities must do now, but also suggests integration of consolidated storage and disposal.
- EPRI disagrees with the recommendation for early preparation for large-scale transportation until storage and disposal sites are identified.
- Regarding siting criteria, EPRI feels these ought to be developed by the implementing organization, and ought to be kept to a minimum: it is a disposal system that is needed, it isn't just "the right" geology.
- EPA and NRC should develop a "generic" disposal standard and Part 63 is a good starting point since it is fully risk-based and excludes (most) sub-system performance standards. Note: I am not certain John used the last phrase ("excludes....") in his talk?
 - Some aspects may still need to be site-specific, like the compliance point and assumed future human behavior, effects of climate change (e.g., changes to net infiltration or groundwater flow), etc.
 - EPRI agrees the time period of compliance should be <1 million years.
- EPRI is not sure the BRC recommendation to consider 'wet' centralized storage as a way to speed removal of fuel from reactor sites is well founded.
 - EPRI disagrees with the statement that current fuel storage practices can lead to a disaster, NRC disagrees, and the 2011 Fukushima disaster population exposure did NOT arise from fuel in *storage* [emphases in presentation].
 - EPRI suggested that used fuel handling capabilities are needed at centralized storage sites as part of "waste confidence" building, and that

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R&D at consolidated storage facilities helps build local support, citing a recent Spanish siting example.

John Kessler Q&A: A question was asked asking about consideration of tribal-state issues in the acceptance of storage and disposal facilities in the BRC's recommendations. The question was passed to Glenn Paulson, who answered that this is a critical area for all future site selection, and specifically regarding tribal involvement, recommended the white-paper available on the BRC web site.

Nigel Mote indicated that the legislative mandate of the Nuclear Waste Technical Review Board is to evaluate the "technical and scientific validity" of DOE activities under the NWPA and report its findings, conclusions and recommendations to the Secretary and the Congress. The scope of the Board's evaluation includes such activities as transportation, packaging, and storage of spent nuclear fuel (SNF) and high-level radioactive waste (HLW), site characterization, and the design and development of facilities for disposing of such wastes. Mote noted that the BRC report observed that continued independent technical and scientific oversight is essential and the Disposal Subcommittee had recommended that the NWTRB continue to provide such oversight over the waste management program, even if the responsibility for such a program is assigned to a new federal corporation. The need for independent fiscal oversight of the new radioactive waste management program was also mentioned by the BRC, and Mote said that, if this were to be merged with technical oversight, the Nuclear Waste Policy Act would need to be amended. Eleven comments had been submitted by the NWTRB in response to the BRC draft report; most were supportive of draft report language and urged greater emphasis on some select points. The NWTRB had also urged that the BRC strongly recommend the preservation of technical information related to the Yucca Mountain repository program, continuation of ongoing technical work as decisions are made on how to accomplish deep geologic disposal, and that a systems approach be taken in managing SNF and HLW.

Nigel Mote Q&A: A question was asked about the NWTRB taking costs into account in making its recommendations. The answer was that the Board does not take costs into account, except to the extent costs may be expected to constrain technical options, but this did not involve expert cost estimation efforts.

Steve Nesbit The Duke Energy perspective was given in the Nesbit presentation entitled: "The Blue Ribbon Commission Report—The Devil Is in the Details." The presentation suggested that there are open questions concerning several general statements in the BRC report and then made some critical observations or asked critical questions concerning details:

- The BRC praises the nation's radioactive materials transportation safety record and related regulations. Nesbit suggested that from the practitioner's perspective these regulations are arbitrary, cumbersome, inflexible and not risk-informed.
- The BRC believes that successes in other countries can be learned from without giving due regard to the fact there were no state governments involved in the

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cases cited, and it is at the state level that there typically is opposition. Nesbit pointed out that it took EPA 25 years to develop a standard for Yucca Mountain that would stand up in court. The BRC endorses the status quo on the way regulatory authority is split between the EPA and NRC and suggested a generic standard be in place before the next repository siting phase begins, but offers no advice on how to rapidly develop such a standard.

- The BRC approved of the current R&D plans in the Department of Energy, but research alone is not what is needed, a demonstration of a viable approach to fuel recycling is needed.
- Now is the time for government leadership, suggests the BRC, but it is not clear who is the leader? DOE is not; it withdrew its last license application. There is no clear legislative path forward either.

Steve Nesbit Q&A: An audience member made a set of statements in response to several points made by Nesbit regarding transportation. It was stated that the Yucca Mountain Project took many years to finally agree to adopt the transportation precedents set by the Waste Isolation Pilot Plant project. The recommendations in the National Academy of Sciences report "Going the Distance" ought to be fully implemented. Transportation is an important issue to address during siting, since it is a key public concern.

General Q&A

An audience question arose concerning the writing of a new regulation for all new repositories, as per the BRC recommendation. There was much audience discussion about the merits of existing regulations, under which one repository is being safely regulated and the need for an updated regulation for future repositories. The recently issued standard by the International Atomic Energy Agency was suggested as a potential model for an updated standard for future repositories, by another audience member.

It was noted that deep borehole disposal was mentioned in the BRC report but not elaborated on. Glenn Paulson responded that work on evaluating deep boreholes is currently underway and it was not in the BRC's specific mandate to recommend the specific elements of a new strategy. The current work is being done for DOE's Office of Nuclear Energy and carried out by Sandia National Laboratories. In addition, while not reflected in the BRC's final report, the BRC learned that EPA is looking into its regulations to see what would need to be changed to address this waste management approach.

An audience member representing another nation's radioactive waste management program suggested that the US promoting this deep borehole concept could undermine the acceptance of currently planned mined repositories in crystalline rock (granite-like rock). An audience member representing Sandia National Laboratories who is in charge of this work assured the questioner that this concept was economically attractive only for smaller waste management programs.

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Three additional comments were made, but were not questions addressed to specific panel members:

- The current federal budget proposal has 60 million dollars available for disposal-option evaluations. [Although this number includes all aspects of nuclear waste disposal, not just disposal option evaluations, no Panelist responded since it was not raised as a question].
- A dedicated waste management organization is a very good idea, as is access by that entity to the Nuclear Waste Fund, but the question of who will regulate that access has not been addressed. [The response by Paulson was that the BRC recognized this issue and recommended financial oversight activities involving Congress and the Federal Energy Regulatory Commission].
- Data from the Yucca Mountain Project needs to be preserved. The close-out of another repository project, the Basalt Waste Isolation Project, set a very bad example. [This was a comment, not a question, so there was no response, but it echoed statements on the need to preserve what was learned at Yucca Mountain, in a data as well as a regulatory sense, by two of the panelists].

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