

# State Nuclear Safety Inspector Office

## April 2011 Monthly Report to the Legislature

### Introduction

As part of the Department of Health and Human Services' responsibility under Title 22, Maine Revised Statutes Annotated (MRSA) §666 (2), as enacted under Public Law, Chapter 539 in the second regular session of the 123<sup>rd</sup> Legislature, the foregoing is the monthly report from the State Nuclear Safety Inspector.

The State Inspector's individual activities for the past month are highlighted under certain broad categories, as illustrated below. Since some activities are periodic and on-going, there may be some months when very little will be reported under that category. It is recommended for reviewers to examine previous reports to ensure connectivity with the information presented as it would be cumbersome to continuously repeat prior information in every report. Past reports are available from the Radiation Control Program's web site at the following link: [www.maineradiationcontrol.org](http://www.maineradiationcontrol.org) and by clicking on the nuclear safety link in the left hand margin.

Commencing with the January 2010 report the glossary and the historical perspective addendum are no longer included in the report. Instead, this information is available at the Radiation Control Program's website noted above. In some situations the footnotes may include some basic information and may redirect the reviewer to the website.

### Independent Spent Fuel Storage Installation (ISFSI)

During April the general status of the ISFSI was normal. There were no instances of spurious alarms due to environmental conditions.

There were no fire or security related impairments in April. There were, however, eight security events logged (SEL) for the month. Of the seven issued, five were for the snowstorm on April 1<sup>st</sup>. One of the SELs addressed the temporary loss of communication with their off-site security feed during a computer maintenance activity. Communications were restored and satisfactorily tested the same day. The second involved the failure of one camera, which was replaced and tested satisfactorily the same day. The last SEL was for a detector that failed during routine testing. The detector was repaired and retested within two hours.

There were five condition reports<sup>1</sup> (CR) for the month of April and they are described below.

1<sup>st</sup> CR: Involved security information which can not be disclosed to the public.

2<sup>nd</sup> CR: Documented a fire detection zone alarm. There was no fire. The instruments were cleaned and satisfactorily retested the same day.

3<sup>rd</sup> CR: Documented the loss of signal from their off-site security contractor as noted in the SEL above.

4<sup>th</sup> CR: Issued to track recommendations from a review of training modules.

5<sup>th</sup> CR: Addressed a drain cover that was cracked by construction paving equipment. The damaged cover was repaired the next day.

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<sup>1</sup> A condition report is a report that promptly alerts management to potential conditions that may be adverse to quality or safety. For more information, refer to the glossary on the Radiation Program's website.

## *Other ISFSI Related Activities*

1. On April 6<sup>th</sup> Maine Yankee submitted two annual reports to the Nuclear Regulatory Commission. By design there are no gaseous or liquid releases from the ISFSI. Therefore, there was no radioactivity to report in its Annual Effluent Release Report. In addition, there were no solid waste shipments from the ISFSI site to describe in the Effluent Release Report. The second document, the Annual Radiological Environmental Operating Report, explains the environmental monitoring program. Since there are no effluent releases from the casks, Maine Yankee is only required to monitor the direct radiation exposure from the facility, which it does with passive devices, called thermoluminescent dosimeters (TLDs)<sup>2</sup>. There are nine TLD stations in the vicinity of the ISFSI and one control station at the Wiscasset Fire Station. All nine stations were comparable to or slightly higher than the control station. However, there was one station that was noticeably higher than the other eight ISFSI stations. This location has been consistently high since March of 2005. Due to its distance from the bermed area of the ISFSI, the values are higher than expected and could be due to its proximity to naturally higher background radiation, such as a ledge outcrop.
2. On April 11<sup>th</sup> Maine Yankee submitted a letter to the Department of Environmental Protection (DEP) signifying they had conducted their annual site inspection as per their Environmental Covenant Agreement with the DEP. The letter indicated that the Soil Management Plan was used once to support the modification of the security fence. Maine Yankee contracted with Ransom Environmental to take samples and analyze for any chemical contamination. No chemical contamination of the excavated soils was found.
3. On April 12<sup>th</sup> the legislatively mandated oversight group, representing the Department of Environmental Protection, the State Police, the Public Advocate, the Department of Health and Human Services' Radiation Control Program and Maine Yankee, met for its quarterly meeting to discuss the State's and Maine Yankee's activities pertinent to the overseeing of the ISFSI. Maine Yankee requested the status of the State's East Access Road survey and the solar powered radiation detector units on-site. The State noted that the road survey will be performed this spring and that the assessment of the solar powered units will take place this fall. Further discussions centered on the State Police's upgrading of its response activities and how that could benefit the security of the storage facility.

## Environmental

The State's first quarter TLDs results were not available at report time. However, as mentioned in last month's report, the following information represents the State's fallout monitoring efforts from the Fukushima incident in Japan. Normally, the air filters are collected on a biweekly basis from the roof of the Health and Environmental Testing Laboratory (HETL) and first tested for gross beta<sup>3</sup>. At the end of each calendar quarter all the air filters are assembled as one sample, a composite, and are analyzed for gamma radiation. The gamma energy peaks on the graph are like fingerprints pointing to specific radioactive elements.

After being notified by the University of Maine in Orono and the Portsmouth Naval Shipyard in Kittery that they were picking up radioactive Iodine in their air filters, the State directed the HETL to pull the State's air filter on the top of its roof and analyze the specimen for radioactive elements. The sample confirmed the

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<sup>2</sup> Thermoluminescent Dosimeters (TLD) are very small, passive radiation monitors requiring laboratory analysis. For a further explanation, refer to the glossary on the Radiation Program's website.

<sup>3</sup> Gross Beta is a simple screening technique that measures the total number of beta particles emanating from a potentially radioactive sample. High values would prompt further analyses to identify the radioactive species. Refer to the glossary on the website for further information.

presence of radioactive Iodine-131<sup>4</sup> in minute concentrations. The Table below lists the State's findings as well as those from the University of Maine and the Portsmouth Naval Shipyard.

### Iodine-131 Sampling Results from the Fukushima Incident

**Table 1 - AIR**

All units are in pCi per cubic meter (pCi/m<sup>3</sup>)<sup>5</sup>

DATE	Orono	Augusta	Kittery
3/22/2011	0.01		0
3/23/2011			0.087
3/24/2011		0.015	0.027
3/25/2011			0.019
3/26/2011		0.032	
3/28/2011		0.041	0.028
3/29/2011	0.019	0.000	0.05
3/30/2011		0.040	0.045
3/31/2011		0.085	0.036
4/1/2011	0.014		0
4/4/2011		0.053	0.055
4/5/2011			0.025
4/6/2011		0.000	0
4/7/2011	0.030		0.03
4/8/2011		0.023	
4/11/2011	0.011	0.022	
4/13/2011		0	
4/15/2011		0	
4/20/2011		0	
4/27/2011		0	

After the initial find on the air filters the State increased its sampling efforts to daily before slowly increasing the time period between the sampling runs back to its normal bi-weekly frequency on April 27<sup>th</sup>. The average daily radon background lung dose from outdoor air in the U.S. is about 2.7 mrem<sup>6</sup> per day. The radiation dose consequence for the Iodine-131 from Fukushima was very minor. Based on the highest Fukushima value found in Maine air, 0.087 pCi/m<sup>3</sup>, the calculated radiological lung dose for one day for an adult male weighing about 154 pounds would approximate 0.000006 mrem, or less than a second of exposure from the natural radon background. The thyroid dose for one day to the same individual would amount to 0.0027 mrem. This is considerably less than the 100,000 to 200,000 mrem a person would receive from a thyroid uptake study using Iodine-131.

The State's Iodine values were comparable to what New England and what other states have measured with the higher values being detected in the western states. The highest Iodine value of 2.42 pCi/m<sup>3</sup> in the nation was found in Dutch Harbor, Alaska. In all the states the predominant radioactive element from Fukushima was Iodine-131. However, in Nome, Alaska they also detected seven other radioactive elements in the air. They

<sup>4</sup> Radioactive elements are usually represented by their chemical names and corresponding mass numbers, which represent the number of protons and neutrons in the nuclei of atoms.

<sup>5</sup> A pCi/m<sup>3</sup> is an acronym for a pico-curie per cubic meter, which is a concentration unit that defines how much radioactivity is present in a unit volume of air measured in meters. A pico is a scientific prefix for an exponential term that is equivalent to one trillionth (1/1,000,000,000,000).

<sup>6</sup> A mrem is a conventional unit of dose equivalent that describes how much radiation energy was absorbed by a person's body and qualified by the types of particles or rays that deposited the energy.

were Cesium-134, Cesium-136, Cesium-137, Iodine-132, Tellurium-129<sup>m</sup>, Tellurium-129 and Tellurium-132. Some of the western states, like California, Washington and Idaho, also detected some of these elements.

Table 2 illustrates the types of precipitation that was sampled in Maine. The highest precipitation finding of 37.4 pCi/L was comparable to what the other New England states found. Their values ranged from 2.5 to 47 pCi/L, whereas the western states detected higher concentrations of Iodine-131 ranging up to 390 pCi/L.

**Table 2 - PRECIPITATION**

All units are in picocuries per liter (pCi/L)<sup>7</sup>

DATE	Orono	Augusta	Type
3/23/2011	0		Snow
3/23/2011	0		Snow
4/1/2011		9.34	Snow
4/5/2011		37.4	Rain
4/6/2011		12.2	Rain
4/11/2011		4.79	Rain
4/13/2011		0	Rain
4/20/2011		0	Rain

The calculated thyroid dose for a day for ingesting the highest concentration of 37.4 would have been around 0.065 mrem for an adult drinking a little over one quart of rainwater.

The drinking water was tested as part of the State's quarterly surveillance of the Portsmouth Naval Ship Yard and the nuclear power station in Seabrook, New Hampshire. No radioactive Iodine -131 was detected as indicated in Table 3.

**Table 3 - DRINKING WATER**

All units are in picocuries per liter (pCi/L)

DATE	Bangor	Kittery	
3/30/2011	0		pCi/l
3/31/2011		0	Maximum Concentration Level for Iodine-131 in Drinking Water
			3

From March 25<sup>th</sup> through April 4<sup>th</sup> no radioactive Iodine was found in 70 drinking water samples taken in 38 states across the U.S. as part of the Environmental Protection Agency's radiological sampling network.

The seaweed near Fort McCleary was also tested as part of the State's quarterly surveillance of the Portsmouth Naval Shipyard and Seabrook. Since seaweed is an excellent bio-accumulator of most elements, as expected, the State identified Iodine-131 at a concentration of 59.2 pCi/kg<sup>8</sup>. However, finding radioactive Iodine-131 in seaweed is not unusual at Fort McCleary. In the past the State normally finds this radioactive element during the summer months during the tourist season. Some have had recent thyroid scans or uptakes as part of medical procedures using radioactive Iodine to evaluate their thyroids. Their urinations are usually processed at a *municipal wastewater treatment system*, which eventually empties its treated water into the ocean. As

<sup>7</sup> A pCi/L is an acronym for a pico-curie per liter, which is a concentration unit that defines how much radioactivity is present in a unit volume, such as a liter. A pico is a scientific prefix for an exponential term that is equivalent to one trillionth (1/1,000,000,000,000).

<sup>8</sup> A pCi/kg is an acronym for a pico-curie per kilogram, which is a concentration unit that defines how much radioactivity is present in a unit mass, such as a kilogram. A kilogram is equivalent to 2.2 pounds.

previously mentioned, seaweed easily absorbs and incorporates the Iodine. What is unusual is that the Iodine-131 was detected early, before the tourist season, which implies that it was probably from the Fukushima incident.

## Maine Yankee Decommissioning

The preliminary working draft of the Confirmatory Summary Report is still under review.

## Groundwater Monitoring Program

On April 29<sup>th</sup> Maine Yankee submitted its 2010 cost summary report for the radiological groundwater monitoring program. The summary indicated that \$495,500 of the \$500,000 agreed upon program costs was spent. The expectation is that the \$500,000 will be exceeded with the closure of twelve wells this spring or summer. Under an Agreement between Maine Yankee and the Department of Environment Protection four of the sixteen wells will remain open as part of the chemical testing that will continue at periodic intervals for the next 24 years.

The State commenced its review of the fifth and final groundwater report. The massive report contains 3399 pages of raw data. To date the review has covered 201 pages of the 3965 page report. The report's review will be completed in May. The report indicated that several radioactive elements were sporadically detected over the year in some of the wells. The man-made radioactive elements identified included tritium, a form of heavy hydrogen (Hydrogen-3<sup>9</sup>), Iron-55, Cobalt-57, Cobalt-60, Nickel-63, Zinc-65, Strontium-90, Zirconium-95, Cerium-141, Cesium-137 and Plutonium-238. Other radioactive species were also identified. They were the natural radioactive elements of Beryllium-7, Potassium-40, Thallium-208, Lead-214, Bismuth-214 and Actinium-228. Nine of the fourteen wells tested had Strontium-90 in minute concentrations. The results ranged from 2.71 to 8.35 pCi/L. None of the wells exceeded the administrative limit of 2 mrem that was established under the Radiological Groundwater Monitoring Agreement between the State and Maine Yankee. The findings demonstrated that Maine Yankee complied with the State's 4 mrem groundwater pathway dose to the public.

## Other Newsworthy Items

1. On April 1<sup>st</sup> the Attorney General's Office from the State of Washington filed with the U.S. Court of Appeals for the District of Columbia in behalf of the petitioner's, (the states of Washington and South Carolina, Aiken County South Carolina, the three business leaders from the Tri-City area near Hanford Washington, and the National Association of Regulatory Utility Commissioners), provided supplemental information to their March 22<sup>nd</sup> oral arguments to counter the questions raised by the Court. A copy of the letter is attached.
2. On April 5<sup>th</sup> Nye County, Nevada sent a letter to Department of Energy's Dr. Peter Lyons taking exception to his comment to the House Appropriations' Subcommittee on Energy and Water Development that Yucca Mountain did not have local support. The letter alluded to several other Nevada counties supporting the Yucca Mountain Project. The letter included past resolutions, even the original 1975 resolution that was passed urging the federal government "to choose the Nevada Test Site for the storage and processing of nuclear material". Copies of the letter and resolutions are attached.

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<sup>9</sup> Tritium or Hydrogen-3 is unusual in that it is also a naturally occurring radioactive element that is produced from cosmic interactions in the earth's atmosphere.

3. On April 6<sup>th</sup> the Nuclear Waste Strategy Coalition (NWSC) held its bi-monthly conference call to update its members on the congressional budgetary activities for the FY 2011 Continuing Resolution and FY 2012 appropriations. The update discussed the litigation status on the Department of Energy's Nuclear Waste Fund fees. It also included the Blue Ribbon Commission's recently released interim report on what the Commission heard as key points in its public meetings. Further updates were provided on the Nuclear Regulatory Commission's (NRC) Atomic Safety and Licensing Board's Orders, Volume III of the NRC's Safety Evaluation Report and the U.S. Court of Appeals hearing on oral arguments. The NWSC is an ad hoc group of state utility regulators, state attorneys general, electric utilities and associate members representing 47 stakeholders in 31 states, committed to reforming and adequately funding the U.S. civilian high-level nuclear waste transportation, storage, and disposal program.
4. On April 6<sup>th</sup> counsels for the Nuclear Regulatory Commission and the Department of Energy filed a letter with the U.S. Court of Appeals for the District of Columbia Circuit stating that the petitioners' (Aiken County South Carolina, et al.) request should be dismissed for their "failure to challenge a final agency action". A copy of the letter is attached.
5. On April 8<sup>th</sup> the Department of Energy (DOE) filed with the Nuclear Regulatory Commission's Atomic Safety and Licensing Board a motion to dismiss one of the Nuclear Energy Institute's (NEI) safety contentions. This contention was initially dismissed by the Board on December 14, 2010 and subsequently challenged by NEI. On the same day the DOE filed with the Board its motion to dismiss four of Nevada's safety contentions on purely legal grounds.
6. On April 10<sup>th</sup>-14<sup>th</sup> an international high-level radioactive waste management conference was held in Albuquerque, New Mexico. Although the topics were many and varied, most focused on geologic repositories, natural analogs, engineered barriers, radiological pathway models and model uncertainties. However, some sessions were devoted to technical issues in dry storage, international experience in dry interim storage and the Department of Energy's program for long term storage. The international storage session featured presentations from France, Germany and Japan. One of the highlights was a special session devoted to Sweden's reaching a milestone in their nuclear waste management program – a license application for a repository at Fosmark.
7. On April 11<sup>th</sup> the Nuclear Regulatory Commission's (NRC) Atomic Safety and Licensing Board issued an Order to the parties involved in the Yucca Mountain License proceedings. Since the Administration's funding proposals for FY 2012 stipulated no funding for the preservation of the Yucca Mountain documents at the NRC after September 30<sup>th</sup>, the Board then directed the parties to preserve all their documents in "PDF" format and submit them electronically to the NRC's Office of the Secretary.
8. On April 12<sup>th</sup> the Office of Senate Majority Harry Reid issued a website letter to all Nevadans indicating that "Yucca Mountain is dead". The Senator took this opportunity to relate how he thwarted the House's efforts in slipping in a rider on the appropriations bill to fund the Yucca Mountain Project. A copy of the letter is attached.
9. On April 16<sup>th</sup> the Department of Energy (DOE) filed with the Nuclear Regulatory Commission's Atomic Safety and Licensing Board a supplement to their motion to dismiss one of the Nuclear Energy Institute's safety contentions. The purpose of the supplement was to notify the Board that the DOE's efforts to resolve the issues the Board raised in its April 8<sup>th</sup> motion were unsuccessful.

10. On April 18<sup>th</sup> the Nuclear Regulatory Commission's (NRC) Staff filed with the NRC's Atomic Safety and Licensing Board its response to the Department of Energy's motion to dismiss four of Nevada's safety contentions. The Staff agreed to the full dismissal of two of the safety contentions and two in part. On the same day the Staff also filed with the Board its support for the Department of Energy's motion to dismiss one of the Nuclear Energy Institute's safety contentions.
11. On April 18<sup>th</sup> the State of Nevada filed with the Nuclear Regulatory Commission's Atomic Safety and Licensing Board a response opposing the Department of Energy's (DOE) motion to dismiss four of Nevada's safety contentions. The filing took issue with the positions taken by DOE and provided information to support their safety contentions.
12. On April 18<sup>th</sup> the Nuclear Energy Institute (NEI) filed with the Nuclear Regulatory Commission's Atomic Safety and Licensing Board a motion to dismiss one Nevada safety contention. The purpose of the filing was to reserve NEI's right to appeal.
13. On April 19<sup>th</sup> the Chair of the Maine Yankee Community Advisory Panel (CAP) on Spent Nuclear Fuel Storage and Removal sent a letter to the Co-Chairs of the Blue Ribbon Commission's (BRC) Subcommittee on Transportation and Storage on their portion of the BRC's report "What We've Heard". The letter commended the Subcommittee for capturing the CAP's core principles, but was disappointed that the Subcommittee did not make the removal of spent nuclear fuel from single-unit, decommissioned reactor sites to a centralized storage facility a priority, which was a central theme at the August 10, 2010 BRC Subcommittee meeting in Wiscasset. A copy of the letter is attached.
14. On April 20<sup>th</sup> the Nuclear Waste Strategy Coalition (NWSC) held a conference call to update its members on the congressional activities for the FY 2011 Continuing Resolution, FY 2012 appropriations and the House of Representatives' actions on Yucca Mountain Project. The update also included the Blue Ribbon Commission's recently released interim report on what the Commission heard as key points in its public meetings and the Administration's re-nomination of Nuclear Regulatory Commissioner William Ostendorff to a second five year term.
15. On April 20<sup>th</sup> the Director of the Nuclear Waste Program Office for the National Association of Regulatory Utility Commissioners sent a letter to the Co-Chairs of the Blue Ribbon Commission (BRC) providing personal comments on the BRC's "What We Heard" report issued in March. The comments covered the following topics of interests:
  - program governance and execution,
  - approach to siting,
  - reactor and fuel cycle technologies,
  - transport and storage of used/spent nuclear fuel and high-level wastes,
  - disposal system for high-level waste, and
  - Nuclear Waste Fund and fee
16. On April 21<sup>st</sup> the Department of Energy (DOE) filed with the Nuclear Regulatory Commission's (NRC) Atomic Safety and Licensing Board a motion requesting clarification of the Board's April 11<sup>th</sup> Order to "PDF" all the Yucca Mountain license documents and to provide electronic versions to the NRC Secretary. The DOE requested the Board to allow "PDF/A" formatting for the documents and to provide the NRC Secretary with high capacity external drives as opposed to hundreds of DVDs.
17. On April 21<sup>st</sup> the Nuclear Regulatory Commission (NRC) Staff filed a motion with the NRC's Atomic Safety and Licensing Board to stay the Board's April 11<sup>th</sup> Order. Unless a stay is issued, the

Staff maintained that it will be irreparably harmed and contrary to the public's interest. On the same day the Staff also filed with the Board a request to leave to file a motion for reconsideration and a motion for reconsideration of the Board's April 11<sup>th</sup> Order. The Staff's filing was a separate request for a stay of the effectiveness of the Order or a housekeeping stay pending resolution of its motion. The separate motions outlined the compelling circumstances for the Board to reconsider its Order.

18. On April 21<sup>st</sup> the Acting Executive Director of the State of Nevada's Agency for Nuclear Projects sent a letter to Representative John Shimkus, Chair of the House's Committee on Energy and Commerce, requesting two representatives from Nevada accompany him and other Representatives from the Committee on his planned site tour of the Yucca Mountain facility on April 26<sup>th</sup>. A copy of the letter is attached.
19. In April the Decommissioning Plant Coalition sent a letter to the Co-Chairs of the Blue Ribbon Commission's (BRC) Subcommittee on Transportation and Storage commenting on the Commission's interim report, "What We Heard". The letter expressed concern that the report failed to capture the importance of shipping spent nuclear fuel and Greater Than Class C waste from decommissioned reactor sites to a centralized storage facility "on a priority basis". The letter cataloged numerous organizations and individuals supporting this approach. A copy of the letter is attached.
20. On April 22<sup>nd</sup> the U.S. Nuclear Waste Technical Review Board issued a news release that they will hold a workshop on waste streams for various nuclear fuel cycle options. A copy of the news release is attached.
21. On April 25<sup>th</sup> the State of Nevada filed with the Nuclear Regulatory Commission's Atomic Safety and Licensing Board its intent to take oral depositions from two consultants on their knowledge respective to six separate Nevada safety contentions that were admitted to the Yucca Mountain license proceedings. A copy of their letter is attached.
22. On April 25<sup>th</sup> the Nuclear Regulatory Commission's (NRC) Staff filed with the NRC's Atomic Safety and Licensing Board their certification of no additional witnesses for Phase I contentions of the National Environmental Policy Act.
23. On April 26<sup>th</sup> the Massachusetts Institute of Technology released a report on the nuclear fuel cycle recommending regional centralized storage sites for 100 years starting with used nuclear fuel from decommissioning reactor sites. The report suggested the spent fuel should be placed in medium-term repositories using dry casks and above ground silos. The report recommended storage over reprocessing since the existing uranium supply was adequate and long term storage would maintain the reprocessing option. A copy of a news release is attached.
24. On April 26<sup>th</sup> the Director of the Nuclear Waste Program Office for the National Association of Regulatory Utility Commissioners sent a second letter to the Blue Ribbon Commission noting an oversight from his earlier April 20<sup>th</sup> letter of the need to emphasize the priority nature of removing spent nuclear fuel from decommissioned reactor sites to a centralized interim storage facility. A copy of the letter is attached.
25. On April 26<sup>th</sup> the Joint Timbisha Shoshone Tribal Group filed with the Nuclear Regulatory Commission's Atomic Safety and Licensing Board their certifications of no additional party or other witnesses to their status as intervenors in the Yucca Mountain license proceedings.



26. On April 27<sup>th</sup> the State of Nevada and Clark County, Nevada filed with the Nuclear Regulatory Commission's Atomic Safety and Licensing Board their certifications of no additional party or other witnesses to their status as intervenors in the Yucca Mountain license proceedings.
27. On April 27<sup>th</sup> the Executive Director of the U.S. Nuclear Infrastructure Council and a former Deputy Assistant to the Secretary of Energy concluded that the April 26<sup>th</sup> Massachusetts Institute of Technology report was a recipe for inaction. Although there were some commendable findings, his response raised five concerns, one of which was the report's assurance of a century-long supply of uranium. He countered that currently, "other nations are moving aggressively to lock-up future sources of supply". A copy of the article is attached.
28. On April 27<sup>th</sup> the U.S. Nuclear Waste Technical Review Board held a meeting in Amherst, New York to discuss the management and disposition of West Valley Demonstration Project's nuclear wastes. West Valley was the site of the nation's only commercial venture to reprocess spent nuclear fuel. The meeting focused on the decommissioning of the site, the vitrification (embedding in a glassy matrix) and the storage of the high-level liquid wastes. A copy of the agenda is attached.
29. In April the U.S. Nuclear Waste Technical Review Board issued a report on deep borehole disposal of spent nuclear fuel and high-level waste. The report discussed safety, capacity, technical feasibility and challenges, and international investigations. A copy of the report is attached.

### *Other Related Topics*

1. On March 4<sup>th</sup> the Congressional Research Service issued a report, entitled "Closing of Yucca Mountain: Litigation Associated with Attempts to Abandon the Planned Nuclear Waste Repository". The report provided a historical legal summary of:
  - the Administration's budgets to defund and terminate the Yucca Mountain Project,
  - the Department of Energy's initiatives to withdraw their Yucca Mountain license application and to reprogram congressional appropriations for closure of the project,
  - the appointment of and directives provided to the Blue Ribbon Commission,
  - the Nuclear Regulatory Commission's licensing proceedings and the halting of those proceedings,
  - the subsequent litigation in the D.C. Circuit Court of Appeals over the license withdrawal and the suspension of the Nuclear Waste Fund fee, and
  - the congressional reaction to the proposed termination of the Yucca Mountain facility.
2. On March 8<sup>th</sup> the Nuclear Energy Institute (NEI) filed with the U.S. Court of Appeals for the DC Circuit a motion to leave and intervene in support of the federal government against the states of Connecticut, New York and Vermont lawsuit. The states' filed their lawsuit in February over the federal government's implementation of the Nuclear Regulatory Commission's Waste Confidence Decision Update and Temporary Storage Rule claiming the rules would violate the Atomic Energy Act, the Administration Procedures Act and the National Environmental Policy Act. The motion provided numerous reasons why the NEI has a clear interest and how they would be affected.
3. On March 10<sup>th</sup> the Chair and three members of the House Committee on Science, Space, and Technology responded to Chairman Jaczko's March 4<sup>th</sup> letter refusing to release an unredacted copy of the Nuclear Regulatory Commission's Volume III of the Safety Evaluation Report (SER) on Yucca Mountain because it was a preliminary draft as opposed to a circulated draft. The four

members repeated their call to Chairman Jaczko to release the SER and to respond to six questions that focused mostly on the SER. A copy of the letter is attached.

4. On March 23<sup>rd</sup> U.S. Government Accountability Office issued a report entitled: "DOE NUCLEAR WASTE: Better Information Needed on Waste Storage at DOE Sites as a Result of Yucca Mountain Shutdown". The Department of Energy (DOE) is responsible for managing and storing its own and the Department of Defense's used nuclear fuel and high-level waste in five states. The report evaluated:
  1. the termination of the Yucca Mountain Project and its impact on the agreements DOE has with five states,
  2. the impacts on the DOE's and the Navy's operations and costs to store the waste; and
  3. the DOE's and the Navy's plans for mitigating the potential effects.

Two of the states have legal deadlines for the federal waste to be removed from the DOE sites. If the milestones were not met then the government would face significant penalties, up to \$75,000 per day, or \$27.4 million annually. If a repository's opening was delayed 20 years beyond the January 1, 2035 deadlines, then the analysis showed that DOE would need nearly \$1 billion in additional funds in order to extend storage at the DOE sites. The Navy's greatest concern was if Idaho decided to suspend the Navy's shipment of their spent fuel. A suspension would interfere with the Navy's ability to refuel its nuclear warships. The report recommended that the "DOE (1) assess existing nuclear waste storage facilities and the resources and information needed to extend their useful lifetimes and (2) identify any additional research needed to address DOE's unique needs for long-term waste storage".

5. In March the Board of Eureka County Commissioners issued a report entitled: "Lessons Learned: Summary of Findings and Recommendations for the Blue Ribbon Commission on America's Nuclear Future". The report listed four major concerns the County believed resulted in the federal government's failure at Yucca Mountain. They were:
  - a) Public trust and confidence were not established and sustained,
  - b) Adequacy of funding was limited or restricted hindering effective participation in decisions,
  - c) Government information was not accurate and publicly accessible, and
  - d) Government failed to respond to transportation and emergency response concerns.

Each major concern was further subdivided into more specific concerns. For example, under public trust and confidence, the concerns were divided into four subcategories: congressional action, fairness of the Department of Energy's actions, lack of clarity in procedures for redress of concerns, and distortion of the National Environmental Policy Act (NEPA) process. Each subcategory usually had additional specifics with recommendations. The Board recommended that the Blue Ribbon Commission endorse an approach "that

- respects the local governments and the host State,
- encourages volunteer siting,
- promotes a coordinated and transparent NEPA process,
- considers the challenges of transportation and emergency response to be integral to the project,
- recognizes the broadened involvement of parties in the licensing process, and
- supports on-going, publicly accessible, responsible stewardship of public information related to the repository program, adapting to new technology for the life of the project."



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April 1, 2011

Mark Langer, Clerk  
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RE: *In Re Aiken County*  
U.S. COA, D.C. Circuit No. 10-1050 consolidated with 10-1052, 10-1069, 10-1082

Pursuant to Fed. R. App. P. 28(j) and Circuit Rule 28(f), Petitioners submit the following supplemental authorities:

1. Testimony of Gregory Jaczko, Chairman of the Nuclear Regulatory Commission, given on Thursday, March 31, 2011, before the Energy and Water Development Subcommittee, House Appropriations Committee.
2. *CSI Aviation Serv., Inc. v. U.S. Dep't of Transp.*, No. 09-1307 (Apr. 1, 2011)

During oral argument, the Court questioned whether matters before the NRC rendered DOE's decision non-final or unripe. See Oral Argument Transcript (Mar. 22, 2011) p. 6 line 14 - p. 7 line 11; p. 9 line 9 - p. 11 line 5; and p. 36 line 22 - p. 38 line 10. On page 44 of the enclosed testimony, Chairman Jaczko states:

It is not the responsibility of this body [the NRC] to require the DOE to move forward or not move forward with a particular program or a program direction. Our job is licensing. That is the function and responsibility of this body. And no more than you would expect the fire marshal to go in and tell a developer to continue developing a building so that they can conduct their fire inspections should we be expected to be in a position of demanding or requiring the Department of Energy to move forward with a program.

The Chairman has thus agreed that the NRC has no authority to compel DOE to comply with the NWPA. See 42 U.S.C. § 10134(d); see also, JA 763-64, 768. That authority lies with this Court.

Mark Langer  
April 1, 2011  
Page 2

42 U.S.C. § 10139. By the NRC's own admission, then, there is no decision for the NRC to make regarding the two issues pending before this Court (whether DOE may reject Yucca Mountain and abandon all efforts to develop it, and whether DOE may specifically abandon the licensing process). DOE's decision is final and ripe. Respondents' representations in litigation do not change this finality.

The *CSI* decision demonstrates that finality of DOE's decision is determined by a three-pronged substantive analysis, not the form of the decision. DOE's decision meets all three prongs. Petitioner's Opening Brief at 28, 33.

Sincerely,

*s/ Andrew A. Fitz*

ANDREW A. FITZ  
Senior Counsel  
(360) 586-6752

AAF:dmm  
Enclosures

cc: All Parties of Record



**Nye County**  
**Nuclear Waste Repository Project Office**  
2101 E. Calvada Blvd. Ste., 100 · Pahrump, Nevada 89048  
(775) 727-7127 · Fax (775) 727-7919

11-044-DL (L)

April 5, 2011

U.S. Department of Energy  
Attn: Dr. Peter Lyons, Office of Nuclear Energy  
1000 Pennsylvania Avenue  
Washington, D.C. 20585

**Re: Local Community Support for the Yucca Mountain Project**

Dear Dr. Lyons,

On March 31, 2011 you testified before a HEARING OF THE ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE OF THE HOUSE APPROPRIATIONS COMMITTEE.

At that hearing you were asked by Congressman Simpson to explain what "unworkable" meant in the context of the Department's decision to terminate the Yucca Mountain Project. Your response, as quoted from the transcript of the record of the hearing was: *"The secretary has made it clear that to be workable requires both a technical -- from a technical perspective and a local support perspective. The technical perspective, I don't think I'm prepared to comment on. That has not been determined. From a local support perspective, it has certainly not enjoyed that support."*

Nye County takes exception to your response.

Yucca Mountain is wholly contained in Nye County, NV. Nye County was designated as the site county for the nation's repository in July 2002. The attached letter from Nye County to the BRC, accompanied by the resolutions the county passed on the same subject should be clear and convincing evidence that your response to the subcommittee was at best an uninformed opinion or one where you have for some reason been mis-informed.

The presumed community acceptance of the WIPP in New Mexico, relied upon by DOE as an example of cooperation, is distorted hindsight. The WIPP project was opposed by some locals, resulted in federal litigation, and took several decades to complete. The fact that WIPP is operational without major safety failures has dramatically changed acceptance of the facility over time.

The NWPA eliminated State veto power over repository siting after the Governors of the states informed Congress that political pressure on the states to exercise a veto regardless of the technical merit of a repository location could result in a repository never being sited and built. The NWPA was therefore structured with an over-ride of state disapproval, and that over-ride

*Dr. Lyons*  
*April 5, 2011*  
*Page 2*

was exercised by Congress and the President in the case of Yucca Mountain after Nevada objected.

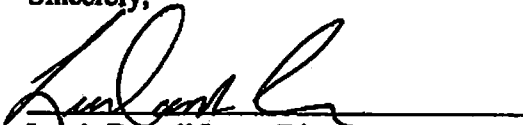
We respectfully request that you utilize this information and the attachments to this message (letter) as a basis to revise and extend your testimony to the subcommittee.

While we cannot speak for other Nevada counties, we have reason to believe that Esmeralda, Mineral, Lander, Churchill, White Pine and Lincoln Counties support YM in Nevada.

We have not yet had the opportunity to meet with you, however, our interactions with what was DOE's Office of Civilian Radioactive Waste Management were many and often. On our next visit to Washington, D.C. we will contact your office to arrange a meeting with you. If you come out to Nevada, we invite you to visit Nye County and hope you will visit the YM site.

Thank you for your time and consideration.

Sincerely,



Lewis Darrell Lacy, Director  
Nye County Nuclear Waste Repository Project Office

DL/wm

Attachments: Nye County Letter to the BRC, Feb 7, 2011  
Nye County Resolution 2002-07  
Nye County Resolution 2002-22  
Nye County Resolution 2004-25  
Nye County Resolution 2011-21

cc: U.S. DOE, Dr. Chu  
Staff Director, The House Energy and Water Development Subcommittee of the House  
Appropriations Committee  
CM Simpson  
CM Pastor  
CM Frelinghuysen  
CM Rehberg  
CM Fattah  
CM Nunnelee  
CM Walberg  
CW Lowey  
NRC, Chairman Jaczko



**Board of County Commissioners  
Nye County  
Pahrump, Nevada**

**Pahrump Office  
2100 E. Walt Williams Drive  
Pahrump, NV 89048  
Phone (775) 751-7075  
Fax (775) 751-7093**

**February 7, 2011**

**U.S. Department of Energy  
Attn: Blue Ribbon Commission  
1000 Independence Ave., S.W.  
Washington, DC 20585**

**Subject: Additional Comments for Blue Ribbon Commission Consideration**

**Chairman Hamilton & Chairman Scowcroft:**

**We respectfully submit the following comments for your consideration.**

**Prior to the BRC meetings in New Mexico we forwarded three (3) Nye County resolutions (attached) associated with the Yucca Mountain Project that specifically demonstrate local government support for the Yucca Mountain Project. Local officials in Carlsbad have demonstrated their support for WIPP and have clearly stated their desire to extend that support for receipt of high-level defense waste. This has the potential of at least a partial solution to the nation's nuclear waste dilemma. We commend their efforts. New Mexico's Governor and Attorney General stated their openness to expanded operations at WIPP as long as those operations are supported by science.**

**Considering that the BRC is not a siting commission, and the fact that Yucca Mountain is by law the designated site for the nation's geologic repository for spent nuclear fuel and defense high level waste, we would like to point out, one more time, that strong local community support for Yucca Mountain exists at the host county level. Our own research, conducted with Nuclear Waste Policy Act provided funds, convinces us that the science embodied in DOE's license application for Yucca Mountain and its hundreds of supporting documents is sound. That conclusion is supported at least in part by the Nuclear Regulatory Commission staff review of the documents, wherein they have formally stated that they have no further questions and were about to issue their Safety Evaluation report when politics took over. While Nevada's Governor and Attorney General in concert with Nevada's federal delegation oppose a geologic repository at Yucca Mountain, it is still the law. In 1975 Nevada actually supported what would become the Yucca Mountain Project (resolution attached). Similarly, it is possible that New Mexico is only one election away from losing state support regardless of what sound science indicates if political winds change.**

At the February 1, 2011 BRC meeting in Washington, D.C. expert witnesses present for the meeting testified to the importance of local government support and the necessity of a definitive role for state government. It took eleven years for the State of New Mexico to agree to the terms of its definitive role with WIPP. The business of Yucca Mountain is as yet unfinished, hi-jacked by the politics of a single powerful senator and what some view as complicity by the NRC Chairman. As a minimum, for the sake of the science and other lessons that can be learned from the experience, we ask that the BRC recommend completion of the NRC review of the Yucca Mountain license application. It is difficult to understand how a tour of WIPP without a comparable tour of Yucca Mountain and review of the technical issues provides any basis for beginning a dialog on paths forward for repository development. We invite the BRC to Nye County to visit Yucca Mountain and our Yucca Mountain Information center where we have retained what we believe to be the best public multi-media collection of Yucca Mountain history.

The complexity of the task you face is immense. Various subject matter experts testified to you that at the end of the day the nation needs to provide for geologic disposal of our nation's nuclear waste streams. We ask you not to lose sight of the following facts and issues:

- The nation needs more clean base load energy and nuclear fills that bill.
- Nuclear waste has always been an Achilles heel for nuclear energy development; the waste issue must be resolved for new nuclear to be successful. We need geologic disposal no matter what choices are made for future fuel cycles. In fact, most studies indicate the need for more than one repository.
- No site will be perfect - we need safe acceptable sites. We can waste years arguing whether WIPP or Yucca Mountain is better, please do not lose sight of the facts that the New Mexico proposal is for high-level radioactive waste and not spent fuel. Also, recent studies, as you are no doubt aware, suggest that even if the U.S. proceeds with an advanced fuel cycle involving reprocessing, the legacy wastes are not likely to be reprocessed. WIPP will probably need another 10 to 20 years to be characterized, resolve questions regarding high heat loads and complete NRC licensing required under current law. Yucca Mountain took nearly 30 years before a license application was submitted. We urge you to recommend finishing the Yucca Mountain licensing process and start characterizing WIPP to the applicable NRC standards. The nearer term solution does not have to be an "either/or" process.



**Blue Ribbon Commission  
February 7, 2011  
Page 3**

- **Our current waste definitions need to be revised as there are several orphan streams such as Greater than Class C (GTCC) low level radioactive waste. WIPP may be a good site for some of these and they could possibly be technically and legally approved for disposal in a time frame to keep WIPP operational. It would be a shame to shut down WIPP when the legislative limit of TRU waste is emplaced while other nuclear waste streams do not have a home.**
- **No matter what recommendations the BRC comes up with, they must emphasize that any policy is only good if it's followed. Congress must define the policy and it's everyone else's job to follow it until and unless Congress changes it. Nothing the BRC does will be of use if the direction of Congress is not followed.**

**Sincerely,  
NYE COUNTY, NEVADA**

  
\_\_\_\_\_  
**Gary Hollis, Commissioner**

**DL/cs**

**Enclosures: Resolution 2002-22  
Resolution 2002-007  
Resolution 2004-25 support YMP  
Resolution-YM NC Res. Accepting HLRW.SNF 1975**

**cc: Nye County Board of Commissioners  
Rick Osborne, Nye County Manager  
Cash Jaszczak, Consultant, Nye County**

STATUTES OF NEVADA 1975

FIFTY-EIGHTH SESSION

1993

Senate Resolution No. 19—Senator Brown

FILE NUMBER 183

**SENATE RESOLUTION**—Designating certain members of the senate as members of the legislative commission in the legislative counsel bureau.

*Resolved by the Senate of the State of Nevada,* That pursuant to the provisions of NRS 218.660 and the joint rules of the legislature, Senators Richard H. Bryan, Melvin D. Close, Jr., Carl F. Dodge, James I. Gibson, Lee E. Walker and Thomas R. C. Wilson are designated as the regular senate members; Senator William J. Raggio is designated the alternate member for Senator Dodge; and Senators Norman Ty Hilbrecht, Richard E. Blakemore, Mary L. Gojack, Joe Neal and Gary A. Sheerin are designated as first, second, third, fourth and fifth alternate members respectively for the other members, to serve until their successors are designated.

Assembly Joint Resolution No. 15—Assemblymen Mann, Robinson, Price, Hickey, May, Getto, Jacobsen, Hayes, Moody, Chaney, Schofield, Benkovich, Dreyer, Howard, Hcansy, Bennett, Christensen, Jeffrey, Vergiels, Sena and Brookman

FILE NUMBER 184

**ASSEMBLY JOINT RESOLUTION**—Urging the Energy Research and Development Administration to choose the Nevada Test Site for the storage and processing of nuclear material and for solar energy research under the Solar Energy Research, Development and Demonstration Act of 1974.

**WHEREAS,** The now supplanted Atomic Energy Commission has, over the years, demonstrated an outstanding concern for nuclear safety and has compiled, at the Nevada Test Site, an equally outstanding safety record; and

**WHEREAS,** The people of Southern Nevada have confidence in the safety record of the Nevada Test Site and in the ability of the staff of the site to maintain safety in the handling of nuclear materials; and

**WHEREAS,** The unemployment rate in Clark County, Nevada, is 20.7 percent higher than the disturbingly high national unemployment rate; and

**WHEREAS,** The people and the leaders in many states being considered as sites for the storage and processing of nuclear material have serious anxieties and doubts about providing storage and processing sites; and

**WHEREAS,** The existing facilities and the years of expertise in nuclear material handling at the Nevada Test Site are a tremendous existing resource; and

**WHEREAS,** Southern Nevada also offers an excellent environment in which to explore the potential of solar energy; and

**WHEREAS,** National energy independence and a clean environment are dependent upon tapping nonfossil fuel sources of energy for heating, cooling and electricity; and

**WHEREAS,** The existing facilities of the Nevada Test Site and its support infrastructure are available and well suited to scientific research in addition to nuclear projects; and

WHEREAS, The storage and processing of nuclear material, and solar energy research can both be carried out at the Nevada Test Site with minimal capital investment relative to other locations; now, therefore, be it

*Resolved by the Assembly and the Senate of the State of Nevada, jointly,* That the legislature of the State of Nevada strongly urges the Energy Research and Development Administration to choose the Nevada Test Site for the storage and processing of nuclear material provided that there is an acceptance by the Energy Research and Development Administration of the following conditions:

1. Air cooling is used at the storage facility;
2. Rail transportation avoiding the Las Vegas metropolitan area is established to the site;
3. Appropriate state agencies and local governments can cooperate in, and contribute to, the development of the Energy Research and Development Administration's site-specific environmental impact statement;
4. It is satisfactorily demonstrated that adequate radiation safeguards for storage and transportation can be developed and will be implemented;
5. Public hearings are held in at least four counties in the state prior to choosing a specific site for the facility; and be it further

*Resolved,* That under the provisions of the Solar Energy Research, Development and Demonstration Act of 1974 the Energy Research and Development Administration utilize the extensive resources and facilities of the Nevada Test Site to explore the potential uses of solar energy; and be it further

*Resolved,* That copies of this resolution be prepared and transmitted by the legislative counsel to the administrator of the Energy Research and Development Administration, to the assistant administrators for nuclear energy and for solar, geothermal and advanced energy systems and to all members of Nevada's congressional delegation; and be it further

*Resolved,* That this act shall become effective upon passage and approval.

Assembly Joint Resolution No. 38—Assemblymen Coulter, Mann, Sena, Murphy, Hayes, Dreyer, Benkovich, Polish, Glover, Mello, Wittenberg, Weise, Bennett and Christensen

#### FILE NUMBER 185

ASSEMBLY JOINT RESOLUTION—Memorializing Congress to authorize and fund a veterans' hospital in Southern Nevada.

WHEREAS, There are 92,000 veterans living in Nevada who have honorably served their country; and

WHEREAS, Approximately 50,000 of these veterans reside in Southern Nevada; and

WHEREAS, The closest veterans' hospitals for these 50,000 veterans are in Los Angeles and Reno, a fact which makes hospital care for any of these veterans an extreme inconvenience and even a real hardship; and

**Resolution No. 2002-007  
NYE COUNTY BOARD OF COMMISSIONERS**

**BOARD OF COUNTY COMMISSIONERS  
COUNTY OF NYE, STATE OF NEVADA**

**RESOLUTION SETTING FORTH NYE COUNTY'S  
POSITION REGARDING THE PROPOSED HIGH LEVEL  
NUCLEAR WASTE REPOSITORY AT YUCCA MOUNTAIN  
AND THE SITUS COUNTY COMMUNITY PROTECTION PLAN**

**WHEREAS, the President has now formally recommended Yucca Mountain, in Nye County, as the site to which the federal government would transfer the Nation's highly radioactive wastes for interim storage, waste handling, and permanent disposal; and**

**WHEREAS, Nye County is the location of the Nevada Test Site where, for over 40 years, the Nation conducted nearly 1,000 atmospheric and underground nuclear weapons tests which permanently contaminated large tracts of land and groundwater; and recent studies reveal that radiation released in 828 underground nuclear detonations is migrating in poorly understood regional groundwater systems; and**

**WHEREAS, the program instituted by the United States Department of Energy (USDOE) to clean up the Nation's defense complex relies heavily on the disposal of low-level radioactive wastes at the Nevada Test Site, in Nye County;**

**WHEREAS, these low-level wastes arrive by truck on two-lane roads that go through four Nye County communities; in fiscal 2001, about 600 shipments containing 750,000 cubic feet of low-level wastes traveled 107,000 shipment miles on rural highways in the destination county; and**

**WHEREAS, Nye County also is the site of the Nellis Test and Training Range, a premier training range where the Nation trains its best fighter pilots for combat preparedness; and**

**WHEREAS, Nye County also is the site of the Tonopah Test Range, a restricted facility where the Nation has developed and based new-technology combat aircraft; and**

**WHEREAS, these activities (the Nevada Test Site, the Nellis Test and Training Range, and the Tonopah Test Range) have made major contributions to national defense but meager contribution to the Nye County's economic or revenue base; and**

**WHEREAS, the management and use of 11 million acres of public lands, comprising 98% of the Nye County's total land area, by a variety of federal land management agencies contributes very little to the Nye County's economic or revenue base, and forecloses opportunity for local community development; and**

**WHEREAS, Nye County has not sought to provide the site to which the federal government would transfer the Nation's highly radioactive wastes for interim storage, waste handling, and permanent disposal; and**

**WHEREAS, the USDOE claims that the proposed Yucca Mountain Project will be good for national health and safety, good for the nuclear power industry and their ratepayers, good for 80 communities in which highly radioactive wastes are now stored, good for 35 states that do not want to become permanent storage locations for highly radioactive wastes, and/or good for the federal government which has legal obligations to dispose of commercial spent fuel; and**

**WHEREAS, it is clear that the Yucca Mountain Project, if implemented as proposed, will achieve the expected benefits for others by the transfer of the Nation's highly radioactive wastes, along with all its attendant risks and uncertainties, from 80 sites in 35 states to a single community in Nevada—Nye County; and**

**WHEREAS, the elected government of Nye County has responsibility to protect local health, safety, and welfare, and is the only representative government whose first and overriding responsibility is to provide such protection in the situs county; and**

**WHEREAS, since 1985 Nye County has conducted independent scientific investigations in areas downgradient from the proposed Yucca Mountain repository, focusing on geologic and hydrologic conditions affecting the potential for contamination in the repository's major exposure pathways; and**

**WHEREAS, these independent investigations have identified uncertainties and contingencies—in science, design, and in implementing organization and funding—that require continued independent inquiry and confirmation; and**

**WHEREAS, in recognition of all of the above, Nye County has prepared a "Community Protection Plan" that identifies the legitimate objectives of the situs county, and the protections it expects in the event that the federal government decides to transfer the Nation's highly radioactive wastes to Yucca Mountain; and**

**WHEREAS, the Nye County Board of Commissioners deems it imperative that it set forth Nye County's statement of history, policy and intent regarding this issue,**

**NOW THEREFORE, it hereby is resolved as follows:**

- 1. Nye County has not sought to provide the site to which the federal government would transfer the Nation's highly radioactive wastes for permanent disposal.**
- 2. The Nation and the various parties who stand to benefit have a special obligation to the single local jurisdiction to which they desire to transfer their unwanted radioactive wastes.**
- 3. If the Nation decides to transfer its highly radioactive wastes to this single community—Nye County—it has an obligation to do so under conditions that address the situs county's concerns and that assist rather than jeopardize legitimate situs county objectives, as these are outlined Nye County's "Community Protection Plan."**
- 4. Among these concerns and objectives are the following:**

**Protection of Health, Safety, and the Environment**

**The situs county—Nye County—should be empowered to conduct independent oversight and monitoring of USDOE activity in the situs county throughout Yucca Mountain site characterization, licensing, construction, operations, and performance confirmation. Situs county empowerment should be permanently financed, and should not be dependent on annual federal appropriations over the expected 50-300 years of repository operations.**

**Federal activities to confirm repository performance and to conduct research and development related to waste handling and potential reuse should be headquartered in Nye County—the only community in which repository performance, and the potential consequences of poor repository performance, would be an urgent daily concern throughout the expected 50-300 years of repository operations.**

**Equity in Nuclear Waste Transportation**

**Transportation of highly radioactive wastes in the situs county should be conducted by rail, and under policies which minimize the risks for Nye County communities of all high and low-level radioactive waste shipments.**

**A Viable Local Economic & Revenue Base**

**Special federal actions should be taken to provide the situs county an opportunity to develop a viable economic and revenue base, with facility and service systems comparable to those in other communities hosting USDOE nuclear facilities—even as the federal government plans to make an extraordinary future imposition in addition to the extraordinary impositions of the past.**



## **Nye County, Nevada Board of Commissioners**

### **RESOLUTION STATING THE INTENT OF NYE COUNTY TO ACTIVELY AND CONSTRUCTIVELY ENGAGE WITH THE U.S. DEPARTMENT OF ENERGY (DOE), THE ADMINISTRATION, AND CONGRESS AS THE YUCCA MOUNTAIN PROJECT PROCEEDS TO FINAL DESIGN, LICENSING, AND IMPLEMENTATION:**

**WHEREAS, the United States Congress has voted to move the Administration's proposed Yucca Mountain Project, located in Nye County, Nevada, towards final design, licensing, and implementation.**

**WHEREAS, since 1940 the federal government has selected sites in Nye County for nuclear weapons testing, air force fighter training, and low-level radioactive waste disposal in cleanup of other sites in the nation's weapons complex.**

**WHEREAS, these activities (the Nevada Test Site, the Nellis Test and Training Range, and the Tonopah Test Range) have made major contributions to national defense but meager contribution to the Site County's economic or revenue base.**

**WHEREAS, the management of 11 million acres of federal lands in Nye County, comprising 98% of the county's total land area, makes meager contribution to the Site County's economic or revenue base, and forecloses opportunity for local community development.**

**WHEREAS, while the President has recommended and the Congress has mandated that DOE should prepare and apply for a license from the Nuclear Regulatory Commission to construct a repository at Yucca Mountain, many questions and issues regarding the Yucca Mountain Project remain to be addressed—including the safety and equity of the Yucca Mountain Project as proposed, and whether the Yucca Mountain Project will be implemented as proposed.**

**WHEREAS, the duty of the representative local government to ensure the health, safety, and welfare of its citizens requires the active engagement of Nye County to ensure that the questions and issues referenced above are addressed in design and licensing as well as in implementation, and to provide assurance of same for the residents of the single local entity to which the nation's highly radioactive wastes would be transferred.**

**WHEREAS, Nye County has prepared a "Community Protection Plan" that identifies the legitimate objectives of the site county, and the protections it expects in the event that the federal government transfers the nation's highly radioactive wastes from 131 sites in 39 states to a single site at Yucca Mountain, in Nye County.**

**WHEREAS, if implemented, the Yucca Mountain Project should be more than just a repository 12 miles north of Lathrop Wells in the Nye County community of Amargosa Valley, but the center for a community of synergistic scientific, engineering, educational, and entrepreneurial activities for management and possible reuse of the nation's highly radioactive wastes, and for the demonstration of alternative forms of energy for future generations.**



**Resolution No. 2002-22**

**WHEREAS, it is just such a vision for the Yucca Mountain Project that offers the best long-run prospect for converting long-standing resistance and mistrust within the State of Nevada to constructive engagement and cooperation.**

**WHEREAS, DOE can most effectively and efficiently implement the above-stated vision for the Yucca Mountain Project through close coordination and cooperation with its Nevada Site County, and Nye County intends to constructively engage with DOE to achieve this vision.**

**NOW THEREFORE, BE IT RESOLVED:**

- 1. Nye County intends to engage energetically and constructively with the Department of Energy and the U.S. Congress as the Yucca Mountain Project proceeds to final design, licensing, and implementation.**
- 2. Nye County intends to make constructive scientific, technical, and strategy contributions to address key issues in repository design, licensing, and performance confirmation, as well as transportation and project management.**
- 3. Nye County anticipates constructive engagement by DOE, the Administration, and Congress in addressing such issues in ways that also address the concerns and aspirations of DOE's Site County in Nevada.**
- 4. Nye County will use its "Community Protection Plan" as a resource and framework for its constructive engagement with DOE, the Administration, and Congress as the Yucca Mountain Project proceeds to design, licensing, and possible implementation.**
- 5. Nye County will vigorously pursue the objectives articulated in its Community Protection Plan: local empowerment for assurance of safety and health; equity in transportation; and development of community capacity and resources. The vision is that, if implemented, the Yucca Mountain Project should not be just a repository where the nation's highly radioactive wastes are transferred for storage in perpetuity, but the center for a community of synergistic scientific, engineering, educational, and entrepreneurial activities for management and possible reuse of the nation's highly radioactive wastes, and for the demonstration of alternative forms of energy for future generations.**

**Adopted by unanimous vote on August 6, 2002 by the Nye County Board of Commissioners.**

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1 **NYE COUNTY RESOLUTION NO. 2004-25**

2 **RESOLUTION CONCERNING THE INTENT OF NYE COUNTY TO TAKE ACTION TO**  
3 **MAXIMIZE THE SAFETY, ECONOMIC OPPORTUNITY AND SUCCESSFUL OUTCOME OF**  
4 **THE YUCCA MOUNTAIN REPOSITORY AND TRANSPORTATION SYSTEM BY ACTIVELY**  
5 **AND CONSTRUCTIVELY ENGAGING ALL RELEVANT PARTIES.**

6 **WHEREAS the Nuclear Waste Policy Act of 1982 as amended designates Yucca Mountain,**  
7 **located in Nye County, Nevada as the only site for consideration as the nation's repository for high-level**  
8 **nuclear waste and spent fuel; and**

9 **WHEREAS the site has been determined to be a suitable location for a repository, the U.S Court**  
10 **of Appeal dismissed all challenges to the site selection of Yucca Mountain, the scientific basis for the**  
11 **selection process and the constitutionality of the resolution approving Yucca Mountain; and**

12 **WHEREAS the Department of Energy is preparing a license application for the repository and**  
13 **expects to begin operation beginning in 2010; and**

14 **WHEREAS the Department intends to use rail transportation, the mode of transportation Nye**  
15 **County prefers, to the maximum extent possible and the Department has made progress in planning the**  
16 **transportation system by selecting the Caliente route; and**

17 **WHEREAS the Department is beginning the process of identifying repository and transportation**  
18 **facilities which could be located off-site and is considering other means of maximizing local economic**  
19 **opportunity; and**

20 **WHEREAS the Nye County "Community Protection Plan" has established a vision for**  
21 **protecting the community and for the local development of synergistic economic, scientific and**  
22 **educational activities for management and possible future reuse of material which will be stored at**  
23 **Yucca Mountain; and**

24 **WHEREAS it is just such a vision for the Yucca Mountain Project that offers the best long-term**  
25 **prospect for converting long-standing resistance and mistrust within the State of Nevada to constructive**  
**engagement and cooperation; and**

1           **WHEREAS** Nye County intends to work cooperatively with communities along the Caliente  
2 route, the Department of Energy, and any other appropriate group for the purpose of achieving this  
3 vision.

4           **NOW THEREFORE, BE IT RESOLVED** that Nye County intends to fully, constructively and  
5 energetically support:

- 6           1.     **Development of a safe repository at Yucca Mountain,**
- 7           2.     **Development of policy that empowers the County concerning repository and**  
8           **transportation safety and health,**
- 9           3.     **Creation of synergistic scientific, engineering, educational and entrepreneurial economic**  
10           **opportunities in the County,**
- 11           4.     **Assisting the United States of America in fulfilling the commitment to provide a geologic**  
12           **repository for spent nuclear fuel and high-level waste to protect the health, safety and**  
13           **welfare of the citizens of the United States,**
- 14           5.     **Assisting the United States Department of Energy in meeting their timeline for the**  
15           **reception of spent nuclear fuel and high-level waste at Yucca Mountain,**
- 16           6.     **Maximizing jobs and economic opportunities for Nye County citizens,**
- 17           7.     **Working cooperatively with appropriate federal entities, rural Nevada communities along**  
18           **the transportation route and other parties willing to constructively engage in the**  
19           **development of a repository that is safe and offers significant economic benefit to Nye**  
20           **County and others most affected by the operation of a repository and related**  
21           **transportation systems.**

22           /  
23           /  
24           /  
25           /



1 **NYE COUNTY RESOLUTION NO. 2011-21**

2  
3 **A RESOLUTION OF THE NYE COUNTY BOARD OF COMMISSIONERS RESOLUTION**  
4 **SUPPORTING COMPLETION OF THE NUCLEAR REGULATORY COMMISSION'S REVIEW OF**  
5 **THE YUCCA MOUNTAIN LICENSE APPLICATION**

6 **WHEREAS, the Nuclear Waste Policy Act of 1982, as amended, ("Act") selected Yucca**  
7 **Mountain, located in Nye County as the only site to be characterized as the nation's first high-level**  
8 **radioactive waste repository; and**

9 **WHEREAS, Congress in July 2002, in accordance with provisions of the**  
10 **Act, as amended, overrode Nevada's notice of disapproval; and**

11 **WHEREAS, Yucca Mountain was designated to be the site for development of a permanent**  
12 **repository for United States spent nuclear fuel and defense high level radioactive waste; and**

13 **WHEREAS, the U.S. Department of Energy ("USDOE"), in accordance with the Act, submitted**  
14 **a License Application (LA) to the Nuclear Regulatory Commission (NRC); and**

15 **WHEREAS, that LA, in accordance with NRC regulations, was accepted for review by the NRC;**  
16 **and**

17 **WHEREAS, the USDOE has since requested withdrawal of its submission of the LA "with**  
18 **prejudice"; and**

19 **WHEREAS, the request for withdrawal has been denied by the Atomic Safety and Licensing**  
20 **Board (ASLB) and challenged in Federal Court; and**

21 **WHEREAS, the Commissioners of the NRC have not issued a final ruling on their review of the**  
22 **ASLB decision that USDOE does not have the legal authority to withdraw the Yucca Mountain license**  
23 **application; and**

24 **WHEREAS, the nation needs to move forward on the established NWPA strategy that provides**  
25 **for the permanent storage of spent nuclear fuel and high level waste; and,**

**WHEREAS, the Nye County Board of Commissioners (Board) recognizes that further delays in**  
**the development of a permanent geologic repository will result in significant public expenditures and**  
**potentially jeopardizes the future expansion of nuclear power production and energy independence; and**

1           WHEREAS, the Board is convinced that until such time as the NRC completes its review of the  
2 LA, Nye County, the State of Nevada and the nation will be denied a scientific and technical  
3 determination of the potential of the Yucca Mountain repository to be built and operated safely and  
4 successfully; and

5           WHEREAS, Nye County adopted Resolutions 2002-7, 2002-22 and 2004-25 defining the  
6 County's involvement as the site county for the nation's geologic repository for spent nuclear fuel and  
7 defense high level waste,

8 NOW THEREFORE, it hereby is resolved as follows:

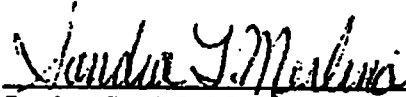
- 9
- 10       1.     The Yucca Mountain licensing proceedings should be restarted and the NRC should  
11           complete a thorough and detailed review of the License Application; and
  - 12       2.     If upon completion of the license application review by the NRC staff and the licensing  
13           proceeding before the ASLB, the conclusion is that the Yucca Mountain repository can  
14           be constructed and operated safely, Nye County reaffirms our prior resolutions and  
15           supports such construction and operation consistent with these prior resolutions ; and

16 APPROVED this 15<sup>th</sup> day of March, 2011.

17  
18 NYE COUNTY BOARD OF  
19 COUNTY COMMISSIONERS:

ATTEST:

20   
21 \_\_\_\_\_  
22 Gary Hollis, Chairman

23   
24 \_\_\_\_\_  
25 Sandra "Sam" L. Merlino, Nye County Clerk  
And Ex-Officio Clerk of the Board



Environment and Natural Resources Division

A. Brabender  
90-13-5-13056

Appellate Section  
P.O. Box 23795  
L'Enfant Plaza Station  
Washington, DC 20026-3795

Telephone (202) 514-5316  
Facsimile (202) 353-1873

April 6, 2011

Mr. Mark Langer  
Clerk of Court  
U.S. Court of Appeals for the D.C. Circuit  
333 Constitution Ave., NW  
Washington, D.C. 20001

Re: *In re Aiken*, Nos. 10-1050, 10-1052, 10-1069, 10-1082; Response to Petitioners'  
April 1, 2011, letter

Dear Mr. Langer:

Invoking Fed.R.App.P. 28(j), Petitioners filed an April 1, 2011, letter with this Court. The letter characterizes recent testimony by NRC's Chairman, Gregory Jaczko, at a Congressional budget hearing as "an admission" that "there is no decision for the NRC to make" on DOE's motion to withdraw the Yucca Mountain license application. However, the testimony makes no such admission. To the contrary, Chairman Jaczko expressly testified that NRC, as a body, has not yet made a final decision on the motion to withdraw:

We have not, in our formal process made a final decision on that. Voting at the NRC is not much as you do voting here [in Congress]. It is not the final action. In fact, the final action would be commission agreement on an order responding to the particular issue in question. That has not happened at the commission yet.

Hearing at 36. Later on, Chairman Jaczko reiterated that NRC's "process . . . ultimately requires there to be an order." *Id.* at 41. He went on to say, "I am not solely responsible for the decisions of the commission. We function as a body." *Id.* at 43.

Petitioners' letter also cites *CSI Aviation Serv., Inc. v. U.S. Dep't of Transp.*, D.C. Cir. No. 09-1307 (April 1, 2011), holding that a cease-and-desist letter was a final agency order subject to judicial review. *CSI Aviation* is in no way analogous to the present petitions. The cease-and-desist order challenged there put the petitioner company "to the painful choice between costly compliance and the risk of prosecution. . . ," a dilemma that has been held sufficient in other cases for regulated parties to obtain pre-enforcement judicial review. Here, Petitioners are not regulated parties and face no risk of prosecution. Moreover, Petitioners have

not demonstrated (and cannot do so) that the filing of a motion to withdraw the license application has legal consequences or imposes an immediate or significant burden on them. For this and other reasons set forth in Respondents' brief (at 35-46), the petitions should be dismissed as unripe and for failure to challenge a final agency action.

Sincerely,

/s/ John F. Cordes  
Counsel for Nuclear Regulatory Commission

/s/ Allen M. Brabender  
Counsel for Department of Energy





A MESSAGE FROM...

**U.S. SENATOR HARRY REID**

PUTTING NEVADA FIRST

April 12, 2011

Dear Fellow Nevadan:

This week, the Senate will pass a historic budget agreement that cuts \$78.5 billion in waste and government spending while protecting women, students, seniors and Nevada's economic recovery. This bipartisan agreement also makes it crystal clear: the nuclear waste dump at Yucca Mountain is dead.

Despite House Republican attempts to revive Yucca Mountain during negotiations, I was able to successfully eliminate a reckless provision aimed at prohibiting the Nuclear Regulatory Commission from closing down the project's licensing process. Additionally, I was able to zero out every penny of funding for this ill-conceived project.

While cutting wasteful spending and excess, I am proud to have successfully held strong against ideologically driven cuts that would have hurt our kids' education, cost us clean energy jobs, impaired life-saving medical advancements, and allowed Nevada to become the nation's nuclear dumping ground. It's time for proponents of Yucca Mountain to move on and stop wasting taxpayer money on this boondoggle.

Click here to read a Las Vegas Review-Journal article, and here for a Las Vegas Sun article on this issue. For more information on my record on Yucca Mountain, please visit my website, [reid.senate.gov](http://reid.senate.gov).

Sincerely,

**HARRY REID**  
U.S. Senator for Nevada

**Maine Yankee Community Advisory Panel on  
Spent Nuclear Fuel Storage and Removal**

Marge Kilkelly, Chair  
5 McCobb Road  
Dresden, ME 04342

April 19, 2011

Dr. Richard A. Meserve  
The Honorable Phil Sharp  
Co-Chairs, Transportation and Storage Subcommittee  
Blue Ribbon Commission on America's Nuclear Future  
1000 Independence Avenue, SW  
Washington, DC 20585

Dear Co-Chairs Meserve and Sharp:

On behalf of the Maine Yankee Community Advisory Panel, we commend the Blue Ribbon Commission staff for a very good job in capturing the CAP's message to the Commission in its What We've Heard report. We appreciate the opportunity to offer comment.

The report reflects many of the core tenets of the CAP's experience. The social and political aspects of resolving the spent nuclear fuel impasse are bigger obstacles to success than the technical issues; it is critically important for the process to be open, transparent, and inclusive of all stakeholders; and we must learn lessons from others. We were particularly pleased to hear that Commission members visited other countries such as Sweden and Finland and the Waste Isolation Pilot Project and Savannah River sites. Like your visit to Maine Yankee, there is no substitute for first hand observation.

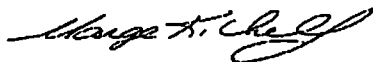
On the subject of removing spent nuclear fuel from decommissioned plant sites, we did not see the word **priority**. Certainly that was a theme at the August 10 Transportation and Storage subcommittee meeting in Wiscasset.

As I stated on page 10 of my testimony, "The Maine Yankee CAP adds its voice to those calling on the federal government to make it a **priority** (emphasis added) to remove to centralized interim storage the spent nuclear fuel and GTCC waste from single-unit shutdown reactor sites. A site that only stores waste is the most inefficient method of storage. Moving this material will reduce the number of sites storing and securing spent fuel; relieve electric rate payers of the burden of paying the storage costs, and free these sites for other useful purposes."

This was also a theme in testimony August 10 from representatives of the Governor, Congressional delegation, National Association of Regulatory Utility Commissioners, the National Conference of State Legislatures, the New England Governors' Conference and others. We encourage you to add the word "priority" to what you have heard regarding the removal of spent nuclear fuel from decommissioned plant sites.

We thank you once again for accepting our invitation to come to Maine last August, and we look forward to your draft recommendations which will be the main topic of discussion at our annual CAP meeting.

Sincerely,



Marge Kilkelly

**BRIAN SANDOVAL**  
*Governor*

STATE OF NEVADA

**JOSEPH C. STROLIN**  
*Acting Executive Director*



**OFFICE OF THE GOVERNOR**  
**AGENCY FOR NUCLEAR PROJECTS**  
1761 E. College Parkway, Suite 118  
Carson City, NV 89706-7954  
Telephone (775) 687-3744 • Fax (775) 687-5277  
E-mail: [nwpo@nuc.state.nv.us](mailto:nwpo@nuc.state.nv.us)

April 21, 2011

The Honorable John Shimkus  
U.S. House of Representatives  
2452 Rayburn House Office Building  
Washington, DC 20515

Dear Representative Shimkus:

The State of Nevada Agency for Nuclear Projects was established within the Office of the Governor by the State Legislature in 1985 to oversee the federal high-level nuclear waste repository program and carry out Nevada's responsibilities pursuant to the Nuclear Waste Policy Act. The Agency has done extensive independent research and analysis as well as review of the Department of Energy's documents regarding technical, socioeconomic, and transportation aspects of the Yucca Mountain Project, resulting in thousands of publically available documents on the Nuclear Regulatory Commission's Yucca Mountain Licensing Support Network.

Through the years, experienced Agency personnel familiar with the Yucca Mountain site and all aspects of the DOE program have regularly accompanied visitors on many DOE-led tours of the site. This practice has served to broaden the informative experience for visitors and provide insights and perspective to the complex technical and social issues involved in siting a potential high-level nuclear waste repository at Yucca Mountain.

I am writing to request that you permit two of our representatives to accompany you and others on the Energy and Commerce Committee tour of the Yucca Mountain site planned for April 26, 2011. I believe that having knowledgeable Nevada representatives present to provide information and answer questions will greatly enhance your fact-finding mission.

Mr. Steve Frishman is a geologist and technical consultant to the Agency who has been intimately involved with the federal high-level radioactive waste program in general and the Yucca Mountain project in particular for three decades. Ms. Judy Treichel is the Executive Director of the Nevada Nuclear Waste Task Force. Both have participated in site tours many times over the two decades or more and are familiar with DOE site access procedures. If you agree to my request to have them accompany your party on the site visit, I would appreciate it if you would provide a contact person in your office so logistics and proper access documents can be arranged for the visit.

Thank you very much for your consideration of this request. If you have questions regarding this matter, please feel free to contact me in Carson City at 775-687-3744.

Sincerely,



Joseph C. Strolin  
Acting Executive Director

JCS/js

cc

The Honorable Fred Upton  
U.S. House of Representatives Committee on Energy and Commerce  
The Honorable Henry Waxman  
U.S. House of Representatives Committee on Energy and Commerce  
The Honorable Gene Green  
U.S. House of Representatives Subcommittee on Environment and the Economy

712 North Carolina Avenue, SE  
Washington, DC 20003



Phone: 202.546.4258  
Email: dpc@govstrat.com

Dr. Richard A. Meserve  
The Honorable Phil Sharp  
Co-Chairs, Transportation and Storage Subcommittee  
Blue Ribbon Commission on America's Nuclear Future  
1000 Independence Avenue, S.W.  
Washington, D.C., 20585

Dear Co-Chairs Meserve and Sharp;

I have taken the opportunity to review the recently published, "What We Heard," document and believe that you and your staff have captured well the overarching themes that were presented with one outstanding exception. I and my fellow Decommissioning Plant Coalition members are concerned that the document did not capture our belief that, as part of an integrated strategy of spent fuel management, spent nuclear fuel and GTCC waste from permanently shut-down facilities be accepted and shipped to a centralized interim storage facility on a priority basis as part of a demonstration of the nation's ability to manage this material.

We are not alone in that belief. During the Subcommittee's meeting in Wiscasset, Maine, this past August you heard this message about assigning such priority from many organizations and individuals that participated, including:

- Former State Sen. Marge Kilkelley (who also chairs the Maine Yankee Community Advisory Panel),
- Hugh Curley (Chair of the Connecticut Yankee Fuel Storage Advisory Committee)
- John Kerry representing the Governor of Maine,
- Brian Whitney on behalf of U.S. Sen. Olympia Snowe,
- Bill Card representing U.S. Sen. Susan Collins,
- John Graham on behalf of U.S. Rep. Michael Michaud, and
- Nick Battista of U.S. Rep. Chellie Pingree's staff.
- Former State Senator Deb Simpson who also chaired the High Level Waste Working Group of the National Council of State Legislators,

- John Shea of the New England Governors Conference who recounted the position of all the Governors in their earlier letter to Secretary Chu,
- Brian O'Connell of the National Association of State Regulatory Commissioners,

At your meeting in Chicago last November, John Herron, President, CEO and CNO of Entergy Nuclear and representing DPC member Big Rock Point, advocated such treatment. At that same meeting, Dr. Kevin Crowley of the National Research Council advocated a pilot program of removing older fuel from decommissioned sites first to central interim storage. There have also been members of Congress who have weighed in on a bi-partisan basis about the importance of promptly removing these materials from our sites:

- An April 26, 2010 letter from Sen. Susan Collins (R-ME) to the Blue Ribbon Commission (BRC).
- An April 12, 2010 letter to the Co-Chairs of the BRC from Members of the U.S. House of Representatives having DPC facilities in their districts/states.
- A September 14 letter from the U.S. Senators from Connecticut to the Chairman and Ranking Member of the Senate Appropriations Subcommittee on Energy and Water Development.
- A July 10, 2009 letter to Secretary Chu from the U.S. Senators from Massachusetts.
- A March 24 letter from the U.S. Members of the House that have DPC facilities in their districts/states to the President.
- A January 15, 2009 letter to then-President-elect Obama from 5 U.S. Senators who have DPC facilities in their states.

Last fall, the Governor of Connecticut wrote to you as well.

There are many other organizations on all sides of the nuclear issue that have echoed this point – several with direct testimony to the BRC, including the following:

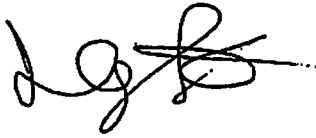
- the U.S. Department of Energy,
- the National Resources Defense Council,
- the Nuclear Energy Institute,
- the Nuclear Waste Strategy Coalition,
- the New England Council, among others.

I especially call your attention to the recommendations contained in a recent report of an interdisciplinary study group at MIT, "Key Issues Associated with Interim Storage of Used Nuclear Fuel", MIT Center for Advanced Nuclear Energy Systems. I am also enclosing (electronically) a summary of statements during the past several years that bear directly on the importance of removing DPC fuel and GTCC on a priority basis.

I appreciate the hard work that you are doing on the issue of spent fuel storage and transportation and recognize that your identification of the basic issue is, itself, recognition of its importance. I do believe that your Subcommittee's reflections upon, "What We Heard," must include the priority on moving this material from our sites that you have heard from so many and diverse voices. The DPC further urges that the BRC include this position in its draft and final recommendations.

I would be pleased to provide any of the documents I have referenced and am of course always available to discuss these matters with you.

Sincerely,

A handwritten signature in black ink, appearing to read "Wayne Norton", with a horizontal line extending to the right from the end of the signature.

Wayne Norton  
President & CEO, Connecticut Yankee and Yankee Rowe  
CNO, Maine Yankee  
Chairman, Decommissioning Plant Coalition



UNITED STATES  
NUCLEAR WASTE TECHNICAL REVIEW BOARD  
2300 Clarendon Boulevard, Suite 1300  
Arlington, VA 22201  
703-235-4473

*April 22, 2011  
For Immediate Release*

*Karyn D. Severson  
External Affairs*

## **NWTRB to Hold Workshop on Evaluating Waste Streams Associated with LWR Fuel-Cycle Options**

The U.S. Nuclear Waste Technical Review Board will hold a workshop on Monday, June 6, and Tuesday, June 7, 2011, on methods for evaluating waste streams associated with light-water reactor (LWR) fuel-cycle options. The Board has developed a personal-computer-based systems analysis tool, the Nuclear Waste Assessment System for Technical Evaluation (NUWASTE), to analyze the implications of various nuclear fuel-cycle scenarios being considered by the U.S. Department of Energy (DOE) for managing spent nuclear fuel. The Board will discuss NUWASTE, its methodology, and some preliminary results from the analysis at the meeting. Other organizations with similar projects under way have been invited to discuss their analytical methods and results at the workshop. The overall objectives of the workshop are to benchmark each of the systems analysis tools against each other and to understand the basis for any differences among the results.

The workshop will be held at the Hilton Arlington Hotel; 950 N. Stafford Street; Arlington, VA 22203; telephone: 703-528-6000. A block of rooms has been reserved at the hotel. To make a reservation, attendees may call 1-800-Hiltons. The group code for the meeting is "NUC." Or, go to the hotel Web site, [www.arlingtonva.hilton.com](http://www.arlingtonva.hilton.com), and enter the arrival and departure dates and the group code. All reservations must be made by May 13 to receive the group rate.

The workshop will begin on Monday, June 6, at 9:00 a.m. and will conclude by 4:00 p.m. on Tuesday, June 7. A detailed agenda will be available on the Board's Web site at [www.nwtrb.gov](http://www.nwtrb.gov) approximately one week before the workshop. The agenda also may be obtained by telephone request at that time.



The workshop will be open to the public, and opportunities for public comment will be provided. Those wanting to speak are encouraged to sign the "Public Comment Register" at the check-in table. It may be necessary to set a time limit on individual remarks, but written comments of any length may be submitted for the record.

Transcripts of the workshop discussions will be available on the Board's Web site, by e-mail, on computer disk, and on library-loan in paper form from Davonya Barnes of the Board's staff after June 27, 2011.

The Board was established as an independent federal agency to provide ongoing, objective expert advice to Congress and the Secretary of Energy on technical issues related to the management and disposition of spent nuclear fuel and high-level radioactive waste and to review the technical validity of DOE activities related to implementing the Nuclear Waste Policy Act. Board members are experts in their fields and are appointed to the Board by the President from a list of candidates submitted by the National Academy of Sciences. The Board is required to report to Congress and the Secretary no fewer than two times each year. Board reports, correspondence, congressional testimony, and meeting transcripts and materials are posted on the Board's Web site.

For information on the meeting agenda, contact Karyn Severson. For information on lodging or logistics, contact Linda Coultry. They can be reached at 2300 Clarendon Boulevard, Suite 1300; Arlington, VA 22201-3367; (tel) 703-235-4473; (fax) 703-235-4495.

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# EGAN, FITZPATRICK, MALSCH & LAWRENCE, PLLC

Counselors at Law

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Joseph R. Egan (1954-2008)

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April 25, 2011

Donald P. Irwin, Esq.  
Hunton & Williams, L.L.P.  
Riverside Plaza, East Tower  
951 East Byrd Street  
Richmond, VA 23219

Re: Docket No. 63-001

Dear Mr. Irwin,

I am attaching deposition notices for Kevin Coppersmith and Michael Gross, detailing depositions to be conducted, respectively, on June 28 and June 29, 2011, at the locations and times specified in the notices. They are being filed today.

During our “meet and confer” telephone calls over the past few weeks, we have indicated to you, and wish to reiterate, our view regarding proceeding with these and other depositions we have discussed. As you know, Nevada did not oppose your motion to temporarily stay this proceeding which you filed with the NRC licensing board (CAB) or the similar motion you filed with the NRC and continues to believe that the licensing proceeding, including discovery, should not go forward until the future of the Yucca Mountain program has been finally clarified in the courts and in Congress.

However, the CAB’s February 25th Order warning that discovery rights could be forfeited for failure to proceed leaves Nevada with little choice but to begin scheduling depositions, while incurring potentially large and unnecessary expenses in the process. We do so only reluctantly because Nevada cannot risk the waiver of its valuable discovery rights.

We continue to be willing to discuss alternate dates, or alternate times, or alternate locations, if the specified ones create a conflict for the witnesses. In addition, as was the case a

**EGAN, FITZPATRICK, MALSCH & LAWRENCE, PLLC**  
**Counselors at Law**

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April 25, 2011  
Page 2

year ago when depositions were planned, we are willing to discuss the matter of documents required to be produced by the witnesses, in an effort to avoid unduly burdening them.

Sincerely,

A handwritten signature in black ink, appearing to read 'M G Malsch', followed by a horizontal line extending to the right.

Martin G. Malsch

cjf:sm  
Enclosure



## Nuclear Power Industry News

Reports and news on nuclear power industry suppliers, utilities, companies, organizations, and technology.

# MIT Nuclear Fuel Cycle Study Recommends Regional 100-Year Waste Sites



Nuclear Street News Team Wed, Apr 27 2011 5:55 AM

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With the station blackout at Japan's Fukushima Daiichi nuclear plant providing a stark illustration of the risks inherent to storing spent fuel at reactors, an MIT study released Tuesday argues the United States needs to build centralized repositories for its nuclear waste.

"The Future of the Nuclear Fuel Cycle," a set of recommendations from scientists and nuclear experts two years in the making, points out that spent-fuel tanks at U.S. reactors are even more full than those in Japan. While a permanent repository for the waste at Nevada's Yucca Mountain is decades behind schedule and mothballed by the Obama administration, the study makes the case for regional storage facilities with shorter design lives.

*"Planning for long term managed storage of spent nuclear fuel—for about a century—should be an integral part of nuclear fuel cycle design. While managed storage is believed to be safe for these periods, an R&D program should be devoted to confirm and extend the safe storage and transport period.*

*The possibility of storage for a century, which is longer than the anticipated operating lifetimes of nuclear reactors, suggests that the U.S. should move toward centralized SNF [spent nuclear fuel] storage sites—starting with SNF from decommissioned reactor sites and in support of a long-term SNF management strategy,"* the report recommends.

While the report notes the potential of breeder reactors and other technologies to reprocess fuel rods and create a "closed loop" for nuclear fuel, it acknowledges that today's plant designs and the current availability of uranium mean the U.S. nuclear industry is likely to continue to use a once-through fuel cycle for some time. In the future, though, spent fuel from the intermediate repositories could be recovered if fuel reprocessing becomes widespread.

Even if the fuel is permanently stored after 100 years instead of reprocessed, the report notes, the fuel's radioactive decay and its most dangerous isotopes lose much of their potency during the first 50 years, making longer-term storage easier to manage. In the meantime, the report says, engineers would face no scientific hurdles to designing the intermediate storage facilities proposed.



N A R U C  
National Association of Regulatory Utility Commissioners

April 26, 2011

Honorable Lee Hamilton  
Lieutenant General Brent Scowcroft  
Co-Chairmen  
Blue Ribbon Commission on America's  
Nuclear Future  
1000 Independence Ave. SW  
Washington, DC 20585

**Re: Comments on "What We Heard" about Decommissioned Sites**

Dear Co-Chairman Hamilton and  
Co-Chairman Scowcroft:

Through an oversight on my part in preparing the comments on the *What We Heard* staff report I provided to the Commission on April 20, I failed to include further re-emphasis on the need for priority action on relocating spent fuel now stored at the otherwise decommissioned reactor sites. I would like to echo the comments provided to the Commission by Mr. Wayne Norton on behalf of the Decommissioning Plant Coalition that cited the extensive support for removing the spent fuel that is stranded at those sites that was presented at several BRC meetings and in correspondence from and to various members of Congress or Committees.

In the written testimony submitted with my remarks before the Transportation and Storage Subcommittee at the August 12, 2010 meeting in Wiscasset, Maine I urged that the Commission consider submitting an interim recommendation to the Secretary that fall so that DOE could submit legislative language with the FY 2012 Budget seeking authorization for DOE to create and eventually operate a centralized interim storage facility for the stranded spent fuel from the decommissioned sites (since DOE had taken the position in a 2008 report to Congress that it lacked authority to "store" spent fuel from those or any other sites—even though it is in partial breach of contracts with most reactor owners to remove the waste on its way to a repository that was to have begun in 1998).

Since the Wiscasset meeting, the MIT study on the Future of the Nuclear Fuel Cycle recommended that the U.S. "move toward centralized SNF storage sites—starting initially with SNF from decommissioned sites and in support of a long-term SNF management strategy." Aside from some who are apparently of the view that spent fuel cannot be safely transported anywhere for any purpose, there seems to be a broad consensus view that the benefits of removing that less than 3,000 tons from those nine locations to a central location, designed,

licensed and managed to the latest safety and security requirements far outweighs what minimal transport or other risk there might be and such consolidation just makes good sense. Further benefits would be the return to other productive use of the reclaimed storage sites once freed up by the waste removal.

The *What We Heard* report, in the Program Governance and Execution section discussed the erosion of trust issue that some referred to in testimony as well the "widely held view" that the current program structure (maybe it is better described as the "previous" program structure since OCRWM has been dismantled) is unsuitable going forward" and that the new management/disposal might regain some trust and be more effective if shifted to a "new entity." We recognize that is what the Commission heard, not a position that it has recommended to this point. I would say that whether it is a task given to a repurposed DOE or as the initial task given to a new entity to establish itself as a credible and effective force to achieve short and long-term mission success, the relocation and consolidation of spent fuel from the decommissioned plant sites presents an opportunity to demonstrate the ability to "get things done."

We said in previous comments that we agreed with the notion of a new entity, but a lot of work needs to be done and details to be hammered out before it would be up and running, but maybe a confidence-building first operational assignment could be to consolidate the decommissioned fuel. If DOE retains the waste program management responsibility, we would suggest the DOE Office of Environmental Management (EM) be assigned to the interim storage consolidation mission to get it started as the permanent program management organization gets re-established. We have been impressed with the EM project management focus as well as their generally well-regarded ability to work with local communities.

We don't want to underestimate that the matter of choosing a suitable site is the most challenging part of the consolidation initiative. It may seem like a straightforward logistics project to a fuel management engineer, but it will take a team of patient colleagues with good communications skills to succeed. It would also be helpful if a respectful attitude of partnership with candidate locations could be established and the door be kept open for possible incentives related to project impacts, such as the NWPA Sections 116 and 180(c) and other benefits.

In summary, we urge the Commission to place priority in its draft report and recommendations on the special cases of the shutdown reactor spent fuel for early attention once the policy and implementation courses are set. Thank you for your consideration.

Sincerely,



Brian O'Connell

Director

Nuclear Waste Program Office

# Nuclear Townhall

MIT'S FUEL CYCLE STUDY REDUX – RECIPE FOR INACTION

April 27, 2011

*By David Blee*

*Mr. Blee served as a U.S. Deputy Assistant Secretary of Energy.*

*He is Executive Director of the U.S. Nuclear Infrastructure Council, a national think tank advocate for new nuclear energy.*

The Massachusetts Institute of Technology unveiled this week its final *Future of the Nuclear Fuel Cycle* report, a sequel to a series on the future of nuclear energy.

The report comes at a pivotal time for the nuclear energy industry – not just in light of the recent Fukushima crisis emanating from twin natural disasters – but given what the report calls “major changes in the U.S. and the world.” These factors include the path forward for supporting nuclear energy due to climate change, projections for dramatic nuclear energy growth internationally and hopefully domestically, as well as major developments in U.S. fuel cycle policies, including the reversal of federal government initiatives for commercial recycling of used nuclear fuel and the national repository at Yucca Mountain, Nevada.

Unfortunately, MIT has missed its window of opportunity to provide tangible intellectual leadership to the U.S.'s fuel cycle crossroads. Instead, it bases its report on a disappointing smorgasbord of convenient and politically correct premises. Its fuel cycle prescription could relegate the U.S. fuel cycle to a century-long research odyssey at the cost of tens of billions of dollars, according to MIT's own estimates.

The MIT “redux” does offer some laudable findings, including continued optimism about the competitiveness of nuclear electricity, its key role as a “major candidate for reducing greenhouse gas emissions,” a recommendation to accelerate loan guarantee incentives for “First Movers,” and the need for research and development for advanced light-water and next-generation reactors. The report concludes that “scientifically sound methods to manage spent nuclear fuel [SNF] exist” for a century of more whether it is wet or dry storage, central storage or at a repository. It also concludes that a “new quasi-government waste management organization” – i.e. a “Fed Corp” – is needed to implement the nation's used fuel and high-level waste management program. In addition, it expresses some degree of urgency for central storage at least for shut-down reactors along with a general need for a national repository – recognizing its importance to public confidence in the current and future nuclear energy fleet.

Notwithstanding these kernels, the MIT study, on the whole, represents a lost chance to address the growing interdisciplinary questions facing the U.S. with respect to the nuclear fuel cycle. By deferring concrete action on advancing the fuel cycle paradigm for several decades, if not a century or more, the recommendations essentially abdicate U.S. leadership at the potential cost of America's nuclear competitiveness in the global marketplace as the international nuclear surge moves forward and, indeed, in fully maximizing nuclear's clean energy and energy security virtues in the U.S. arena.

Among other things, the MIT study:

Exhibits a U.S.-centric view with respect to the pace of the world fuel cycle and nuclear reactor developments globally with 60 plants in progress and an estimated 400 new plants on the drawing boards.

While the MIT study alludes to “significant growth of nuclear power”, it seems to hold a narrow perspective of the global nuclear market with nearly 440 nuclear reactors currently in operation worldwide and an equal number on the drawing boards. Its emphasis on pursuing a status-quo rooted, research and development-laden paradigm within the United States ignores the measurable advances already in place in other countries to address the back-end of the fuel cycle, either through direct disposal or closing of the fuel cycle. MIT states that “We do not today have sufficient knowledge about future options and goals to make informed choices.” Will this statement be true tomorrow? Is the report implying that a strategy for the backend — other than interim storage — is simply undecideable? While fuel cycle transitions take a significant period of time, the report gives little credence to the maturity of the U.S. nuclear complex now in its sixth decade and the fuel cycle transition already taking place rapidly outside of the United States.

Premises the study on the assurance of a century-long supply of uranium, presumably at competitive prices “with no shortage of uranium resources that might constrain future commitments to build new nuclear plants for much of this century, at least.”

The MIT study and its lack of urgency in addressing fuel cycle issues are squarely based on a rosy view of a perceived century-long supply of uranium. While the primary sources of uranium in the United States are either domestic mines or stable, democratic countries such as Australia and Canada with no foreseeable scarcity in material alone, the study ignores a number of contributing factors which may, in the future, disrupt the surety of a century-long supply of uranium. While there is enough

uranium available to respond to new build needs at economical prices in the near to medium term, it is important to note that security of supply is vitally important and the U.S. is importing over 90% of its uranium despite significant domestic uranium reserves. Worldwide production must also increase dramatically to meet new build needs internationally, which is why other nations are moving aggressively to lock-up future sources of supply.

**It poses a “Red Herring” argument with the conclusion that “it will be decades before we know if... [Light Water Reactor Spent Nuclear Fuel] is a resource or waste.”**

While the report observes that “LWR SNF has a high energy content ... equivalent to a super ‘Strategic Petroleum Reserve,’” a central shortcoming of the study is its failure to provide an answer to what remains the core question of any fuel cycle study: is fuel a resource or a waste? This dilemma informs the approach made to the nuclear fuel cycle, whether we must address fuel as an inevitable byproduct requiring indefinite storage or as an integral part of the cycle of running nuclear reactors. Rather than offering an answer to this question, the study merely concludes that long-term used fuel storage, of up to a century, is needed while research is done to help inform a national decision to this question. In arguing that long-term storage of used fuel for up to a century would buy time to address the question of the efficacy of used fuel, the MIT study does not recognize the fact that the majority of other countries with established commercial nuclear power sectors have chosen to directly address this question early as a matter of national policy. A case in point is Finland and Sweden—each of these countries has a relatively small commercial nuclear power program and, thus, small inventories of used fuel. They implemented policy decisions to manage used fuel as a waste and pursue direct disposal in a repository. Other countries with large and/or expanding commercial nuclear power programs, such as France, UK, Japan, Russia, China, and India, have made up-front policy decisions (based on energy security, resource conservation, sustainability, intergenerational equity and/or other societal and economic considerations) to manage used fuel as a resource and pursue and implement recycling of spent fuel. In the U.S., we have confirmed that used fuel can be stored effectively at U.S. plant sites for decades—but ultimate disposition is still required. Recycling offers a safe, competitive and more sustainable alternative for ultimate disposition. That is why nearly every nation with a significant nuclear power sector, with the exception of the United States, has embraced recycling.

**Relegates the U.S. to a “Cartersque” reactor technology stagnation for the “next several decades” through a recommendation that “the efficiency of fuel resource utilization” and reducing “the cost of future reactor plants should be a principal research and development focus” even as the world moves ahead with the global renaissance.**

If the U.S. remains bonded to a one-dimensional, once-through technology approach for the balance of the century as the report suggests, the U.S. will fail to show substantive progress on technology leadership including conventional and advanced small reactors – and fast-reactor concepts propelled by waste management strategies. The U.S. will lose the competitive international advantage it gained from its prior investment in the LMR program, ALMR Program, and EBR-II test reactor, which led to key U.S. fast reactor innovations that other countries don’t yet have but are working towards (e.g. metal fuel). The longer we rely upon a wholly light-water-reactor paradigm, the harder it will be to deploy and obtain the benefits of other technologies such as high temperature gas and metal cooled reactors, which are being trail blazed in the U.S. by the private sector and, by some projections, could be ready for demonstration in a decade or two with appropriate prioritization and support from the Department of Energy. Ultimately, the U.S. will remain vulnerable to changes in global energy supply conditions. Energy security is not about the price of uranium under today’s conditions, it is about access to diverse energy supplies if global conditions change. As an example, according to some estimates there is enough depleted uranium in the U.S. to provide our entire electricity needs for a thousand years. However, it’s not accessible unless technology that can use it is demonstrated and commercialized.

**Assumes illogically that the U.S. can pursue fuel management-related non-proliferation objectives such as “actively” pursuing fuel leasing and used fuel take-back options for countries with small nuclear programs without any modicum of progress toward advancement of the U.S. fuel management scheme.**

The U.S. is at a challenging tipping point with respect to its traditional non-proliferation leadership in the world arena given the rapid pace of the global nuclear renaissance including the embrace of nuclear energy by many new countries. A fuel cycle policy that inhibits development of U.S. nuclear energy and relegates the U.S. to a back-bench in its back-end strategy will only further marginalize American influence in the critical non-proliferation arena, especially given the growing alternatives to U.S.-based companies and technologies.

In short, the MIT redux – despite some virtues – is like a Seinfeld episode. Its conclusions represent an adventure based on possible nothingness – up to century of little tangible progress toward a sustainable fuel cycle and overreliance on protracted research at the expense of deploying new nuclear technological advances. By and large, it embraces a fuel-cycle recipe that will likely relegate the U.S. to second-class status in nuclear energy technology only 60 years after the nation pioneered the technology, while hamstringing nuclear energy’s potential to contribute to U.S. clean energy and energy security initiatives.

*While this opinion represents the consensus views of the U.S. NIC, it does not necessarily reflect the specific views of every individual member.*





UNITED STATES  
NUCLEAR WASTE TECHNICAL REVIEW BOARD  
2300 Clarendon Boulevard, Suite 1300  
Arlington, VA 22201  
(703) 235-4473

**AGENDA**

Spring 2011 Board Meeting  
**Wednesday, April 27, 2011**  
Marriott Buffalo Niagara  
1340 Millersport Highway  
Amherst, NY 14221

(T) (716) 689-6900 (F) (716) 689-0483  
**Ballroom 5**

- 8:30 a.m.**                    **Call to Order and Introductory Statement**  
George M. Hornberger, Member  
United States Nuclear Waste Technical Review Board (NWTRB)
- 8:45 a.m.**                    **West Valley Demonstration Project**  
Paul J. Bembia  
Program Director, West Valley Site Management Program  
New York State Energy Research and Development Authority  
(NYSERDA)  
Bryan C. Bower  
Director, West Valley Demonstration Project (WVDP)  
Office of Environmental Management  
United States Department of Energy (DOE)
- 9:15 a.m.*                    *Questions and Discussion*
- 9:30 a.m.**                    **Final Environmental Impact Statement and Record of Decision**  
**“Decommissioning and/or Long-Term Stewardship**  
**WVDP and Western New York Nuclear Service Center” and**  
**Decommissioning Plan**  
Moira N. Maloney  
Decommissioning Plan Manager  
WVDP, DOE
- 9:55 a.m.*                    *Questions and Discussion*
- 10:10 a.m.**                    **BREAK (15 minutes)**
- 10:25 a.m.**                    **Panel on the 2008-09 Study “Quantitative Risk Assessment of the State-**  
**Licensed Radioactive-Waste Disposal Area”**  
**Moderator:** George M. Hornberger, NWTRB Member
- Panelists and Topics:**  
Paul J. Bembia, NYSERDA  
Why NYSERDA Requested the Study and Overall Study Approach

John W. Stetkar, Independent Consultant and Study Principal Investigator (for  
B. John Garrick, NWTRB Chairman and Study Director)  
Basic Methodology for the Study

John W. Stetkar, Independent Consultant and Study Principal Investigator  
Developing and Assembling the Model

Stephen L. Wampler, Vice President of Engineering, AquAeTer, Inc.  
Geotechnical Model

Thomas E. Potter, Independent Consultant  
Dose Calculation

*11:30 a.m. Questions and Discussion*

**12:25 p.m. LUNCH (1 hour 20 minutes)**

**1:45 p.m. Reprocessing at West Valley 1966-1972**  
James R. Clark  
Independent Consultant  
J. R. Clark Associates Inc

*2:15 p.m. Questions and Discussion*

**2:30 p.m. Vitrification at West Valley 1996-2002**  
Daniel C. Meess  
Chief Engineer  
West Valley Environmental Services, LLC (WVES)

*2:55 p.m. Questions and Discussion*

**3:10 p.m. BREAK (15 minutes)**

**3:25 p.m. High-Level Waste Canister Relocation Project**  
Zintars Z. Zadins  
Chenega Global Services

*3:50 p.m. Questions and Discussion*

**4:05 p.m. Determination of Waste Classification for the Melter**  
Laurene E. Rowell  
WVES Manager, Project Integration, Strategy, and Communications

*4:30 p.m. Questions and Discussion*

**4:45 p.m. Public Comments**

**5:30 p.m. Adjourn**



# DEEP BOREHOLE DISPOSAL OF SPENT NUCLEAR FUEL AND HIGH-LEVEL WASTE

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## *Summary*

Deep borehole disposal is a type of geologic disposal in which spent nuclear fuel (SNF) and solid high level radioactive waste (HLW) are isolated from the environment by emplacement in boreholes at depths from two to five kilometers (Km) beneath the land surface. Key aspects of deep borehole disposal addressed in this fact sheet are safety, capacity, technical feasibility and technical challenges. Safety results from the geologic isolation of the radioactive materials and depends strongly on the characteristics of the geologic environment. Many locations in the United States may have suitable geologic strata at appropriate depths and lithology is a critical factor in ensuring safe and reliable geologic isolation. Geographically-distributed deep borehole disposal can reduce transportation requirements and risk relative to centralized storage and disposal. Current research concepts suggest that each borehole could hold between 100 and 200 metric tons (MT) SNF, so 10 to 20 boreholes could contain the approximately 2,000 MT SNF discharged from U.S. nuclear power plants each year. Because of lower waste form density, the 7,000 MT HLW DOE needs to dispose would likely require more than 35 to 70 boreholes, and it may be impractical to emplace at depth some existing large-diameter canisters of vitrified waste. Advances in deep borehole drilling have demonstrated the technical feasibility of drilling boreholes to depths of two Km or more. Technical challenges arise from characterization and engineering of boreholes, including the development and demonstration of robust and reliable borehole seals. A significant operational concern is the possibility of a waste package becoming lodged in the borehole above the emplacement zone. After emplacement and sealing, attempts to retrieve SNF from deep boreholes would present significant technical and safety challenges. Prototypes demonstrating technical feasibility and reliability are required, and deep borehole disposal research and development can benefit significantly from international collaboration. Considering all known factors, deep borehole disposal is a credible approach to isolating radionuclides in SNF and HLW from the environment for very long periods of time.

## *Safety*

Deep borehole disposal has the potential to provide very robust waste isolation. For example, calculations by Sandia National Laboratories estimate the peak dose from a hypothetical borehole containing 150 MT SNF to be approximately  $1 \times 10^{-10}$  mrem/yr, more than a billion times below current regulatory limits for releases from geologic repositories (1). Actual isolation performance will depend strongly on the geology of the borehole environment, and extraordinary performance of engineered systems should not be required.

Many locations throughout the U.S. are likely to have suitable geologic strata at depth, including sedimentary, igneous and metamorphic rock types (1, 2). Maximum isolation capability and reliability will be associated with geologic settings that have: low permeability; reducing geochemistry; a high capacity for retarding radionuclide migration; no natural resources (including geothermal resources); and negligible seismic and igneous activity.

Uncertainty is inherent in all natural and engineered systems. Confidence in waste isolation performance of deep borehole disposal can be enhanced through robust total system characterization, early and sustained monitoring, and quantitative risk assessment. All critical natural and engineered deep borehole system elements must be analyzable over geologic time scales, and poorly understood features or processes diminish confidence in performance estimates of deep borehole systems. Natural analogs can be of significant value in improving understanding and evaluating models. Confidence is

enhanced when natural analogs and other lines of evidence are consistent with proposed interpretations and performance projections.

During the operational phase of deep borehole disposal there is a risk of a waste package becoming lodged out of place in the borehole. Process prototyping and contingency planning can significantly mitigate (but not completely eliminate) this risk.

#### *Capacity*

Borehole capacity depends partly on the thickness of suitable geologic strata at depth and on the diameter and depth of the borehole. A 2009 study investigated emplacement of 100 to 200 MT per borehole<sup>1</sup> at depths from 3- to 5-Km in 45 cm-wide boreholes (1). At those emplacement rates, between 650 and 1,300 boreholes would be needed to dispose of the 130,000 MT of U.S. commercial SNF expected to exist in 2070 (3). Borehole capacity may also be subject to thermal loading limits; Emplacement of hot waste can cause buoyant upwelling of groundwater at depth for hundreds of years or more (1).

#### *Technical Feasibility*

Drilling deep boreholes for disposal of SNF and HLW is feasible using proven available technology. Numerous boreholes greater than 2-Km deep have been drilled (2), including a 6-Km deep petroleum exploration borehole in Nevada (6) and a 12-Km deep borehole in Russia (7). Deep boreholes have also been used for geothermal energy production (4). For example, 17 production wells drilled in Japan's Okuaizu geothermal field ranged from 1.6 to 2.4-Km deep (8).

Although not a technical issue, economic cost could factor into the feasibility of borehole disposal. The cost of drilling and constructing deep boreholes depends upon rock type, depth and diameter of the borehole, and well casing design, among other factors. Cost estimates<sup>2</sup> for drilling deep boreholes, including some based on geothermal energy production wells, have ranged from \$1-\$4M/Km (2, 4). In general, for similar diameter and lithology drilling costs for deep borehole disposal are likely to be comparable to those for other deep oil, gas and geothermal boreholes.

#### *Technical Challenges*

A deep borehole disposal system will include the following major elements: well casing and grout, waste packages, emplacement machinery, borehole seals, and monitoring systems. Technical challenges of deep borehole disposal include: characterization of the geologic, hydrogeologic, and geochemical environment; emplacement of waste packages at depth; development of robust monitoring technology; and development of reliable borehole seals. The relative difficulties that each of these challenges present will vary depending on the geologic setting and on the deep borehole design. Deep borehole seal technology has been investigated, and simple and elaborate approaches have been proposed (9). Very large thermal loads that significantly perturb the natural environment for long time periods will create additional challenges to establishing confidence in waste isolation predictions. Furthermore, after waste packages are sealed in place, retrieval is likely to be very problematic and deep borehole disposal of SNF is not desirable if the need for retrieval is foreseen.

A waste package may be subject to significant pressure and a risk of rupture due to crushing from the cumulative weight of the overlying packages. Although isolation performance does not depend on

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<sup>1</sup>Two hundred 5 m-long packages per kilometer, each package containing one 0.5 MT spent fuel assembly.

<sup>2</sup>Cost estimates do not include expenses arising from regulation, characterization, operations or monitoring. If 70,000 MTU SNF and HLW could be emplaced in 700 boreholes drilled for \$20M each, the drilling costs would be approximately \$14B, about 14 percent of the disposal cost estimates for an equivalent amount at Yucca Mountain.

waste package integrity, researchers have proposed to address this issue by limiting continuous waste emplacement strings to 1 Km and by emplacing stress-diffusing plugs between waste packages (2).

Development and testing of prototype deep borehole disposal systems would be of significant value in demonstrating existing concepts and enhancing confidence in deep borehole performance. It would also potentially allow currently unforeseen factors to be identified and their impact to be investigated as part of a phased research and development program into deep borehole disposal systems.

#### *International Investigations*

Deep borehole disposal is an area of ongoing investigation by the international community. The International Atomic Energy Agency has identified safety requirements for deep borehole disposal (10), and Sweden (11, 12) and the UK (13) are among the other nations that have investigated deep borehole disposal. Deep borehole disposal may be a preferred option for nations such as Mexico whose relatively small inventories of SNF may not merit development of a mined geologic repository. In any event, like other types of geologic disposal, deep borehole disposal research and development can benefit significantly from international collaboration.

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U.S. HOUSE OF REPRESENTATIVES  
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

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March 10, 2011

The Honorable Gregory B. Jaczko  
Chairman  
Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

Dear Chairman Jaczko:

We write to follow-up to your March 4, 2011 response to our February 10, 2011 letter requesting the release of Volume III of the "Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada" (SER, Volume III).

You state in your letter that you will not release the document because its review has not been completed. However, as we noted in our original letter, the reason the report may not be considered complete is because you unilaterally and arbitrarily terminated work on the final review process shortly before its scheduled November 2010 release.

We have repeatedly expressed our concern regarding your directive to halt work on SER Volume III and close down the High-Level Waste Program (HLW).<sup>1</sup> These actions, coupled with the U.S. Nuclear Regulatory Commission's (NRC) deafening silence in response to the Atomic Safety and Licensing Board's (Board) June 29, 2010 denial of the Department of Energy's (DOE) motion to withdraw the License Application, reveal a process driven by a systematic and politically-driven effort to terminate NRC responsibilities on Yucca Mountain, rather than an objective pursuit to resolve the scientific and technical questions associated with the site's suitability.

Accordingly, we reiterate our call for delivery of an unredacted copy of SER Volume III in order to fulfill our oversight responsibilities under House Rule X to review and study, on a continuing basis, laws, programs, and Government activities relating to non-military research and development, and ultimately to inform the legislative process. Absent an immediate production of the document, please cite the exemption you are claiming along with an explanation of the claim. Furthermore, please provide to the Committee in its entirety, including all non-concurrences, the February 4, 2011 memorandum titled "Update on the Yucca Mountain Program," as referenced by Commissioner Ostendorff.<sup>2</sup> Please deliver these materials by March 17, 2011.

<sup>1</sup> Letter from Reps. Ralph Hall, Jim Sensenbrenner, Joe Barton, and Doc Hastings to NRC Chairman Jaczko, October 13, 2010. Also, letter from Reps. Ralph Hall, Jim Sensenbrenner, Paul Broun and Andy Harris to NRC Chairman Jaczko, February 10, 2011.

<sup>2</sup> Letter from Commissioner Ostendorff to Reps. Ralph Hall, Jim Sensenbrenner, Paul Broun and Andy Harris, February 23, 2011.

Additionally, we repeat our request for all documents and communication from you relating to the completion and release of SER Volume III. Should you withhold documents, please provide to the Committee an indexed list of documents withheld and the reason for doing so.

In addition, please respond to the following questions.

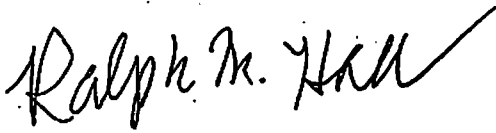
- 1.) Is your decision to bring the HLW program to a close the only hindrance to timely review of SER Volume III? If not, please identify and explain the other barriers to timely review?
- 2.) What work was undertaken on SER Volume III between its delivery to the Director of the Office of Nuclear Material Safety and Safeguards in July 2010 and October 2010, when you unilaterally halted work on the HLW program?
- 3.) Please explain your reasoning behind your refusal to participate in Commissioner Ostendorff's proposal for the full Commission to consider your October decision to halt work on the HLW program?
- 4.) What specific communication did you or your staff have with NRC Staff relating to the schedule, review or approval of SER Volume III?
- 5.) What ongoing reviews of the draft SER Volume III were in progress at the time of the NRC Staff Notification Regarding SER Schedule on November 29, 2010, as described in the Staff's March 3, 2011 reply to the Board?<sup>3</sup>
- 6.) In October, you noted "No specific actions have yet been taken to terminate the program."<sup>4</sup> Since then, what specific actions have been taken or will be taken to terminate review of the license application, including all actions related to Staff review of the application?

Lastly, we once more strongly urge you to allow NRC Staff to complete review of SER Volume III and make a full, final document publicly available. Please respond to the above questions by March 24, 2011. Should you have any questions, please contact Mr. Andy Zach, with the Energy and Environment Subcommittee, or Mr. Tom Hammond, with the Investigations and Oversight Subcommittee, at (202) 225-6371.

<sup>3</sup> NRC Staff, NRC Staff Response to February 25, 2011, Board Order, Docket No. 63-001-HLW ASLBP No. 09-892-HLW-CAB04 (March 3, 2011) at p. 8

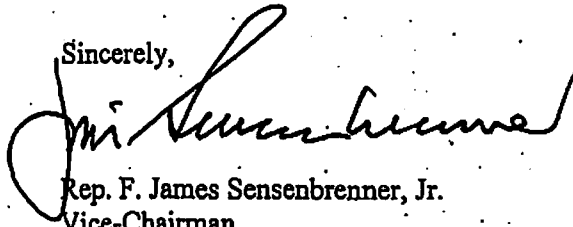
<sup>4</sup> Letter from Chairman Jaczko to Reps. Ralph Hall, Jim Sensenbrenner, Doc Hastings and Joe Barton, October 27, 2011.

The Honorable Jaczko  
March 10, 2011  
Page three



Rep. Ralph M. Hall  
Chairman  
Committee on Science, Space,  
and Technology

Sincerely,



Rep. F. James Sensenbrenner, Jr.  
Vice-Chairman  
Committee on Science, Space,  
and Technology



Rep. Paul Broun, M.D.  
Chairman  
Subcommittee on Investigations  
and Oversight  
Committee on Science, Space,  
and Technology



Rep. Andy Harris  
Chairman  
Subcommittee on Energy and Environment  
Committee on Science, Space,  
and Technology

cc: The Honorable Steven Chu  
Secretary of Energy

The Honorable William C. Ostendorff  
Commissioner, U.S. Nuclear Regulatory Commission

The Honorable George Apostolakis  
Commissioner, U.S. Nuclear Regulatory Commission

The Honorable Kristine L. Svinicki  
Commissioner, U.S. Nuclear Regulatory Commission

The Honorable William D. Magwood, IV  
Commissioner, U.S. Nuclear Regulatory Commission