



**2012 Report to the Legislature-**  
on the  
State Nuclear Safety Inspector's Oversight Activities  
of the  
Independent Spent Fuel Storage Installation (ISFSI)  
at the  
Maine Yankee Site in Wiscasset, Maine

*Prepared for*  
**Joint Standing Committee on  
Energy, Utilities, and Technology**  
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# Table of Contents

|   |    |
|---|----|
| Executive Summary   | iv |
| 1.0 - Introduction  | 1  |
| 1.1 - Historical Perspective  | 1  |
| 1.2 - Law   | 2  |
| 2.0 – State Nuclear Safety Inspector Activities   | 2  |
| 2.1 - Independent Spent Fuel Storage Installation (ISFSI)                                       | 2  |
| 2.1.1 - Annual Inspection   | 2  |
| 2.1.2 - Annual Drills and Exercises   | 2  |
| 2.1.3 - Daily ISFSI Operations Pass-Ons   | 3  |
| 2.1.4 - Maine Yankee Reports to NRC   | 3  |
| 2.1.5 - Security Plan   | 4  |
| 2.1.6 - Interface with Other State Agencies   | 4  |
| 2.1.7 - ISFSI Topics  | 5  |
| 2.1.7.1 - ISFSI Status  | 5  |
| 2.1.7.2 - Security Related Events/Impairments   | 5  |
| 2.1.7.3 - Fire Related Events/Impairments   | 6  |
| 2.1.7.4 - Condition Reports   | 6  |
| 2.1.7.5 - Other ISFSI Related Activities  | 6  |
| 2.2 – Environmental   | 9  |
| 2.2.1 - Radiological Environmental Monitoring Program Description<br>and Historical Perspective | 9  |
| 2.2.2 - Thermoluminescent Dosimeters (TLDs)   | 10 |
| 2.2.2.1 - ISFSI TLDs  | 11 |
| 2.2.2.2 - Bailey Cove TLDs  | 15 |
| 2.2.2.3 - Field Control TLDs  | 16 |
| 2.2.3 - REMP Air Filter Results   | 16 |
| 2.2.3.1 - State’s Health and Environmental Testing Laboratory<br>Roof Sampler                   | 16 |
| 2.3 - Maine Yankee Decommissioning  | 17 |
| 2.3.1 - Background  | 17 |
| 2.3.2 - Confirmatory Reports  | 17 |
| 2.4 - Other Noteworthy Activities   | 18 |
| 2.4.1 - Reports to the Legislature  | 18 |
| 2.5.1.1 - Monthly   | 18 |
| 2.5.1.2 - Annual  | 18 |
| 2.4.2 - Northeast High Level Radioactive Waste Transportation<br>Task Force (NEHLRWTF)          | 18 |
| 2.4.3 - Yankee Federal Energy Regulatory Commission (FERC)<br>Rate Case Settlement              | 19 |
| 2.4.4 - Nuclear Waste Strategy Coalition (NWSC)   | 20 |
| 2.5 - Some Newsworthy Items   | 20 |

## Tables

|                                     |    |
|-------------------------------------|----|
| Table 1 - ISFSI TLD Results         | 13 |
| Table 2 – TLD Discrepancies         | 14 |
| Table 3 - Bailey Cove TLD Results   | 15 |
| Table 4 - Field Control TLD Results | 16 |
| Table 5 - HETL Air Filter Results   | 17 |

## Figures

|   |    |
|---|----|
| Figure 1 - State TLD locations at ISFSI         | 12 |
| Figure 2 - Graphs of ISFSI TLD Stations D and G | 15 |

## Appendices

|   |    |
|---|----|
| Appendix A - Condition Reports  | 27 |
| Appendix B - Department of Energy Activities                              | 32 |
| Appendix C - Blue Ribbon Commission on America’s Nuclear Future           | 36 |
| Appendix D - Nuclear Regulatory Commission’s Activities                   | 39 |
| Appendix E - Congressional Reactions and Responses                        | 45 |
| Appendix F - States, Counties and Local Activities                        | 52 |
| Appendix G - Federal Court Proceedings                                    | 59 |
| Appendix H - Other Stakeholder and Interested Party Responses             | 65 |
| Appendix I - Notable Reports and Documents                                | 67 |
| Appendix J- International Highlights                                      | 70 |
| Appendix K - Nuclear Waste Fund Balance                                   | 72 |
| Appendix L - Blue Ribbon Commission’s Report - Executive Summary          | 73 |
| Appendix M - Governor LePage’s Letter to Maine’s Congressional Delegation | 87 |

## Executive Summary

The following report details the State Nuclear Safety Inspector's oversight activities for the calendar year 2012 performed at the Maine Yankee site and the Independent Spent Fuel Storage Installation (ISFSI) in Wiscasset. The State Nuclear Safety Inspector's oversight role includes the following tasks:

- Reviews daily the operational and security reports from the on-site security staff;
- Performs environmental surveillance of the Maine Yankee environs to include field measurements of the local radiation levels;
- Participates in the annual Nuclear Regulatory Commission inspection of the facility;
- Participates in the ISFSI's annual emergency plan exercise;
- Reports activities monthly and annually to the Legislature;
- Provides an annual accounting to the Legislature of the funds received and disbursed out of the Interim Spent Fuel Storage Facility Oversight Fund;
- Interfaces with various state agencies also performing oversight functions at the ISFSI;
- Reviews and comments, if appropriate, on Maine Yankee submittals to the Nuclear Regulatory Commission;
- Participates in regional and national organizations involved in the Yucca Mountain project in Nevada and the development of a national transportation network for moving used nuclear fuel to consolidated interim storage sites; and
- Investigates and monitors websites to keep abreast of national developments on spent nuclear waste management and research.

The Maine Yankee plant was decommissioned over an eight year period from 1997 to 2005. Because the Department of Energy was unable to fulfill its contractual obligations to accept the spent nuclear fuel by January 1998, Maine Yankee was compelled to construct an Independent Spent Fuel Storage Installation (ISFSI) in Wiscasset to store the high level waste in casks until a consolidated interim facility is constructed to store the waste, or a national repository becomes available to dispose of the used nuclear fuel.

The storage of the high level waste in Wiscasset is an important issue to the State. It creates an undue burden to the local community and State by not being able to reuse or redevelop prime, coastal real estate. Moreover, it sets up a possible terrorist target that could result in future unintended consequences. Furthermore, it potentially imposes on our citizens a de facto high-level waste dump site in Maine. Secretary of Energy Chu's decision to withdraw the Department of Energy's license application before the Nuclear Regulatory Commission, effectively terminating the Yucca Mountain repository, means that the high level waste stored in Wiscasset may be there for 100 years or more, as per the Nuclear Regulatory Commission's 2010 waste confidence update, or, as some fear, potentially indefinitely. However, in June, the U.S. Court of Appeals for the D.C. Circuit vacated the NRC's Waste Confidence Rule since the NRC failed to meet its obligations under the National Environmental Policy Act. The Court remanded the Rule back to the NRC to perform an environmental assessment or impact statement for extended storage out to 120 years and beyond.

The President's Blue Ribbon Commission on America's Nuclear Future issued a report in January 2012 that provided a blueprint on how the nation should manage its used nuclear fuel. The Blue Ribbon Commission's report contained eight essential key elements and proposed six legislative changes to affect its recommendations. Of the eight recommendations two would be instrumental in moving the used nuclear fuel from the Wiscasset facility. The first is the construction of one or more consolidated interim storage facilities. The second is the provision that used nuclear fuel stranded at decommissioned sites receive first priority in the movement of their spent fuel. The community of Carlsbad, New Mexico is seeking to host an interim storage

facility to house the nation's nuclear stockpile. If the State of New Mexico is also willing, then there is a possibility Maine could witness some spent fuel shipments from the Wiscasset facility in the next decade.

## 1.0 Introduction

### 1.1 Historical Perspective

The State had one nuclear power plant, called the Maine Yankee Atomic Power plant, and it was located in Wiscasset, Maine. It operated from the fall of 1972 to December 1996. The Maine Yankee Plant was initially rated at about 825 megawatts electric or 2440 megawatts thermal and by the end of its life the Maine Yankee plant was producing slightly over 900 megawatts electric.

At the time of its last shutdown in December 1996 the plant owners were facing some major issues, principally cable separation and the aftermath of the Nuclear Regulatory Commission's (NRC) Independent Safety Assessment Team (ISAT) findings pertaining to plant safety systems. The State was a participant in the ISAT process. In 1997 the plant owners decided that the likelihood of the nuclear plant operating at a profit was non-existent in light of Maine's electric restructuring act passed that same year. With the availability of cheaper power from Canada, the plant was no longer considered economically viable. In May 1997 Maine Yankee announced that it would either sell or close the plant if there were no buyers. Even though there was a serious assessment performed by Philadelphia Electric Company to purchase the Maine Yankee plant, in July 1997 both parties could not come to an agreement and in August 1997 the Board of Directors voted to shut down the plant permanently and commence the immediate dismantlement of the nuclear facility. The planning process for the site's decommissioning began shortly after the official closure and the decommissioning lasted nearly eight years.

When the Nuclear Waste Policy Act (NWPA) was enacted in 1982, Congress assumed that a national repository would be available by 1998 for the disposal of the spent fuel. The NWPA mandated the Department of Energy (DOE) to take title and possession of the nation's spent nuclear fuel in 1998. Since the high level waste repository at Yucca Mountain in Nevada had experienced significant licensing and construction delays, DOE was unable to take title and possession of the nation's spent fuel and consequently breached its legal contracts with all the nation's nuclear power utilities.

Early during the Maine Yankee decommissioning it became evident that at DOE's current pace the Yucca Mountain repository would not open at its plan projected start date of 2010. DOE's inaction prompted Maine Yankee to construct an Independent Spent Fuel Storage Installation (ISFSI) during decommissioning to store the 1434 spent fuel assemblies that were previously housed in the spent fuel pool in the plant, into 60 storage casks on-site. Another four casks contain some of the more radioactive components of the reactor internals that were cut up during decommissioning, since their radioactive concentrations were too high to dispose of at a low level radioactive waste facility. These are expected to be shipped along with the spent fuel to a deep geologic repository when one becomes available sometime in the future.

Although President Bush recommended to Congress and Congress approved the Yucca facility as the nation's federal repository for spent nuclear fuel in 2002, the DOE did not submit a license application until June of 2008, which was accepted for review by the NRC in September of 2008. Since then, the Obama Administration and Energy Secretary, Dr. Chu, had advocated for the termination of the Yucca Mountain site as it was no longer considered a viable option for disposing of the nation's high level waste and spent nuclear fuel. Energy Secretary Chu had assembled a Blue Ribbon Commission of experts to review alternative strategies for managing these waste forms. In the meantime the entire nation's spent fuel will remain at their present storage locations until a new management strategy is devised and implemented.

## 1.2 Law

With the spent fuel at Maine Yankee likely to be stored in Wiscasset for decades to come, in March of 2008, in the second regular session of the 123<sup>rd</sup> Legislature, the Legislature enacted and the Governor signed into law the establishment of the State Nuclear Safety Inspector Office within the Department of Health and Human Services to provide independent oversight of the Maine Yankee ISFSI. The law also mandated that an Oversight Group, comprised of various state agencies, Maine Yankee and an independent expert in radiological and nuclear engineering, meet on a quarterly basis to discuss the protection of public health and safety at the ISFSI site and be involved in national activities that would hasten the timely removal of the spent nuclear fuel from the site. The law went into effect June 29, 2008. After much discussion, the Oversight Group chose not to hire an independent expert since the Group collectively possessed the necessary expertise.

The following sections contain the State Nuclear Safety Inspector's activities for the 2012 calendar year under certain broad categories covering the ISFSI, environmental surveillance around the Maine Yankee site, remaining pieces of the State's decommissioning efforts, regional and national activities, and newsworthy items on the national repository situation.

## 2.0 State Nuclear Safety Inspector Activities

### 2.1 Independent Spent Fuel Storage Installation (ISFSI)

#### 2.1.1 Annual Inspection

On June 6<sup>th</sup> two NRC Inspectors from Region I inspected Maine Yankee's storage facility in Wiscasset. One Inspector focused on security issues while the other concentrated on safety programs at the facility, such as radiation control, fire protection, emergency planning, quality assurance, training, environmental monitoring, maintenance, and corrective action programs. The State Inspector participated in the federal inspection and observed some security demonstrations. At the exit briefing the safety programs did not have any findings. However, on the security side, the inspector raised two issues that could require further NRC management involvement. The first involved a safeguards issue and is therefore unavailable for public disclosure. The second included the inadequate compensatory measures instituted during a snowstorm, which was identified by Maine Yankee and later reported to the NRC in a licensee event report. However, when the NRC issued its report on June 28<sup>th</sup>, there were no findings identified. Since the report contained security-related information, none of the enclosure was available for public disclosure.

#### 2.1.2 Annual Drills and Exercises

On an annual basis Maine Yankee is required to perform an emergency plan drill, a radiological drill, a medical drill and a fire drill.

On May 16<sup>th</sup> Maine Yankee held its annual fire and medical drill. The scenario involved a worker performing maintenance on the skid steer, a small front loader, in the truck bay of the Security and Operations Building. The skid steer caught on fire near a flammables storage cabinet. The Wiscasset Fire Department, Westport Island Fire Department, Wiscasset Ambulance Service and the Wiscasset Police Department responded. The maintenance worker suffered minor burns and smoke inhalation. The victim was not transported offsite, but how he would be treated and where he would be transported to was discussed.

In preparation for its annual emergency exercise Maine Yankee conducted on October 3<sup>rd</sup> its annual emergency plan training to state officials at the Maine Emergency Management Agency.

The overview consisted of the site's status and spent fuel considerations, emergency classifications, activation of the Maine Yankee emergency response organization, functions performed at the ISFSI control center, and the offsite interface with appropriate local, state and federal organizations.

On October 17<sup>th</sup> Maine Yankee held its annual emergency plan exercise with participation from local and state officials. The exercise was a force on force exercise between armed intruders and the State Police's tactical team. The armed intruders were from Maine Yankee's security force. The scenario involved four intruders with backpacks and explosives scaling the ISFSI security fence and positioning their satchels of explosives. Two simulated explosions occurred within the confines of the storage facility and two casks were slightly damaged. The State Police did set up a roadblock on Ferry Road to prevent entry to the site. The State Police tactical team was called in and neutralized the threat. The tactical team then performed a sweep of the area including the Security and Operations Building. The State Police's bomb squad was also called in to perform a sweep for potentially other explosives that could have been intentionally left behind. None were found. Because of the armed intruders emergency responders had to report to the secondary emergency operations center at the Wiscasset Airport to receive briefings before being dispatched to execute their emergency functions. The exercise was deemed an overall success by all parties. Some suggestions were made as to how to improve the command center at the Wiscasset Airport.

#### 2.1.3 Daily ISFSI Operations Pass-Ons

The on-shift Security Supervisor forwards the ISFSI Pass-On, essentially three times daily, to the State Inspector. The Pass-On provides an overview per shift of the ISFSI status, the cask monitoring status, procedures/surveillances/work in progress, equipment out of service, alarm issues, and team information. It is from these daily reports that the information is collected for condition reports, fire or security related impairments, security event logs and spurious alarms and discussed with the Site Vice-President prior to its disclosure in the State Inspector's monthly reports to the Legislature.

#### 2.1.4 Maine Yankee Reports to the Nuclear Regulatory Commission (NRC)

In March Maine Yankee submitted to the NRC a Licensee Event Report on the January snowstorm that precipitated a security event when compensatory measures were instituted "that were not fully effective for their intended purpose". The intrusion detection system was bypassed due to environmental factors and compensatory measures were instituted. However, nearly three hours into the event security personnel noted that the additional measures were not fully compensating and repositioned a camera to compensate for the degraded zone coverage without notifying the ISFSI Shift Supervisor. The degraded coverage was not picked up until the evening shift reported and assumed the watch. As soon as the deficiency was discovered, the protected area was inspected by security personnel. There was no evidence of any unauthorized access. Senior management was notified along with the Nuclear Regulatory Commission Region I and the State Nuclear Safety Inspector. The total time the affected area was not fully covered was about 5.6 hours.

Also in March Maine Yankee submitted two annual reports to the Commission. By design there were no gaseous or liquid releases from the ISFSI. Therefore, there was no radioactivity to report in its 2011 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 2011 Annual Radiological Environmental Operating Report, explained the environmental monitoring program. Since there were no effluent releases from the casks, Maine Yankee was only required to monitor the direct radiation exposure from the facility, which it did with passive

devices, called thermoluminescent dosimeters (TLDs)<sup>1</sup>. The report summarized the direct radiation results of the nine TLD stations situated within 288 meters (about 945 feet) ring form the center of the ISFSI with 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 higher values were assumed to be related to its line of sight and proximity to the ISFSI casks. Maine Yankee calculated a maximum annual dose of 1.65 mrem<sup>2</sup> to the worm diggers from the storing of the casks at the Wiscasset facility.

In May Maine Yankee electronically submitted its annual Individual Monitoring Report that describes the occupational radiation exposure record of each individual monitored at the used fuel storage facility in Wiscasset.

In September Maine Yankee submitted its annual Special Nuclear Material (SNM) Report to the NRC. The report represents the material accountability for fissionable material, such as Uranium-235 and Plutonium-239 on U.S. Government owned or non-U.S. owned nuclear fuel between beginning and ending inventories, radioactive decay differences, if any, and receipts of or removals of SNM. The report also includes source material such as natural Uranium and Thorium.

#### 2.1.5 Security Plan

In August the NRC responded to Maine Yankee's exemption request from specific requirements of the physical protection requirements to prevent radiological sabotage. The NRC granted one exemption and denied the remaining requests since they were determined to be not applicable to the Maine Yankee ISFSI facility or already met by Maine Yankee's current program. Since the information was security-related no information was available for public disclosure.

#### 2.1.6 Interface with Other State Agencies

As part of the legislation's mandate, on a quarterly basis, the State Inspector and the Manager of the Radiation Control Program, met with State Police, the Public Advocate, the Department of Environmental Protection (DEP) and Maine Yankee to discuss oversight activities at the ISFSI. The quarterly meeting dates were January 17<sup>th</sup>, April 10<sup>th</sup>, July 10<sup>th</sup> and October 19<sup>th</sup>. At the meetings Maine Yankee provided a status of their activities followed by the State Inspector's update of his past, current and planned near term activities. Discussions also centered on the Group's annual and financial reports to the Legislature, national and congressional efforts on spent fuel waste management, especially centralized interim storage at some away facility outside of New England as opposed to on-site storage, the Federal Energy Regulatory Commission rate case settlement cases pending before the federal Appeals Court, and environmental surveillance at the facility. Other topics included the State Police's tactical equipment needs to maintain their terrorist readiness response capabilities and an amortized formula for annual funding for replenishing its outdated equipment, Maine Yankee's upcoming chemical sampling plan for DEP's Resource Conservation and Recovery Act mandates, Maine

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<sup>1</sup> Thermoluminescent Dosimeters (TLD) are very small plastic-like phosphors or crystals that are placed in a small plastic cage and mounted on trees, telephone poles, etc. to absorb any radiation that impinges on the material. Special readers are then used to heat the plastic to release the energy that was stored when the radiation was absorbed by the plastic. The energy released is in the form of invisible light that is counted by the TLD reader. The intensity of the light emitted from the crystals is directly proportional to the amount of radiation that the TLD phosphor was exposed to.

<sup>2</sup> A mrem is a conventional unit of dose that describes how much radiation energy was absorbed by a person's body with modifiers applied for the different types of particles or rays.

Yankee's efforts to upgrade its security capabilities over the next couple of years, and upgrading the rail infrastructure for moving casks, and the status of its litigation in the federal courts.

## 2.1.7 ISFSI Topics

### 2.1.7.1 ISFSI Status

The status of the ISFSI from January to December was normal, except for the snowstorm in January. Additional measures were put in place for the snowstorm and were terminated once the storm passed. However, the measures instituted were not fully compensating and is explained in the next section. As part of its operational constraints after a snow event, the vent screens for the concrete casks need to be inspected daily for blockage. The venting is necessary to ensure that the cooling of the cask internals is maintained.

### 2.1.7.2 Security Related Events/Impairments

Although there were no spurious alarms due to environmental conditions, there were six security related impairments. The first occurred during the snowstorm on January 12<sup>th</sup>. Compensatory measures were instituted. Shift personnel assumed the measures were adequate. At the shift turnover at 2:00pm the on-coming security personnel noted that the measures put in place were not correctly compensating, thereby creating vulnerability for several hours. Since the measures were inadequate for longer than one hour, upon discovery Maine Yankee reported the incident to the NRC's Operations Center and later filed a Licensee Event Report to the NRC on the event. The second security impairment was transient in nature and occurred during the evening shift on January 22<sup>nd</sup>. The third contains security sensitive information and is not available for public disclosure. The fourth impairment involved a bad connection to a camera and was corrected in less than a day. The fifth involved scheduled maintenance on the fence replacement project and associated paving. The last one was a camera issue.

There were 145 security events logged (SEL) which was comparable to the 142 SELs logged for the previous year. Of the 145 events logged 127 were related to transient environmental conditions. Of the 18 remaining, nine were related to the security impairments discussed above, one was due to routine maintenance, two were communication issues, one was due to the temporary misplacement of a shift key ring, another involved a detector failing a routine test, and the last one was for the planned, temporary loss of the computer system to complete a maintenance activity on the system.

2012 witnessed a reversal of the dramatic decrease from the previous year on the number of instances that prompted follow-up action with the Local Law Enforcement Agency (LLEA). There were 15 instances in 2012 as compared to 6 instances in 2011 versus 15 in 2010 and only two in 2009. The suspicious instances of vehicles and/or persons occurred over a period starting in March and ending in December.

Two of the incidents involved suspicious vehicles. In the first instance a vehicle that had stopped at the Gatehouse to get directions and was found later parked by the railroad crossing. A security officer reporting for work observed the car on his way in and notified site security. Security was dispatched to the scene and immediately noted it was the same individual who had initially stopped at the Gatehouse for directions. In the other instance the individual parked his car on Ferry Road and started taking photos. Five situations were related to worm diggers crossing Maine Yankee's property to gain access to Montsweag Bay. Two were only discovered after reviewing the previous day's tapes. In five other cases individuals were observed taking pictures, usually at the site

entrance or on Ferry Road. Two events involved hunting. One was a duck hunter on Little Oak Island and the other appeared to be night hunters. In both cases the LLEA intercepted the individuals while the night hunting situation was referred to the Department of Inland Fisheries and Wildlife.

In ten of the fifteen incidents the LLEA was notified and responded. In eight of those situations they intercepted the vehicles or persons. Generally, the persons were counseled on the site's security restrictions and released. If the individuals were on-site they were escorted off-site. In seven of those instances Maine Yankee notified the Nuclear Regulatory Commission Operations Center of the incidents.

#### 2.1.7.3 Fire Related Events/Impairments

There were six fire related impairments reported in 2012 as compared to eleven in 2011. The first occurred in March and was due to the issuance of a permit for fire extinguisher training. The second was in April and involved a fire door not latching properly over a weekend. The door was repaired and tested the following Monday and placed back into service.

In May there were two fire impairments and both involved one fire door. The first impairment lasted three days with the door being repaired and retested satisfactorily. The second impairment was still active with major repairs by a contractor scheduled for June. In June a contractor repaired the door. The unit was tested satisfactorily and returned to service.

In July there was one fire-related impairment with one of the fire doors not latching properly and an additional closure mechanism was added to it two days later. The last impairment occurred in August and involved a conference room not latching reliably. The closing mechanism was adjusted and retested satisfactorily.

#### 2.1.7.4 Condition Reports

There were 180 condition reports written in 2012 as compared to 80 in 2011. A condition report (CR) is a report that promptly alerts management to potential conditions that may be adverse to quality or safety. The report is generally initiated by a worker at the ISFSI facility. The report prompts management to activate a process to identify causal factors and document corrective and preventative measures stemming from the initial report. The majority of the CR's are administrative in nature. Examples of some CR's written ranged from a missing surveillance record to the e-mail server being down to tracking observations from periodic surveillances to using an out of date procedure to an inappropriately labeled alarm description to a very small diesel fuel spill about the size of a teaspoon to a missing page in a testing packet to issuing a procedure with an outdated attachment. A complete list of CR's can be found in Appendix A. It should be noted that in May of last year Maine Yankee consolidated several programs into the Condition Report System as an all-purpose tracking and documentation system. This explains the sudden increase in CR's and the prevalence of multiple CR's for an issue.

#### 2.1.7.5 Other ISFSI Related Activities

In January the NRC issued a Severity Level 4 violation to Maine Yankee stating that they violated NRC regulations on foreign ownership, control, or domination (FOCD). The violations were also issued to Connecticut Yankee and Yankee Atomic, since all three Yankee companies were affected by the proposed merger of Northeast Utilities and NSTAR. According to the NRC's Notice of Violation Maine Yankee "is governed by a

board of directors whose members are appointed, in part, by companies that are ultimately controlled by foreign entities, as follows: Central Maine Power Co. (38% - Iberdrola S.A.), New England Power Co. (24% - National Grid); Bangor Hydro-Electric and Maine Public Service Co. (12% - Emera)". Iberdrola is based in Spain. National Grid is based in the United Kingdom and Emera is based in Canada. Maine Yankee did not agree that the storage facility in Wiscasset is subject to foreign control or that there has been a violation of NRC regulations.

Maine Yankee responded and the State requested and received a copy of their response to the NRC. In its response Maine Yankee disagreed with the violation, provided four reasons as a basis for its contentions that it was not a violation, implemented a December 14, 2011, Negation Action Plan through a Board of Directors resolution to ensure that there would be no issues relative to FOCD, and formally executed the Board resolution and Negation Action Plan in January. As part of the Negation Action Plan Board Directors or Officers appointed from foreign sponsor companies would be excluded from access to classified or safeguards information, and special nuclear material. All the Directors who were appointed by foreign-controlled owners were required to attest to their exclusion from classified information and special nuclear material and certify they would adhere to protective measures instituted by Maine Yankee to prevent any foreign control or influence.

In April Maine Yankee submitted two letters to the NRC. The first report denoted that "there were no changes made to the facility or the spent fuel cask design, procedures, or any tests or experiments" that could impact safety between April 1, 2010 and March 31, 2012 as defined in section 50.59 of Title 10 of the Code of Federal Regulations (CFR). The second report indicated that there were no changes, tests, or experiments pursuant to 10 CFR 72.48, the licensing requirements for an ISFSI.

Also in April Maine Yankee forwarded their annual letter to the Maine Department of Environmental Protection (DEP) as per the Environmental Covenant between Maine Yankee and DEP. During the last twelve months Maine Yankee did invoke the Soil Management Plan once for the "installation of a new manhole into an existing storm drain". As part of the excavation process samples were taken and analyzed. No chemical contamination was found in the excavated soils.

In June the NRC issued a Confirmatory Order to Maine Yankee immediately modifying their license to incorporate Maine Yankee's Negation Action Plan as part of their license. Although Maine Yankee voluntarily complied, the NRC determined that a modification to Maine Yankee's license was necessary to maintain the Negation Action Plan in place and that no changes could be made to the Plan without the NRC's prior written consent.

Also in June Maine Yankee submitted an exemption request from specific requirements to the NRC's Part 50 regulations. In November of 2011 the NRC issued a final rule to their "Enhancements to Emergency Preparedness Regulations". The final rule described six security related and six non-security related emergency planning issues. The final rule applies to nuclear power reactor licensees with some applicability to non-power reactor licensees. Although Maine Yankee still holds a Part 50 license, the Part 50 definitions for both nuclear power and non-power reactor do not include such licensees as Maine Yankee who have permanently ceased operations and maintain only an independent storage facility. Maine Yankee provided an Environmental Assessment for

its exemption request and supplied its justifications for each of the six security related and four of the non-security related emergency planning requirements.

In June Maine Yankee also submitted a letter to the NRC on its advance notice of proposed rulemaking for onsite emergency response capabilities. In the letter Maine Yankee maintained that the proposed rulemaking does not apply to its storage facility and requested that the NRC include specific language in the rulemaking stating that it does not apply to Part 50 licensees that are restricted to the storage of used nuclear fuel.

In August the NRC responded to Maine Yankee's earlier exemption request from specific requirements of the physical protection requirements to prevent radiological sabotage. The NRC granted one exemption and denied the remaining requests since they were determined to be either not applicable to the Maine Yankee ISFSI facility or already met by Maine Yankee's current program. Since the information was security-related no information was available for public disclosure.

Also in August the NRC responded to Maine Yankee's response that it disagreed with the NRC's position that it had violated NRC's regulations on foreign ownership, control and domination. The NRC stated that even though Maine Yankee's Part 50 license does not authorize Maine Yankee to operate an electric power production facility, it still must abide by all of the requirements of the NRC's Part 50 requirements unless it is specifically exempted. According to the NRC's standard review plan ...."An applicant is considered to be foreign owned, controlled, or dominated whenever a foreign interest has the "power", direct or indirect, *whether or not exercised*, to direct or decide matters affecting the management or operations of the applicant." The NRC noted that Maine Yankee was "owned, controlled, or dominated by three foreign corporations – Iberdrola, based in Spain (38 percent); National Grid, based in the United Kingdom (24 percent); and Emera (*based in Canada*) (12 percent)." Since there was no negation plan in affect to counteract any foreign influence at the time of the merger between Northeast Utilities and NSTAR that increased the overall foreign ownership to 74%, the NRC determined that Maine Yankee was in violation of its Part 50 requirements and was assessed its lowest violation category, a Severity Level 4.

In August, at the request of the three Yankee decommissioned sites, the Department of Energy (DOE) and its contractor, Sandia National Laboratory, visited Maine Yankee's ISFSI to get a sense of what transportation infrastructure existed at the site, what enhancements would have to be made to upgrade the infrastructure, and how long it would take to accomplish those enhancements. The visit was part of a DOE effort to lay the groundwork for future implementation of consolidated storage and transportation of used nuclear fuel from shutdown sites. According to Maine Yankee the DOE and contractors were very interested in Maine Yankee's barge slip as a potential option to ship the used fuel. The DOE and contractors conducted similar visits to Connecticut Yankee and Yankee Atomic in Massachusetts.

As part of NRC's requirements, in September the State Inspector received his annual site access, security and safeguards training to maintain his security badge and personal radiation monitoring status.

In October a 4.0 magnitude earthquake occurred near Hollis Center in York County. Maine Yankee officials stated that the tremor was not felt at the spent fuel storage facility in Wiscasset. However, the casks were inspected and no damage was observed.

Measurements were taken between the casks to verify that there was no movement of the casks. Maine Yankee did provide a courtesy notification to the Nuclear Regulatory Commission's Region I Branch Chief. The Seabrook nuclear power station declared an Unusual Event, the lowest of four emergency classifications. However, the nuclear power station was shut-down at the time for refueling and maintenance and was not affected by the earthquake. Maine also experienced smaller tremors in November and December. The 2.6 earthquake in November was centered near Belfast whereas the 2.8 December one was near North Waterboro. Since both tremors were at least ten times lower in intensity than the one near Hollis Center, it was not necessary to inspect the casks on these smaller tremors.

Also in October Maine Yankee sent a letter to the NRC notifying them of a change in indirect ownership. In July Maine Yankee had previously notified the NRC that the Canadian firm Gaz Metro Limited Partnership had acquired Central Vermont Public Service Corporation, a 2% owner of Maine Yankee. On October 1<sup>st</sup> Central Vermont Public Service was merged into Green Mountain Power, a Vermont utility that is also owned by Gaz Metro. The directors representing Green Mountain Power on Maine Yankee's Board of Directors are bound by their signed certification in accordance with Maine Yankee's Negotiation Action Plan to suppress any potential for foreign ownership, control or influence.

In December Maine Yankee submitted its ISFSI decommissioning funding plan to the NRC for review and approval. The submittal was in response to the NRC's recent publishing of a "final rule that amended its regulations regarding decommissioning planning, including changes to the information required to be contained in a licensee's decommissioning cost estimate and the financial assurance requirements for ISFSI decommissioning funding". The final rule required a cost estimate for managing irradiated fuel. Maine Yankee's \$112.5 million estimate included irradiated fuel and Greater Than Class C waste. Of the \$112.5 million, \$86.7 million will be necessary to manage the facility until 2021 with the remaining \$25.9 million to decommission the site by 2023 when its storage license expires. All the cost values were based on 2013 dollars. If the Department of Energy (DOE) aggressively moved forward to open a pilot interim storage facility by 2021 for used nuclear fuel from decommissioned reactor sites, then, according to the DOE, it would take an additional six to seven years for all the used fuel to be removed from one site. Assuming that Maine Yankee was the first of the nine shutdown sites to have its fuel moved, the Wiscasset site could be available for public use by 2030.

## 2.2 Environmental

### 2.2.1 Radiological Environmental Monitoring Program (REMP) Description and Historical Perspective

Since 1970 the State has maintained an independent, radiological environmental monitoring program of the environs around Maine Yankee. Over the years there was an extensive quarterly sampling and analysis program that included such media as salt and fresh water, milk, crabs, lobsters, fish, fruits, vegetables, and air. Since the decommissioning the State's program has been reduced twice to accommodate decreased revenues for sample analyses at the State's Health and Environmental Testing Laboratory.

In late December 2009, after 39 years, the State ceased its air sampling station at the Maine Yankee site. In reviewing the historical air data and taking into account the leak tightness of the

spent fuel casks, it was determined that there was no technical basis to continue the air monitoring location at the old Bailey Farm House. Although the air sampling station at Maine Yankee was discontinued, the State still maintained an active air sampling station on the roof of the Health and Environmental Testing Laboratory that acted as a control for comparative purposes during Maine Yankee's operating and decommissioning years. The State's air sampler at HETL is also available for radioactive fallout situations from national or global events. That proved to be instrumental in the quantifying of the impact from the Fukushima reactor accidents in March and April of 2011.

In June of 2010 the State performed another review of its Radiological Environmental Monitoring Program at the Maine Yankee site. The review determined that the quarterly surveillance sampling of freshwater at Ward's Brook in Wiscasset, and the seawater and seaweed at the Ferry Landing on Westport Island would be discontinued permanently after 40 years. Both sampling stations were originally set up to monitor gaseous and liquid releases from the Maine Yankee nuclear power plant. Since the ISFSI does not release gaseous or liquid radioactivity and adequate time had elapsed since the power plant was decommissioned in 2005 for statistical comparisons, there was no further technical justification for the continued sampling of the media at these stations.

Besides the media sampling, over the years the State has maintained a robust TLD program to measure the radiation environment. The TLDs were initially placed within a 10 to 20 mile radius of the plant to measure the background radiation levels. Later, when the plant was operating, the initial results would be used as a baseline to compare with the TLD values during the plant's operating years. Over time the number of TLDs more than doubled to over 90 TLDs to address public concerns over the clam flats in Bailey Cove after the steam generator sleeving outage in 1995-1996 and later, the construction of the ISFSI.

Although most of the REMP changes took place in prior years, in 2010 the State also implemented further reductions in the TLDs not only in the vicinity of the former nuclear power plant, but also in Bailey Cove. Of the nine remaining TLDs beyond the site's boundary six were permanently discontinued after the second quarter's field replacement. The remaining three TLDs consisted of three controls, (one locally at the Edgecomb Fire Station, one near the site at the Ferry Landing on Westport Island, and one further away on the roof of the State's Health and Environmental Testing Laboratory). At the time this left 27 TLDs for the ISFSI and Bailey Cove. However, in late December of 2010 a final assessment was performed to consolidate the number of TLDs monitoring the ambient radiation levels near the ISFSI. Eight of the fourteen TLDs locations from Bailey Cove were removed from the monitoring program. Of the remaining six Bailey Cove TLDs, four were reassigned as ISFSI TLDs to ensure coverage for the sixteen points of the compass. The four new stations were identified as N, O, P, and Q. The last two Bailey Cove stations were co-located with the State's solar powered environmental radiation monitors on the Maine Yankee site. The TLD changes went into effect in the first quarter field replacement of January 2011.

### 2.2.2 Thermoluminescent Dosimeters (TLDs)

As outlined in the historical context and as part of its independent oversight, the State has a TLD program to measure the quarterly ambient radiation levels over the years at Maine Yankee, both in the proximity of the ISFSI and at various locations within a five mile radius. At the beginning of the year the State's TLD program was focused on two areas - the ISFSI and its controls. The exceptions are the two co-located TLDs with the solar powered units. A future assessment on maintaining the solar powered units will be performed.

#### 2.2.2.1 ISFSI TLDs

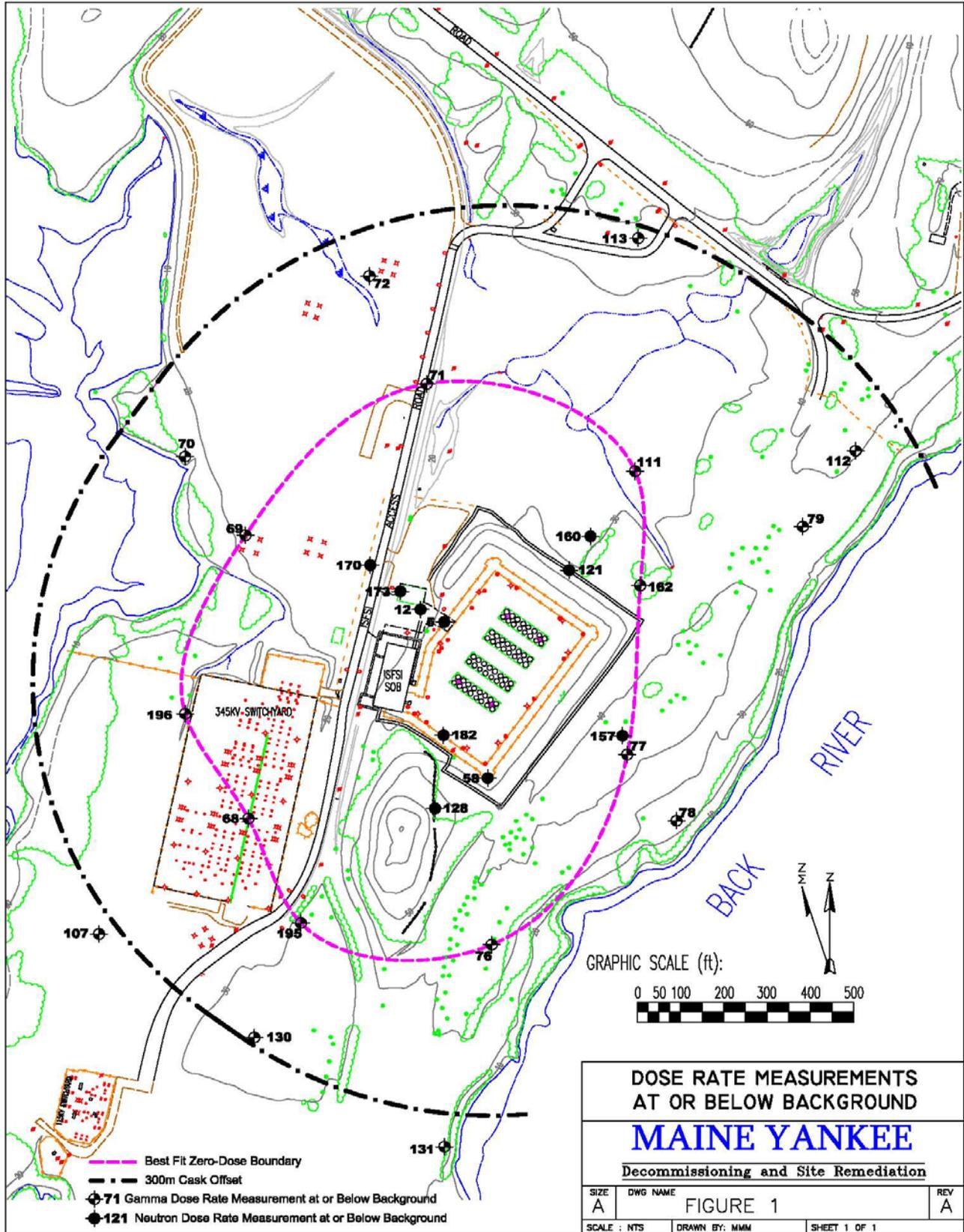
In October of 2000, in preparation for the spent nuclear fuel to be moved from the fuel pool and stored in concrete casks at the ISFSI, the State Inspector, as part of his independent oversight, established 13 TLD locations to monitor the local radiation levels from the ISFSI. Since the spent fuel was projected to be moved in the fall of 2001, it was necessary to perform monthly TLD field replacements as opposed to quarterly in order to gather enough field data to establish a pre-operational baseline. The monthly regimen was maintained until the fall of 2004 when it was converted to a quarterly frequency.

Initially, some of the state TLD locations were co-located with some of Maine Yankee's TLDs for future comparative purposes. However, Maine Yankee reconfigured its TLD locations in 2008 and only 2 remain co-located. To acquire statistical weighting for each location two TLDs were placed at each location. Each TLD has three plastic-like phosphors that capture the radiation.

As noted in the historical perspective earlier, the current seventeen locations are identified by the letters A through Q in Figure 1, courtesy of Maine Yankee, on page 12 with Table 1 on page 13 listing the State's ISFSI results for the year. The average represents the mean of the six element phosphors and the range depicts the low and high values for the six crystals. It should be mentioned that the values listed are the total readings from the vendor. The vendor nor the State employ any corrections for exposures to the TLDs shipped from California to here and their return shipment, or storage at the State offices prior to their use in the field. Since the values over inflate the true ISFSI dose, the State embarked on a three year program to better quantify the transit and storage exposures that are not part of the true field exposure and correspondingly the ISFSI's impact. The three years are necessary to gather enough quarterly data to develop the statistical power for the correction factors. Once these variables are quantified, then the State will employ the correction factors to its results. The preliminary findings to date indicate that the 10 day transit exposures may range from 5 to 7 mrem, which is significant when compared to the total values reported in the TLD Tables. Except for the fourth quarter's skewed results, the transit or shipping exposures alone represent upwards of 20 to 40% of the dose reported. However, the fourth quarter's transit exposures were unduly high, averaging 14.3 mrem. The TLD vendor was unable to explain the sudden increases with values at more than double their normal exposure range. Possible explanations included a longer transit time or storage in an area with a higher than average radiation background. The impact of the higher controls will be discussed later in this section.

The ISFSI TLDs continued to demonstrate three separate groupings when it came to dose, elevated, slightly elevated and normal. Except for the third quarter, Stations G and K continued to be high due to their proximity to the ISFSI. However, Station F was in the elevated group in the third quarter whereas Station G for the second time in its history found itself in the slightly elevated group. Station F is located north of the ISFSI's bermed area adjacent to the old East Access Road. However, the range of the individual phosphors was fairly uniform except for the fourth quarter data displaying a broader range.

Figure 1



The results in Table 1 also clearly demonstrate the slightly elevated grouping of such Stations as E, F, and L showing signs of influence from the ISFSI as seen in Figure 1 by their short distances from the ISFSI. In addition, the data continues to validate the seasonal variation. Generally, during the fall and winter months the values normally decrease when the ground is frozen and covered with snow as it impedes the out gassing of the Radon gas from the soils. The deeper the snow cover is the more pronounced the decrease in the natural radiation levels. For illustrative purposes the graphs in Figure 2 on page 14 reveal how the ISFSI radiation levels fluctuate seasonally. The top graph represents Station G while the bottom graph depicts Station D.

Table 1 – ISFSI TLD Results

| TLD Stations | Quarterly Exposure Period                                |   |   |   |  | 4 <sup>th</sup> Quarter (Adjusted for Controls) (mrem) |
|--------------|--|---|---|---|--|--|
|              | 1 <sup>st</sup> Quarter (Winter) Average (Range) (mrem)* | 2 <sup>nd</sup> Quarter (Spring) Average (Range) (mrem) | 3 <sup>rd</sup> Quarter (Summer) Average (Range) (mrem) | 4 <sup>th</sup> Quarter (Fall) Average (Range) (mrem) | 4 <sup>th</sup> Quarter (Adjusted for Controls) (mrem) |  |
| A            | 18.3 (17-19)   | 19.8 (18-24)  | 24.5 (24-26)  | 25.8 (22-29)  | 17.7   |  |
| B            | 18.8 (18-20)   | 18.5 (18-19)  | 23.7 (23-25)  | 22.7 (22-23)  | 14.6   |  |
| C            | 18.5 (18-20)   | 19.5 (20-23)  | 25.2 (24-26)  | 30.5 (28-34)  | 22.4   |  |
| D            | 19.5 (19-20)   | 20.0 (19-20)  | 25.2 (24-26)  | 27.5 (26-30)  | 19.4   |  |
| E            | 21.3 (21-22)   | 21.5 (20-23)  | 25.8 (24-28)  | 30.5 (29-33)  | 22.4   |  |
| F            | 22.7 (22-24)   | 22.3 (22-23)  | 28.2 (27-30)  | 33.7 (31-38)  | 25.6   |  |
| G            | 24.5 (24-25)   | 23.8 (23-24)  | 26.5 (22-31)  | 35.3 (33-37)  | 27.2   |  |
| H            | 18.8 (18-20)   | 19.3 (19-20)  | 24.3 (24-25)  | 27.8 (27-29)  | 19.7   |  |
| I            | 18.7 (18-19)   | 19.7 (18-21)  | 24.2 (23-25)  | 30.0 (29-33)  | 21.9   |  |
| J            | 20.8 (19-22)   | 21.7 (21-23)  | 26.8 (25-28)  | 32.8 (31-35)  | 24.7   |  |
| K            | 23.8 (23-26)   | 24.0 (23-25)  | 29.5 (27-31)  | 33.8 (32-36)  | 25.7   |  |
| L            | 21.3 (21-22)   | 21.7 (21-23)  | 26.5 (25-29)  | 32.3 (30-34)  | 24.2   |  |
| M            | 20.3 (20-21)   | 20.2 (19-21)  | 25.5 (24-26)  | 30.5 (29-32)  | 22.4   |  |
| N            | 18.0 (17-19)   | 18.5 (18-19)  | 27.2 (22-32)  | 32.7 (19-21)  | 24.6   |  |
| O            | 20.0 (19-21)   | 20.5 (20-21)  | 27.8 (26-30)  | 31.2 (30-37)  | 23.1   |  |
| P            | 17.8 (17-18)   | 18.3 (17-19)  | 26.8 (23-30)  | 29.0 (28-30)  | 20.9   |  |
| Q            | 22.0 (21-23)   | 22.2 (22-23)  | 27.6 (27-28)  | 33.5 (31-36)  | 25.4   |  |

\* Mrem is a conventional unit of dose that describes how much radiation energy was absorbed by a person's body with modifiers applied for the different types of particles or rays.

However, this year the TLD results experienced two anomalies. The first anomaly occurred with the third quarter results. The moderately elevated group increased from the normal four or five stations to eight. Even though the stations continue to trade places, the effect was more pronounced this quarter. For example, station E was in the subset of the moderately high group last quarter, but dropped to the normal group this quarter. Stations N, O, and P, which were in the normal group last quarter, were now in the moderately elevated group this quarter.

With so many stations shifting, the data was troubling. The vendor was contacted and requested to re-verify the TLD results for every station and note any unusual results. The

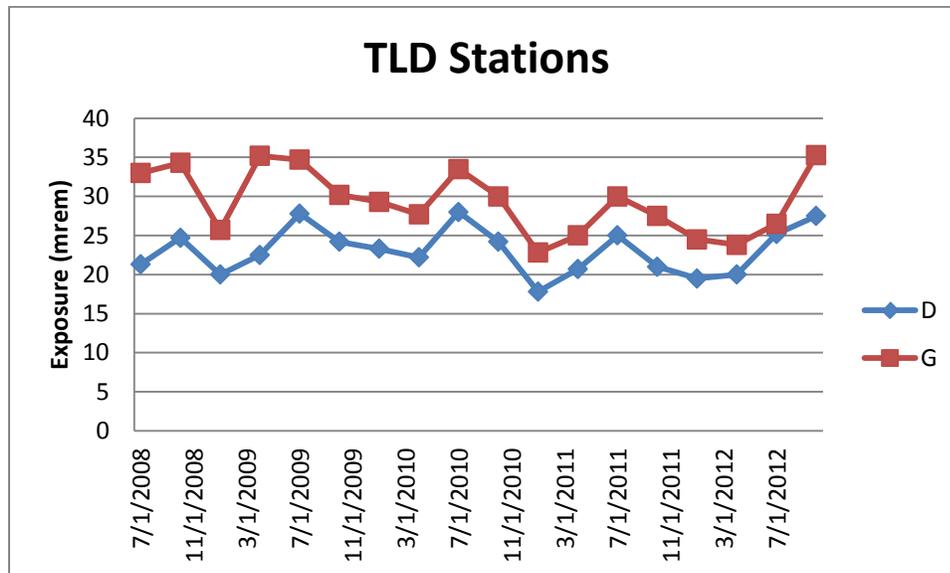
vendor reported no unusual results or questionable data and there were no unusual responses from the phosphors that detect the radiation. A further review of the data revealed some inconsistencies, especially with stations G, N, O, and P. Since each station has two TLDs and each TLD has three phosphors, the following table was created to see if any discrepancies existed between individual TLDs. Table 2 below lists the station numbers with their respective TLD phosphors summed. It was apparent that the numbers did not match.

| <u>Station #</u> | <u>TLD 1</u> | <u>TLD 2</u> | <u>Difference</u> |
|------------------|--------------|--------------|-------------------|
| G                | 91           | 68           | 23                |
| N                | 69           | 94           | 25                |
| O                | 88           | 79           | 9                 |
| P                | 89           | 72           | 17                |

The historic differences at each TLD station usually ranges from three to five. Three of the four TLDs exhibit very large deviations with the fourth being moderately high. It would seem that the 91 and 94 go together, which would make sense as station G has historically been the higher TLD station. The same would seem to hold true for the 88 and 89 values. However, since both stations O and P are low, it is not readily apparent which station, if any, should be designated as the station with those values. Even though this has never occurred in the eleven years of environmental radiation surveillance of the ISFSI, the only plausible explanation appears to be personnel error, meaning that the individual TLDs were not matched properly when placed at their respective field locations. Internal protocols were reviewed and discussed with the vendor. Some suggestions were made for improvement and those were incorporated in the next field replacement.

The second anomaly was the fourth quarter results, which should have been lower than the third quarter results due to frozen ground conditions and some snow cover in December. Upon further review all the TLD results were higher, including the controls. There was no apparent explanation for the higher values. The impact is clearly discernible in Figure 2 where the last data point on each of the graphs clearly rises to levels comparable to previous highs. A check of the sun's solar flare activity did not reveal any unusually high activity that could potentially explain the increases. Consequently, the fourth quarter results were adjusted to better reflect what the TLDs should have read. The transit controls for the first three quarters were averaged (6.4) and that average was subtracted from the fourth quarter's average transit values (14.5). The difference was 8.1 mrem between the normal backgrounds and the elevated results for the fourth quarter. When the difference was applied to the fourth quarter data, the revised results exemplified the expected seasonal variations with the fourth quarter values coming in lower than the third quarter's numbers.

Figure 2



2.2.2.2 Bailey Cove TLDs

The Bailey Cove surveillance is a remnant of the operating days when the public had raised questions over the radiation levels in the Cove and its impact on clam and worm diggers from the extended shutdown due to the steam generator sleeving project in 1995. The number of TLD locations was reduced in January of 2008 from the initial 40 that covered both sides of Bailey Cove down to 14 and eventually down to 2 at the beginning of 2011. The TLD results for Bailey Cove for 2011 are illustrated in Table 3.

Table 3 – Bailey Cove TLD Results

| TLD Stations | Quarterly Exposure Period                                     |   |   |   |  |
|--------------|---|---|---|---|--|
|              | 1 <sup>st</sup> Quarter (Winter)<br>Average (Range)<br>(mrem) | 2 <sup>nd</sup> Quarter (Spring)<br>Average (Range)<br>(mrem) | 3 <sup>rd</sup> Quarter (Summer)<br>Average (Range)<br>(mrem) | 4 <sup>th</sup> Quarter (Fall)<br>Average (Range)<br>(mrem) | 4 <sup>th</sup> Quarter (Adjusted)<br>(mrem) |
| 1            | 17.7 (17-18)  | 18.5 (18-19)  | 23.0 (22-24)  | 30.2 (27-35)  | 22.1   |
| 2            | 19.2 (18-20)  | 19.5 (19-20)  | 23.7 (22-24)  | 27.8 (25-30)  | 19.7   |

As with the ISFSI the Bailey Cove TLDs experienced the same seasonal fluctuations due to Radon excursions associated with weather conditions and seasonal effects such as frozen ground and snow cover. The Bailey Cove values are fairly comparable to the ISFSI results for the normal group. The fourth quarter results also demonstrated the unexpected increase and those were adjusted as in Table 1 for the higher transit controls. The background values remain typical for the coast of Maine, which can range from 13 to 25 mrem, with the lower values indicative of their nearness to the water's edge. This effect is very evident at high tide with the water acting as a shield covering the natural radioactivity from the rocks and mud flats that are under water.

### 2.2.2.3 Field Control TLDs

As mentioned in section 2.2.2 there are three field controls that the State utilizes for comparative purposes. All three are located off-site and beyond Maine Yankee’s Controlled Area of about 290 meters (approximately 950 feet). The closest is Station 110, Ferry Landing on Westport Island, which is about 3 quarters of a mile from the ISFSI. The second control, Station 143, is located at the Edgecomb Fire Station, about three and a half miles away. The last control, Station 160, is the traditional one located on the roof of the State’s Health and Environmental Testing Laboratory, more than 21 miles away.

As with the ISFSI and Bailey Cove TLDs the field controls experienced the same seasonal fluctuations due to Radon excursions associated with weather conditions and seasonal effects such as frozen ground and snow cover. Station 143 did experience some missing TLDs. Due to their proximity to the fire station it was unlikely that the lost TLDs were due to vandalism.

The field controls were also affected by the higher than expected exposure values as depicted in Table 4. When adjusted, the results were comparable to those of Bailey Cove and those within the normal range at the ISFSI.

Table 4 – Field Control TLD Results

| TLD Stations | Quarterly Exposure Period                                     |   |   |   |  |
|--------------|---|---|---|---|--|
|              | 1 <sup>st</sup> Quarter (Winter)<br>Average (Range)<br>(mrem) | 2 <sup>nd</sup> Quarter (Spring)<br>Average (Range)<br>(mrem) | 3 <sup>rd</sup> Quarter (Summer)<br>Average (Range)<br>(mrem) | 4 <sup>th</sup> Quarter (Fall)<br>Average (Range)<br>(mrem) | 4 <sup>th</sup> Quarter (Adjusted)<br>(mrem) |
| 110          | 20.5 (19-22)  | 20.2 (19-21)  | 22.8 (21-24)  | 30.0 (25-32)  | 21.9   |
| 143          | 21.5 (20-23)  | 21.5 (20-23)  | * ( * )   | 31.7 (29-34)  | 23.6   |
| 160          | 18.0 (17-19)  | 17.7 (17-19)  | 23.2 (22-25)  | 26.7 (24-30)  | 18.6   |

\*TLDs lost or missing

### 2.2.3 REMP Air Filter Results

#### 2.2.3.1 State’s Health and Environmental Testing Laboratory Roof Sampler

Table 5 below shows the quarterly air sampling results for the year. The State’s Health and Environmental Testing Laboratory analyzed the samples and employed various analytical methods to measure specific radioactive elements. All the positive results reported highlight naturally occurring background levels and ranges in units of femto-curies per cubic meter<sup>3</sup>.

<sup>3</sup> fCi/m<sup>3</sup> is another acronym for a femto-curie per cubic meter. Again it describes a concentration of how much radioactivity is present in a particular volume of air, such as a cubic meter. A “femto” is a scientific prefix that is equivalent to one quadrillionth (1/1,000,000,000,000,000).

Beryllium-7 (Be-7)<sup>4</sup> is a naturally occurring “cosmogenic” radioactive element, which means it is continuously being produced by cosmic-ray interactions in the upper atmosphere. Be-7 is produced from the high-energy cosmic rays bombarding the oxygen, carbon and nitrogen molecules in the atmosphere.

Table 5 – HETL Air Filter Results\*

| Positive Results                | Quarterly Sampling Period |                         |                         |                         |
|---------------------------------|---------------------------|-------------------------|-------------------------|-------------------------|
|                                 | 1 <sup>st</sup> Quarter   | 2 <sup>nd</sup> Quarter | 3 <sup>rd</sup> Quarter | 4 <sup>th</sup> Quarter |
| Gross Beta <sup>5</sup> (range) | (17.0 – 33.0)             | (13.3 – 26.4)           | (21.1 – 34.3)           | (24.3 – 47.8)           |
| Quarterly Composite (Be-7)      | 62.7                      | 78.1                    | 68.4                    | 71.1                    |

\* Controls located on the roof of the State’s Health & Environmental Testing Laboratory

## 2.3 Maine Yankee Decommissioning

### 2.3.1 Background

Maine Yankee’s decommissioning was completed in the fall of 2005. At that time the State Inspector also commenced his final walk down survey of the site with a special emphasis on the transportation routes exiting the plant site, such as both half-mile east and west access routes and the two thirds of a mile of the railroad track. In addition, nine specific areas, including the dirt road, were also examined as part of the final site walk down survey. With the discovery of three localized, elevated contaminated areas on the road, further work was performed to bound the contamination. No new contamination was found and the State closed the issue in October of 2008. Even though some residual radioactivity remains, due to the localized nature of the contaminant and the restricted security access to the site, the contamination found did not present a public health hazard.

With the closure of the Dirt Road, the only remaining walk down survey left to be performed on-site was roughly a 600 foot section of the East Access Road adjacent to the ISFSI bermed area. A final survey of the road was taken in May of 2011. With the closure of the East Access Road survey the State had officially ceased all its decommissioning survey activities pertaining to the Maine Yankee nuclear power plant site.

### 2.3.2 Confirmatory Report

There were extensive delays due to on-going commitments and emerging issues that prevented the initial drafting of the Confirmatory Summary Report of the State’s four year effort to verify the residual radioactivity levels remaining after the decommissioning of Maine Yankee. As part of his on-going commitments, the State Inspector also conducts mammography inspections on about half the mammography facilities in Maine. This was necessary to minimize the workload on the State’s only X-Ray Inspector whose responsibility included oversight of 1193 facilities with nearly 3400 X-Ray units at hospital facilities, dental establishments, veterinarians, and industrial applications. All this resulted in the report being postponed and essentially drove its

<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.

writing to an ‘as time permits basis’. However, in mid-October of 2010 a concerted effort was made to draft a preliminary report. By early March of 2011 a preliminary draft was submitted and has been under management review. In the fall of 2012 preparations were made to secure a number of consultants for a review of the final draft of the Report. The expectation will be for contracts to be secured, the draft report reviewed, comments incorporated and the Report issued by late fall of next year.

## 2.4 Other Noteworthy Activities

### 2.4.1 Reports to the Legislature

#### 2.4.1.1 Monthly

As mandated by legislation passed in the spring of 2008, the State Inspector is required to submit monthly reports to the Legislature on his oversight activities of Maine Yankee’s Independent Spent Fuel storage Installation (ISFSI) located in Wiscasset. Since the law went into effect on June 29, 2008, the State Inspector has been providing monthly reports to a distribution that includes the President of the Senate, the Speaker of the House, the NRC at their headquarters in Rockville, Maryland and NRC’s Region I in King of Prussia, Pennsylvania, Maine Yankee, the Governor’s Office, the Department of Health and Human Services, the Department of Environmental Protection, the Public Advocate and the State Police’s Special Services Unit. The topics covered in the monthly reports are highlighted in sections 2.1.7, 2.2, 2.3, and 2.5 of this report.

Some changes were made to the monthly reports and how they were distributed in 2012. To minimize the size of the reports along with their attachments, the State published the reports in electronic format that also included internet hyperlinks for each of the attachments. This provided flexibility for reviewers and greatly reduced the volume of paper used for distributing the reports. Hard copies of the reports are maintained at the Commissioner’s Office and the State Inspector’s Office.

#### 2.4.1.2 Annual

Under 22 MRSA §668, as enacted under Public Law, Chapter 539 the State Inspector prepares an annual accounting report of all the funds received into and all disbursements out of the Interim Spent Fuel Storage Facility Oversight Fund. The report is due the first Monday of February. In addition, the State Inspector must annually report his activities to the Department of Health and Human Services Manager of the Radiation Control Program for inclusion in the Manager’s Annual Report of Oversight Activities and Funding to the Legislature. In addition to the above annual reports the Inspector also prepares an annual report by July first of every year to the Legislature of his oversight activities. This 2011 report fulfills that obligation. Moreover, it should be noted that the 2010 annual report was under management review.

### 2.4.2 Northeast High-Level Radioactive Waste Transportation Task Force (NEHLRWTF)

As the State’s representative the State Inspector has participated in periodic conference calls on the status of Yucca Mountain and transportation issues that could impact Maine.

In early May the Northeast High-Level Radioactive Waste Transportation Task Force was notified by the Department of Energy that it had received a four year, \$900,000 grant to work on the Nuclear Waste Policy Act transportation provisions and related areas of the BRC's Report. The Energy Department grant was in response to one of the BRC’s recommendations to resume funding for state and regional groups to continue their transportation and infrastructure

assessment efforts. Those efforts were abruptly terminated when the Administration ceased its funding for the Yucca Mountain repository in Nevada.

In mid-May the Department of Energy held its third annual National Transportation Stakeholders Forum in Knoxville, Tennessee. The State Inspector attended the DOE Forum, which highlighted radioactive materials shipping campaigns, NRC's storage and disposal topics, and emerging technologies for hazardous materials shipments. In addition, the Forum allowed for the four regional state transportation groups to meet and discuss their respective regional issues. The State Inspector provided a report to the Northeast High-Level Radioactive Waste Transportation Task Force on Maine's activities and involvement on spent nuclear fuel. Maine Yankee's Director of Public and Government Affairs also provided a report on their perspective on the Blue Ribbon Commission's recommendations and the efforts necessary to ensure early removal of the used nuclear fuel.

In late May, as a follow-up to the annual NTSF meeting, the NTSF Chair sent a letter to all NTSF attendees highlighting the topics for future ad hoc working groups and webinars. Most of the topics recommended were tied to the BRC's recommendations and transportation related subjects.

The Task Force is an affiliate of the Eastern Regional Conference of the Council of State Governments. The purpose of the Task Force is to not only develop the safest and most efficient transportation route to ship spent nuclear fuel from the Northeast, but also to provide the States with direct involvement in formulating and establishing national policy in the design of the national transportation system and development of any proposed geologic repository. The Northeast Task Force is comprised of representatives from the six New England states, New York, Pennsylvania, New Jersey, Maryland and Delaware.

#### 2.4.3 Yankee Federal Energy Regulatory Commission (FERC) Rate Case Settlement

The State participated in the quarterly conference call briefings relevant to Yankee Rowe, Connecticut Yankee and Maine Yankee. The briefings provide updates to both state and private officials affected by the FERC settlements over the DOE's breach of contract to take possession of the spent fuel at Maine Yankee as mandated by the Nuclear Waste Policy Act of 1982, as amended. In September 2006 Maine Yankee won a \$75.8 million judgment for monetary damages in its lawsuit with the DOE in the U.S. Court of Federal Claims.

The ruling was appealed by the Justice Department and in August 2008 the U.S. Court of Appeals for the Federal Circuit upheld the Court of Federal Claims ruling that the three parties were due damages and remanded the case back to the Court of Federal Claims for a reassessment of the compensation package based upon a court approved fuel pick up rate. The recent ruling raised the damages initially awarded to Maine Yankee by \$5.9 million to about \$81.7 million for the period January 31, 1998 through 2002. As expected the Department of Justice (DOJ) appealed the ruling. In September 2010 the U.S. Court of Federal Claims again awarded Maine Yankee \$81.7 million, Connecticut Yankee \$39.7 million and Yankee Rowe \$21.2 million. The DOJ again appealed the remanded decision and employed further delaying tactics by filing more extensions. However, the Court heard the final oral arguments in November of 2011. In May the Federal Court of Appeals upheld the Court of Federal Claims' earlier ruling awarding Maine Yankee the \$81.7 million. In addition, the Appeals Court raised Yankee Rowe's damages by \$17 million to \$38 million overall. The Department of Justice had until midnight December 4<sup>th</sup> to petition the U.S. Supreme Court to reconsider the U. S. Court of Appeals unanimous decision. The federal government chose not to file the petition with the Supreme Court which made the Appeals Court decision final and non-appealable. Maine Yankee was awarded \$81,690,866 with

Connecticut Yankee receiving \$39,667,243 and Yankee Rowe \$38,268,655. The U.S. Treasury was expected to process the payments but there are no requirements as to when the awards have to be paid out. As soon as the money is received the Yankee companies will contact the appropriate parties and inform them of the process going forward.

In December 2007 the three Yankee companies filed a second round of damage claims that are specific to each company. The Court of Federal Claims heard oral arguments in October 2011. Maine Yankee is pursuing recovery of spent fuel management costs for the period January 2003 to December 2007. The Claims Court ordered the Yankee companies and the federal government to file their supplemental briefs by November 27<sup>th</sup> and their response briefs by December 17<sup>th</sup>. The case was then closed waiting for the Judge's decision. The litigations are expected to continue until the used nuclear fuel is finally removed from their respective sites.

Besides the lawsuits, updates are also provided of other organizational activities, both on the regional and national levels, on spent fuel issues, whether they be the Yucca Mountain repository or focusing attention on local or centralized storage, extended storage, legislation or appropriations, or efforts to implement the Blue Ribbon Commission's recommendations. These organizations include the Administration, the Department of Energy, the Blue Ribbon Commission on America's Nuclear Future, the Nuclear Regulatory Commission, Congress, the National Conference of State Legislatures, the Nuclear Waste Strategy Coalition, the Decommissioning Plant Coalition, the National Association of Regulatory Utility Commissioners, the Council of State Governments, the New England Governor's Conference, the New England Council, the Coalition of Northeastern Governors, and the New England Conference of Public Utility Commissioners.

#### 2.4.4 Nuclear Waste Strategy Coalition (NWSC)

The State is a member of the NWSC and participated in bi-weekly status briefings of the NWSC. The briefings provided updates on such national activities as congressional efforts related to the geologic repository at Yucca Mountain in Nevada, including such federal agencies as the Department of Energy and the Nuclear Regulatory Commission, litigations pending in the U.S. Court of Appeals, and the Blue Ribbon Commission's public meetings and reports.

The NWSC is an ad hoc organization representing the collective interests of state utility regulators, state attorneys general, consumer advocates, electric utilities and associate members on nuclear waste policy matters. NWSC's primary focus is to protect ratepayer payments into the Nuclear Waste Fund and to support the removal and ultimate disposal of spent nuclear fuel and high-level radioactive waste currently stranded at some 125 commercial, defense, research, and decommissioned sites in 39 states.

### Section 2.5 Some Newsworthy Items

On June 3, 2008, as mandated by the federal Nuclear Waste Policy Act, as amended, the Department of Energy (DOE) submitted its license application for the construction of a high-level waste repository at Yucca Mountain in Nevada. On September 8, 2008, the Nuclear Regulatory Commission (NRC) accepted DOE's license application for technical review.

The Obama Administration's position was to discontinue disposal activities at Yucca Mountain. Subsequently, in March 2010, without any technical or safety merits, the DOE submitted a motion to the Nuclear Regulatory Commission's Atomic Safety and Licensing Board to withdraw its license

application to construct a geological repository at Yucca Mountain to dispose of the nation's spent nuclear fuel and high level waste. The NRC Chairman added fuel to the fire when he directed the NRC staff to terminate all activities associated with the Yucca Mountain license proceedings. This generated a lot of controversy, anguish and activity on multiple fronts with 2010 witnessing nearly a fourfold increase over previous years. In 2011 and 2012 the activity levels did not abate either as both sides dug their heels deeper. It became apparent that the Courts would have to weigh in and decide on the merits of lawsuits brought against the federal government.

The following provides a timeline of the major highlights that transpired in 2012 that produced an overabundance of activity on several fronts.

- On January 13<sup>th</sup> Arizona State Senator Al Melvin proposed to finance public education in Arizona by levying a \$50,000 fee per ton of nuclear waste disposed in the state.
- On January 25<sup>th</sup> eighty-eight national, regional, and local environmental organizations along with three international groups sent a letter to Energy Secretary Chu urging him to reject the soon to be released Blue Ribbon Commission's (BRC) report on America's nuclear waste management strategy.
- On January 26<sup>th</sup> the Blue Ribbon Commission on America's Nuclear Future issued its long awaited Report to the Secretary of Energy on how the nation should manage its used nuclear fuel by recommending eight essential key elements and proposing six legislative changes to affect its recommendations.
- On February 1<sup>st</sup> the House Subcommittee on Energy and Environment held a hearing to review the BRC's recommendations to solve the nation's growing stockpile of nuclear waste.
- On February 2<sup>nd</sup> the Senate Committee on Energy and Natural Resources held a hearing to review the BRC's recommendations on nuclear waste management.
- On February 8<sup>th</sup> the National Association of Regulatory Utility Commissioners (NARUC) issued a resolution regarding the BRC's recommendations by promoting how fees paid into the Nuclear Waste Fund be dedicated solely for nuclear waste management.
- On February 8<sup>th</sup> the House Committee on Science, Space, and Technology held a hearing to review the BRC's Report to the Secretary of Energy and assess the broader science and technology issues associated with spent nuclear fuel management.
- On February 13<sup>th</sup>, the Administration proposed in its Fiscal Year (FY) 2013 Budget to Congress nearly \$60 million for the DOE to support development of technologies for storing, transporting, and disposing of used nuclear fuel.
- On March 5<sup>th</sup> the NRC Chairman forwarded a letter to Senator Kirk of Illinois outlining NRC's retention and availability of records on the Yucca Mountain license review activities and their ability to resume the licensing process.
- On March 6<sup>th</sup> the Nye County Board of Commissioners sent a letter to Energy Secretary Chu notifying him that they were prepared to host a proposed repository at Yucca Mountain.
- On March 7<sup>th</sup> the Department of Justice appealed the Federal Claim Court's decision to award Maine Yankee about \$81 million in damages.
- On March 8<sup>th</sup> Senator Lindsey Graham from South Carolina introduced a bill in the Senate which would require the President to certify Yucca Mountain as the geologic disposal site in the United States and if he failed to do so, then the nuclear utilities would not be required to pay into the Nuclear Waste Fund and the balance in the Fund would be returned to the utilities.
- On March 9<sup>th</sup> the National Conference of State Legislatures sent a letter to House Speaker John Boehner, House Minority Leader Nancy Pelosi, Senate Majority Leader Harry Reid, and Senate Minority Leader Mitch McConnell urging them to move expeditiously on the BRC's recommendations to resolving the nation's used nuclear fuel.

- On March 12<sup>th</sup> the Governor of Nevada sent a letter to Secretary of Energy Chu expressing his adamant opposition to any interim storage facility or repository site in Nevada, including the defunct Yucca Mountain Project.
- On March 16<sup>th</sup> the U.S. Court of Appeals heard oral arguments on the lawsuits from the states of Connecticut, New York, Vermont, and environmental groups over the NRC revised Waste Confidence Rule extending on-site storage of used nuclear fuel out to 120 years.
- On March 22<sup>nd</sup> the Chairman of the House Committee on Energy and Commerce and the Chairman of the Subcommittee on Environment and the Economy forwarded a letter to Energy Secretary Chu requesting the availability of funds, whether uncosted, unobligated, reserves, or past unspent funds, from the current fiscal year to support the NRC's Yucca Mountain license application.
- On March 27<sup>th</sup> the Nuclear Waste Strategy Coalition issued a release calling on Congressional Offices to enact critical nuclear waste program reforms in funding, to reinstate funding for regional transportation groups to support much needed infrastructure planning and preparation, and to hold the DOE accountable for developing an action plan.
- On March 30<sup>th</sup> the Pennsylvania Public Utility Commission sent a letter to their Congressional Senators unanimously expressing their concerns over the handling of the Nuclear Waste Fund and its impact to the state's ratepayers.
- On April 2<sup>nd</sup>-5<sup>th</sup> a national summit on the Nuclear Fuel Cycle was held in Carlsbad, New Mexico highlighting some unique attributes as to why Carlsbad and the Waste Isolation Pilot Plant could play a key role in solving America's nuclear waste problems.
- On April 17<sup>th</sup> the U.S. Court of Appeals for the District of Columbia Circuit issued an Order prescribing the allotted times for the oral arguments on the petitioners' lawsuit claiming the NRC unreasonably withheld action in the Yucca Mountain licensing proceedings.
- On April 18<sup>th</sup> the Minnesota Senate voted 63-0 to pass a resolution calling upon Congress and the White House to enact legislation that would carry out the BRC's recommendations.
- On April 20<sup>th</sup> the U.S. Court of Appeals for the District of Columbia Circuit heard oral arguments from the petitioners (NARUC and Nuclear Energy Institute) and the respondent (DOE) to suspend fees paid by nuclear utilities into the Nuclear Waste Fund.
- On April 24<sup>th</sup> Nevada Senator Heller sent a letter to the Chairs of both the Senate and House Appropriations Committees requesting them to continue defunding the proposed Yucca Mountain nuclear waste repository and to seek better alternatives to long term storage.
- On April 24<sup>th</sup> the Senate Committee on Appropriations approved an appropriations bill that would begin implementing the BRC's recommendations on the storage of spent nuclear fuel and defense high-level waste.
- On April 24<sup>th</sup> the Arizona House approved legislation with a vote of 33 to 17 to bring a nuclear waste recycling and storage facility to Arizona.
- On April 25<sup>th</sup> South Carolina Representative Wilson introduced an amendment to the Nuclear Waste Policy Act of 1982 entitled "Yucca Utilization to Control Contamination Act" that would compel the President to certify within 30 days Yucca Mountain in Nevada as the designated repository for the disposal of high-level radioactive waste or else the fees paid by nuclear utilities would be suspended and the Nuclear Waste Fund balance returned to the nuclear utilities.
- On April 25<sup>th</sup> the House Subcommittee on Energy and Water Development approved a bill that would restore \$25 million to the Yucca Mountain licensing proceedings.
- On April 26<sup>th</sup> full Senate Committee on Appropriations approved by a vote of 28-1 the Senate Bill authorizing the DOE to conduct a pilot program to license, construct, and operate one or more consolidated storage facilities for spent nuclear fuel and high-level waste, with priority for storage given to shutdown or decommissioned reactor sites.

- On May 2<sup>nd</sup> the U.S. Court of Appeals for the District of Columbia Circuit heard oral arguments on why the Court should force the NRC to complete its licensing review of DOE's Yucca Mountain license application.
- On May 4<sup>th</sup> the DOE notified the Northeast High-Level Radioactive Waste Transportation Project that it had received a four year, \$900,000 grant to work on the Nuclear Waste Policy Act transportation provisions and related areas of the BRC's recommendations.
- On May 7<sup>th</sup> the Chair of the House's Committee on Oversight and Government Reform sent a letter to NRC Chairman Jaczko requesting clarification on previous testimony he provided at a hearing that was found to be inconsistent with other statements made by fellow Commissioners and NRC staff.
- On May 9<sup>th</sup> the Attorney General's Office of the State of Washington sent a letter to the Clerk for the U.S. Court of Appeals for the DC Circuit providing supporting documentation that at least \$18 million remained in the DOE's funds to support the NRC's resumption of the Yucca Mountain licensing proceedings.
- On May 18<sup>th</sup> Senators Olympia Snowe, Susan Collins, Herb Kohl from Wisconsin and Scott Brown from Massachusetts sent a letter to Energy Secretary Chu requesting that Dr. Chu move promptly on the BRC's recommendations for decommissioned reactors.
- On May 18<sup>th</sup> the U.S. Court of Appeals for the Federal Circuit upheld an earlier U. S. Federal Court of Claims' decision and awarded the three Yankee Companies (Yankee Atomic in Massachusetts, Connecticut Yankee and Maine Yankee) \$159 million in damages for the federal government's breach of agreements to take possession of the spent nuclear fuel starting in 1998.
- On May 21<sup>st</sup> NRC Chairman Jaczko abruptly resigned, making it effective and contingent upon the confirmation of a successor to his chairmanship.
- On May 21<sup>st</sup> the U.S. Court of Appeals granted a 21 day extension to the Department of Justice to file a brief on the mandamus case to compel the federal government to continue the NRC Yucca Mountain licensing proceedings.
- On May 31<sup>st</sup> Representative John Shimkus from Illinois introduced an amendment to the House's appropriations bill for Fiscal Year 2013 to provide \$10 million for the NRC to complete its assessment of whether or not the Yucca Mountain site was a safe repository.
- On June 1<sup>st</sup> the U.S. Court of Appeals directed the Energy Secretary to comply with the Nuclear Waste Policy Act and render an appropriate fee determination within six months.
- On June 1<sup>st</sup> the Chair of the Pennsylvania Public Utility Commission sent a memorandum to the Pennsylvania Congressional delegation advocating support for the House's amendment to increase the funding to NRC from \$25 million to \$35 million to finish the licensing review of the Yucca Mountain application.
- On June 6<sup>th</sup> the U.S. House of Representatives passed by a vote of 326 to 81 an amendment to their FY 2013 Appropriations Act to provide an extra \$10 million in funds to the NRC to complete its review of the Yucca Mountain license application.
- On June 7<sup>th</sup> the Senate Environment and Public Works Subcommittee on Clean Air and Nuclear Safety held a hearing on recommendations for siting of nuclear waste storage facilities.
- On June 8<sup>th</sup> the U.S. Court of Appeals for the District of Columbia Circuit issued its decision that the NRC failed its obligations under the National Environmental Policy Act by not performing a more thorough analysis than what its Waste Confidence Decision Update provided.
- On June 21<sup>st</sup> the National Council of State Legislatures sent a letter to the Senate Majority and Minority Leaders urging them to support the Senate Appropriations Bill that would create a pilot program within DOE to license, construct, and operate consolidated interim storage facilities for used nuclear fuel.

- On June 27<sup>th</sup> the Pennsylvania House passed a unanimous resolution (199 to 0) for Congress to adopt legislation to construct consolidated interim storage facilities, to recognize communities willing to host such facilities, to ensure access to the Nuclear Waste Fund, and to permit privately owned and licensed storage facilities to meet the public need.
- On June 28<sup>th</sup> Governor LePage sent a letter to Maine's Congressional delegation imploring them to act expeditiously to engage the Congressional Leadership and to implement the BRC's priority recommendations, including immediate access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management and prompt efforts to develop one or more consolidated storage facilities.
- On August 7<sup>th</sup> NRC voted unanimously not to issue any final decisions on granting licenses to build new nuclear power plants and issuing 20 year license renewals to existing power plants, pending resolution of its Waste Confidence Rule that was overturned by an Appeals Court on June 8<sup>th</sup>.
- On July 2<sup>nd</sup> The Energy Council sent a letter to House Speaker Boehner touting the Senate's efforts to establish a pilot program to consolidate spent nuclear fuel at one or more storage sites.
- On August 1<sup>st</sup> New Mexico Senator Bingaman introduced - The Nuclear Waste Administration Act - that closely tracked the BRC's recommendations to manage the nation's used nuclear fuel and defense related wastes.
- On August 1<sup>st</sup> the 15-state Southern Legislative Conference of the Council of State Governments issued a policy urging Congress, the Obama Administration, and NRC to meet its federal obligations by adopting the BRC's recommendations, by promulgating legislative and administration actions to enact nuclear waste reforms, by moving used nuclear fuel from decommissioned and operating sites to centralized facilities, by consulting with state, local, and tribal officials on transportation to centralized storage facilities, and by completing the Yucca Mountain license application review.
- On August 3<sup>rd</sup> the U.S. Court of Appeals for the District of Columbia Circuit issued an Order to hold in abeyance its final decision until December 14<sup>th</sup> on the petition to compel the NRC to reopen its licensing proceedings on the Yucca Mountain nuclear waste repository in Nevada.
- On August 28<sup>th</sup> the Environmental Council of the States issued a resolution urging collaboration between federal agencies and states to manage high-level radioactive waste and spent nuclear fuel.
- On September 6<sup>th</sup> the NRC directed the staff to conduct a two year environmental study and revision to its Waste Confidence Rule to satisfy the deficiencies noted in the Appeals Court decision.
- On September 7<sup>th</sup> the Southern Association of Regulatory Utility Commissioners sent a letter to the Senate Majority and Minority Leaders, the Speaker of the House and the Minority Leader of the House calling on Congress to have DOE remove the spent nuclear fuel from reactor sites in their region, to protect the ratepayers by ensuring the Nuclear Waste Fund is used specifically for managing the nation's used nuclear fuel and not to balance the federal budget, and to continue the NRC's license review of the Yucca Mountain application for a final suitability determination.
- On September 12<sup>th</sup> the Senate Energy and Natural Resources Committee held a hearing on the proposed Nuclear Waste Administration Act of 2012.
- On September 27<sup>th</sup> Entergy Nuclear Palisades sued the federal government for \$100 million for not taking possession and disposing of its used nuclear fuel at its two Michigan plants, Palisades and Big Rock Point.
- On September 30<sup>th</sup> the last two dozen jobs at the Yucca Mountain project expired.

- Two counties and two municipalities in New Mexico combined to form the Eddy-Lea Energy Alliance to convince the federal government to cite a spent fuel storage facility in their area.
- On October 9<sup>th</sup> the Eddy-Lea Energy Alliance (ELEA) selected an AREVA-led team of companies as its commercial partner for developing a used nuclear fuel storage facility in southeastern New Mexico.
- On October 15<sup>th</sup> the NRC and the Prairie Island Indian Community signed a Memorandum of Understanding on how they will work together to review the potential environmental impacts of renewing the spent fuel storage facility at the Prairie Island nuclear plant near Red Wing, Minnesota.
- On October 23<sup>rd</sup> the DOE's National Transportation Stakeholders Forum held a webinar on the NRC's extended storage investigations in stress corrosion cracking of stainless steel canisters in marine environments, on the effects of residual moisture inside canisters, on improved thermal computer models, on non-destructive methods for inspection and monitoring, and potential concrete degradation.
- On October 24<sup>th</sup> NRC issued a press release that it was going to hold public scoping meetings for their waste confidence environmental impact study of extended storage of spent nuclear fuel out to 300 years.
- On October 25<sup>th</sup> Holtec International introduced its HI-STORM CIS technology for consolidated interim storage of used nuclear fuel by featuring a hardened underground storage design that will house used fuel packaged in any canister supplied by any cask vendor.
- On November 8<sup>th</sup>-9<sup>th</sup> the NRC's Atomic Safety and Licensing Board held a pre-hearing conference to hear legal arguments on the Prairie Island Indian Community's admissibility of their seven contentions challenging the license renewal application for the ISFSI at the Prairie Island Nuclear Plant in Red Wing, Minnesota.
- On November 13<sup>th</sup> the NRC Chairman sent a letter to Senator Lieberman, Chair of the Homeland Security and Government Affairs Committee, notifying him of the NRC's response to the Government Accountability Office's report on spent nuclear fuel and the indexing adopted by NRC management to ensure institutional knowledge on Yucca Mountain would not be lost.
- On November 14<sup>th</sup> the NRC held a Waste Confidence scoping meeting for the Environmental Impact Statement it was preparing to respond to the U.S. Court of Appeals June Order vacating the NRC's 2010 Waste Confidence Decision and Extended Temporary Storage Rule.
- During Thanksgiving week the Office of Nuclear Energy for the Department of Energy posted a notice to identify potential private-sector resources for a large scale spent nuclear fuel storage demonstration project.
- On December 5<sup>th</sup> the federal government chose not to file a petition with the Supreme Court which made the Appeals Court decision final and non-appealable thereby awarding Maine Yankee \$81,690,866, -Connecticut Yankee \$39,667,243 and Yankee Atomic \$38,268,655 in damages for failing to take their used nuclear fuel.
- On December 5<sup>th</sup>-6<sup>th</sup> the NRC featured two public scoping webinars as a follow-up to the November 14<sup>th</sup> public meeting seeking input from stakeholders on its proposed scope for its Environmental Impact Statement to support the Commission's Waste Confidence Decision and Extended Temporary Storage Rule.
- On December 12<sup>th</sup> the U.S. Court of Appeals for the DC Circuit agreed that the NRC could extend the December 14<sup>th</sup> deadline to file a status report to January 4, 2013.
- On December 20<sup>th</sup> Private Fuel Storage, LLC, a consortium of utility companies, requested that the NRC terminate its special nuclear materials license for its consolidated interim

storage facility on the Skull Valley Band of Goshute Indian reservation in Tooele County, Utah.

- On December 20<sup>th</sup> the Connecticut Siting Council held a hearing on the Millstone Power Station's request to increase its dry cask storage from 19 to 135 casks.

To provide a more comprehensive and complete depiction on all the unfolding events on this controversial subject, the newsworthy items were segregated into eight main categories to better illustrate the on-going nature of DOE's activities to terminate the Yucca Mountain project, the BRC's Report, the NRC's activities and Waste Confidence Issues, the Congressional response to the Administration's posture, the response from other stakeholders and interested parties, the federal court filings and actions, and finally the significant reports that were published during the year that impacted the on-going discussions. The events and the cascading actions and reactions for each of the categories are presented in Appendices B through I.

Besides the events mentioned above, Appendix J lists some international highlights. Appendix K has a balance sheet on the Nuclear Waste Fund (NWF) as of the end of September 2010. The Table lists the status for each state that has or had nuclear generating facilities and their respective payments into the NWF. It is important to note that under the debt column, the ratepayers of Maine still owe the federal government \$116.9 million dollars for nuclear fuel that was used prior to 1983. Appendix L contains the Executive Summary to the BRC's Report. The Summary provides a condensed version of the 180 page report's findings, its eight key recommendations to manage the nation's nuclear stockpile and six proposed legislative actions to implement those recommendations. Appendix M contains Governor LePage's letter to Maine's Congressional Delegation urging them to promptly engage the Congressional Leadership in resolving the nation's nuclear waste problems by enacting key elements of the BRC's recommendations.

## Appendix A

### Condition Reports

| Date    | CR #. | Description   |
|---------|-------|---|
| 1/11/12 | 12-01 | Security equipment approaching its expiration date  |
| 1/13/12 | 12-02 | Various aspects of the reportable security impairment related to the first CR   |
| 1/13/12 | 12-03 | Various aspects of the reportable security impairment related to the first CR   |
| 1/13/12 | 12-04 | Various aspects of the reportable security impairment related to the first CR   |
| 1/15/12 | 12-05 | Various aspects of the reportable security impairment related to the first CR   |
| 1/15/12 | 12-06 | Various aspects of the reportable security impairment related to the first CR   |
| 1/21/12 | 12-07 | Review of 2011 self-assessment program and follow-up activities   |
| 1/26/12 | 12-08 | Used of an outdated form by a medical provider  |
| 2/1/12  | 12-09 | Track items associated with the January reportable event on inadequate compensatory measures during a snowstorm                                     |
| 2/1/12  | 12-10 | Track items associated with the January reportable event on inadequate compensatory measures during a snowstorm                                     |
| 2/1/12  | 12-11 | Track items associated with the January reportable event on inadequate compensatory measures during a snowstorm                                     |
| 2/2/12  | 12-12 | Inappropriately labeled alarm description   |
| 2/9/12  | 12-13 | Track open items from a preventative maintenance audit  |
| 2/13/12 | 12-14 | Vendor not performing appropriate cold testing on repaired components   |
| 2/19/12 | 12-15 | Issue with a security log sheet   |
| 2/23/12 | 12-16 | Track open items from a surveillance of shift briefing activities   |
| 2/28/12 | 12-17 | Missed opportunity to update a form when the procedure was updated  |
| 2/28/12 | 12-18 | Open items from an annual review of the implementation of the Emergency Plan  |
| 3/1/12  | 12-19 | Track follow-on actions in response to NRC's Notice of Violation  |
| 3/5/12  | 12-20 | Track open items from a fire protection program review  |
| 3/6/12  | 12-21 | Omission to log incoming correspondence on the Notice of Violation  |
| 3/6/12  | 12-22 | Omission to log outgoing correspondence on the Notice of Violation  |
| 3/7/12  | 12-23 | Failure of a flexible electrical conduit due to water intrusion   |
| 3/20/12 | 12-24 | Missing surveillance record   |
| 3/26/12 | 12-25 | Discrepancy in a controlled inventory where the index was not updated   |
| 3/28/12 | 12-26 | Cask manufacturer's specification reference to NRC's Code of Federal Regulation (CFR) Part 72 as opposed to Maine Yankee's reference to CFR Part 50 |
| 4/2/12  | 12-27 | Late transfer of records to archive   |
| 4/10/12 | 12-28 | Review not being performed within its expected timeframe  |
| 4/23/12 | 12-29 | Omission of some drill records form the 2011 archives   |
| 4/24/12 | 12-30 | Training program review not being performed to the expected level of detail as required   |
| 4/26/12 | 12-31 | Short term loss of a communication line to an offsite monitoring location   |
| 4/27/12 | 12-32 | Testing not being performed as directed by procedure  |
| 5/2/12  | 12-33 | Shift Document Review Book entries not reviewed within requested timeframe  |
| 5/3/12  | 12-34 | Removal from training material references to a specific contractor  |
| 5/9/12  | 12-35 | Entrance into a radiation area without dosimetry  |
| 5/14/12 | 12-36 | Security-related equipment issue  |
| 5/16/12 | 12-37 | Problems associated with a fire door  |
| 5/16/12 | 12-38 | Discrepancies noted in spill equipment inventory log  |
| 5/21/12 | 12-39 | Problems with a fire door closing and latching  |
| 5/21/12 | 12-40 | Water intrusion problems with two cabinets used for the Cask Temperature Monitoring   |

|          |       |   |
|----------|-------|---|
|          |       | System  |
| 5/24/12  | 12-41 | Several high range self-reading dosimeters were beyond their calibration date when inventoried  |
| 5/24/12  | 12-42 | Emergency Plan equipment inventory procedure did not list the high range dosimeters   |
| 5/24/12  | 12-43 | Deteriorated rubber shoe covers   |
| 5/24/12  | 12-44 | Issue with the control and posting of radioactive material  |
| 5/23/12  | 12-45 | Officer promotion documentation not readily available   |
| 5/23/12  | 12-46 | Document Review Book index not up to date after reviews were closed out   |
| 5/26/12  | 12-47 | A baby deer hit while mowing with a tractor   |
| 5/28/12  | 12-48 | On-the-job training guides were not in accordance with procedural guidance  |
| 5/30/12  | 12-49 | Outdated procedure revision in one of the emergency plan implementing procedure books   |
| 5/30/12  | 12-50 | Track improvement items from the combined fire and medical drill  |
| 5/31//12 | 12-51 | Bumper strip on bottom of the entrance gate was not functioning   |
| 6/1/12   | 12-52 | Improper excavation controls implemented on the 345 kV switchyard reliability project   |
| 6/2/12   | 12-53 | Failure of a padlock on a security cabinet  |
| 6/2/12   | 12-54 | Moving of an ammunition cabinet within fifteen feet of a flammable locker   |
| 6/4/12   | 12-55 | Improper installation of a ceiling tile in lieu of a smoke detector mounted in a ceiling tile   |
| 6/4/12   | 12-56 | Improper sealing of a fire barrier penetration  |
| 6/7/12   | 12-57 | Several communication issues noted during the biennial audit of the QA program  |
| 6/7/12   | 12-58 | Several program discrepancies noted during the biennial audit of the QA program   |
| 6/7/12   | 12-59 | Several weaknesses noted during the biennial audit of the QA program  |
| 6/7/12   | 12-60 | Several implementation concerns noted during the biennial audit of the QA program   |
| 6/7/12   | 12-61 | Several records discrepancies noted during the biennial audit of the QA program   |
| 6/7/12   | 12-62 | Several tracking issues noted during the biennial audit of the QA program   |
| 6/7/12   | 12-63 | Several implementation concerns noted during the biennial audit of the QA program   |
| 6/7/12   | 12-64 | Several improvement opportunities noted during the biennial audit of the QA program   |
| 6/7/12   | 12-65 | Several procedure improvements noted during the biennial audit of the QA program  |
| 6/7/12   | 12-66 | Problems with a computer server   |
| 6/7/12   | 12-67 | Inconsistent use of a procedure   |
| 6/7/12   | 12-68 | Improper completion of a form   |
| 6/7/12   | 12-69 | Discovery of discrepancies in the audit report  |
| 6/14/12  | 12-70 | Failure of a camera   |
| 6/17/12  | 12-71 | Premature distribution of a revised procedure prior to its controlled distribution  |
| 6/19/12  | 12-72 | Use of an incorrect revision of a procedure form  |
| 6/20/12  | 12-73 | Damage to the pavement during the fencing project   |
| 6/21/12  | 12-74 | Ensure all self-assessment recommendations and observations are tracked to closure  |
| 6/25/12  | 12-75 | Retraining and assessment of an individual after identified personnel performance issues such as not acknowledging alarm in required timeframe. |
| 6/25/12  | 12-76 | Failure of a radiation device prompted a dose evaluation  |
| 6/28/12  | 12-77 | Damage to an aluminum railing caused by a man-lift  |
| 7/2/12   | 12-78 | Fire at a consultant's office in Texas that housed some Maine Yankee documents  |
| 7/3/12   | 12-79 | Safeguards Information – not available for public disclosure  |
| 7/3/12   | 12-80 | Some personnel TLDs not being picked up for processing  |
| 7/3/12   | 12-81 | Some personnel TLDs not being picked up for processing  |
| 7/10/12  | 12-82 | Fire door not latching reliably   |
| 7/12/12  | 12-83 | Unescorted access authorization folder being misfiled   |
| 7/17/12  | 12-84 | Tracking condition report for a self-assessment   |
| 7/23/12  | 12-85 | Policy document missing   |
| 7/23/12  | 12-86 | Inconsistency between the security company's drug and alcohol policy and what was in  |

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|         |        | effect at the facility  |
| 7/23/12 | 12-87  | Personnel dosimetry inadvertently left in the restricted area                                     |
| 7/24/12 | 12-88  | Missing verification initial on a procedure attachment  |
|         | 12-89  | 12-89 CR number not used  |
| 7/25/12 | 12-90  | Minor conduit damage from the man-lift bumping into the conduit                                   |
| 7/25/12 | 12-91  | New hire being on shift prior to his qualification package being signed off                       |
| 8/2/12  | 12-92  | Track open items from a monthly security drill  |
| 8/13/12 | 12-93  | Track open items from the transition of security firms as not all transition items were completed |
| 8/14/12 | 12-94  | Track open items from benchmarking analysis from recommendations made after visiting other sites  |
| 8/16/12 | 12-95  | Person taking site photos from Ferry Road   |
| 8/18/12 | 12-96  | Fire door for the conference room was not latching reliably                                       |
| 8/19/12 | 12-97  | Security equipment not being inspected as per the established schedule                            |
| 8/19/12 | 12-98  | Track open items from an equipment inspection   |
| 8/20/12 | 12-99  | Review of a new document not being completed within the expected timeframe                        |
| 8/21/12 | 12-100 | Open items from a review of a planned storage relocation project                                  |
| 8/21/12 | 12-101 | Minor damage to a John Deere lawn mower   |
| 8/23/12 | 12-102 | Minor cut to a security officer's finger  |
| 8/27/12 | 12-103 | Breaker on a man-lift tripping repeatedly   |
| 8/27/12 | 12-104 | Very minor spill of diesel fuel to the pavement   |
| 8/28/12 | 12-105 | Disposal of the spill clean-up material   |
| 8/28/12 | 12-106 | Potential weakness in site access controls  |
| 8/29/12 | 12-107 | One in-process background check returned with missing data  |
| 8/29/12 | 12-108 | One expired site badge  |
| 8/29/12 | 12-109 | Track open items from two separate surveillance activities  |
| 8/29/12 | 12-110 | Track open items from two separate surveillance activities  |
| 8/30/12 | 12-111 | Site posting not having the mandated federal statutory citation on the sign                       |
| 8/30/12 | 12-112 | One Emergency Plan Phone Directory contained out of date numbers                                  |
| 9/3/12  | 12-113 | Person parked at the site entrance road   |
| 9/3/12  | 12-114 | Person taking photos at the site entrance   |
| 9/4/12  | 12-115 | Track the closure of open items in a trend analysis   |
| 9/4/12  | 12-116 | Removal of a vehicle fire extinguisher that was not replaced                                      |
| 9/5/12  | 12-117 | Found a radiation detector with a dead battery  |
| 9/6/12  | 12-118 | The dead battery would not hold a charge  |
| 9/6/12  | 12-119 | Inconsistent use of a procedure attachment  |
| 9/7/12  | 12-120 | Use of an outdated procedure attachment   |
| 9/8/12  | 12-121 | Missing page in a attesting packet  |
| 9/10/12 | 12-122 | Procedure referencing a terminated license  |
| 9/10/12 | 12-123 | A controlled copy document not containing all the previous revisions                              |
| 9/11/12 | 12-124 | Deficiencies associated with a regular exit light at the Security and Operations Building         |
| 9/12/12 | 12-125 | Oil stain found at the entrance gate  |
| 9/13/12 | 12-126 | Issuance of a procedure with an outdated attachment.  |
| 9/19/12 | 12-127 | A minor oil leak from a service technician's vehicle  |
| 9/19/12 | 12-128 | A new sign not containing the appropriate reference to the law                                    |
| 9/20/12 | 12-129 | Tracking CR for change of alarm company name by tracking needed procedure changes                 |
| 9/21/12 | 12-130 | Another spill of less than one half cup from a recently repaired site vehicle                     |
| 9/25/12 | 12-131 | Protocol error by the facility's off-site security vendor   |
| 9/27/12 | 12-132 | Another individual taking unauthorized photos at the site entrance                                |

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| 9/27/12  | 12-133 | Serial number error on an inventory sheet  |
| 10/1/12  | 12-134 | Track open items from a security drill   |
| 10/1/12  | 12-135 | Small spill of diesel fuel from a skidsteer to the pavement  |
| 10/4/12  | 12-136 | Needed changes to a phone list   |
| 10/9/12  | 12-137 | Security sensitive information and not available for public disclosure   |
| 10/10/12 | 12-138 | Lost a self-reading radiation dosimeter  |
| 10/11/12 | 12-139 | Track open items from an emergency plan practice drill   |
| 10/12/13 | 12-140 | A medical physical not being complete  |
| 10/13/13 | 12-141 | Outside electrical outlet having water in it   |
| 10/15/12 | 12-142 | Found an unlocked filing cabinet containing personnel folders  |
| 10/16/12 | 12-143 | October 16 <sup>th</sup> earthquake near Hollis Center in York County  |
| 10/23/12 | 12-144 | Suspicious vehicle   |
| 10/23/12 | 12-145 | Night hunters – possible poachers  |
| 10/24/12 | 12-146 | Track items from a missed self-assessment  |
| 10/24/12 | 12-147 | Computer problem that cleared itself when the computer was rebooted  |
| 10/31/12 | 12-148 | Page numbering problems with a procedure that was revised  |
| 11/5/12  | 12-149 | Track open items from the October emergency plan exercise  |
| 11/5/12  | 12-150 | Track new camera issues  |
| 11/5/12  | 12-151 | Inconsistency in completing an attachment to a surveillance procedure  |
| 11/5/12  | 12-152 | Expired truck inspection   |
| 11/6/12  | 12-153 | Hurricane preparation enhancements gathered from the other New England   |
| 11/6/12  | 12-154 | Problem with the turntable to the man-lift   |
| 11/8/12  | 12-155 | Track open items from a procurement surveillance   |
| 11/13/12 | 12-156 | Intermittent loss of signal from one of the fence line radiation   |
| 11/13/12 | 12-157 | Individual harvesting berries at the site boundary   |
| 11/14/12 | 12-158 | Needed update to ensure newly hired individuals are included in the work control database  |
| 11/14/12 | 12-159 | Track the resolution of open items from the annual vertical concrete cask inspection   |
| 11/15/12 | 12-160 | Temporary misplacement of one shift key  |
| 11/15/12 | 12-161 | Procedure attachment not being updated when the procedure was revised  |
| 11/19/12 | 12-162 | Track the implementation of revision 10 to the cask vendor's multi-purpose canister system's final safety analysis report            |
| 11/19/12 | 12-163 | Track the implementation of revision 4 to the cask vendor's multi-purpose canister system's transportation Certificate of Compliance |
| 11/21/12 | 12-164 | Implementation of new EPA regulations for emergency diesel generators  |
| 11/23/12 | 12-165 | Individual taking pictures at the property boundary  |
| 11/26/12 | 12-166 | Need for improved guidance on how Shift Supervisors report information to NRC  |
| 11/26/12 | 12-167 | Track recommendations from a self-assessment   |
| 11/28/12 | 12-168 | Small leak of brake fluid onto pavement  |
| 11/28/12 | 12-169 | Need for additional details in documenting security event logs   |
| 11/29/12 | 12-170 | Timeliness of a barrier screen not meeting management expectations   |
| 11/30/12 | 12-171 | Failure of the atmospheric air pump used to monitor chlorides in the air   |
| 12/1/12  | 12-172 | Duck hunter on Little Oak Island   |
| 12/3/12  | 12-173 | Computer access issue  |
| 12/4/12  | 12-174 | Some ISFSI drawings not being stored in electronic storage   |
| 12/10/12 | 12-175 | Intermittent problems with the e-mail server   |
| 12/17/12 | 12-176 | Improper dimension used in a radioactive waste volume calculation  |
| 12/20/12 | 12-177 | Revised procedure attachment not being updated in one field book   |
| 12/21/12 | 12-178 | E-mail server down   |
| 12/22/12 | 12-179 | Very slight movement of one camera in high wind  |

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| 12/24/12 | 12-180 | Ground fault alarm in the fire alarm panel  |
| 12/25/12 | 12-181 | Component supposedly failing a routine test   |
| 12/26/12 | 12-182 | Provide additional detail testing guidance in a security procedure on what constitutes a component failing a routine test |
| 12/27/12 | 12-183 | Observation from quality assurance surveillance of electronic records storage   |
| 12/28/12 | 12-184 | Very slight movement of a camera during a snow removal  |

## Appendix B

### Department of Energy (DOE) Activities

DOE's activities also included those performed under the Blue Ribbon Commission shown in Appendix C. In addition, there are some DOE activities listed in Appendix D under the NRC's activities listing.

1. On January 6<sup>th</sup> the U.S. Nuclear Waste Technical Review Board sent a letter to the DOE's Deputy Assistant Secretary for Fuel Cycle Technologies. The letter was in response to a DOE request for the Board to review a proposed heating investigation of salt formations for waste disposal at the Waste Isolation Pilot Plant in New Mexico, the disposal grounds for the plutonium wastes from the nation's nuclear weapons testing program. The letter was critical in noting that DOE's proposal may impede future repository research in other geologic media. The letter also noted that the research objectives were unclear. The Board could not decipher if the intent was to investigate salt as a medium for disposal or how a specific salt dome would respond to heat generated waste.
2. On January 25<sup>th</sup> eighty-eight national, regional, and local environmental organizations along with three international groups sent a letter to Energy Secretary Chu urging him to reject the soon to be released Blue Ribbon Commission's report on America's nuclear waste management strategy. The groups took exception to the creation of temporary storage sites, the mass transportation of radioactive waste across the country, and reprocessing of the used nuclear fuel until a permanent isolation program is instituted. They advocated leaving the spent nuclear fuel at reactor sites and safeguarding the storage facilities by hardening those storage sites using the fees collected for the Nuclear Waste Fund.
3. On February 13<sup>th</sup>, the Administration proposed in its Fiscal Year (FY) 2013 Budget to Congress nearly \$60 million for the Department of Energy's Used Nuclear Fuel Disposition Program. The Program will support development of technologies for storing, transporting, and disposing of used nuclear fuel as part of the near term recommendations of the Blue Ribbon Commission. It will also investigate fuel forms, reactors, and fuel/waste management approaches that would reduce the quantity of long-lived radioactive elements in the used fuel requiring disposal. The Administration's FY 2013 Budget also increased the Nuclear Regulatory Commission (NRC) spent fuel storage and transportation program by \$3.8 million over FY 2012 enacted budget. The bulk of the increase is for research to support the NRC's waste confidence rule for extended storage out to 200 years.
4. On March 6<sup>th</sup> the Nye County Board of Commissioners sent a letter to Energy Secretary Chu acknowledging the County's support for the BRC's first recommendation on a new consent-based approach to siting a geologic disposal site. The County also notified Secretary Chu that they were prepared to host a proposed repository at Yucca Mountain. The letter included attachments of Nye County's previous 2002, 2004 and 2011 resolutions indicating their consistent support for such a facility besides their comments on the BRC's final report and recommendations. Nye County is the host county for the Yucca Mountain repository.
5. On March 6<sup>th</sup> the Nuclear Energy Institute proposed an action plan for the Department of Energy, in cooperation with industry, to implement for fiscal year 2013. The plan was a consolidated storage appropriations concept providing some milestones and action items for achieving a success path towards the availability of a consolidated storage facility by 2020 while protecting the waste fee payments from being diverted from their intended purpose.

6. On March 12<sup>th</sup> the Governor of Nevada sent a letter to Secretary of Energy Chu expressing his adamant opposition to any interim storage facility or repository site in Nevada, including the “defunct Yucca Mountain project”. The Governor’s letter was in response to an earlier letter from Nye County, Nevada to the Energy Secretary Chu expressing their consent to host such facilities.
7. On March 28<sup>th</sup> the U.S. Nuclear Waste Technical Review Board (NWTRB) sent a letter to the DOE’s Assistant Secretary for Nuclear Energy providing feedback to DOE on the NWTRB’s last two meetings, one in Arlington, Virginia and the other in Albuquerque, New Mexico. The Board recommended that DOE place a special emphasis at integrating various programs that “will have an impact on the management” of used nuclear fuel and high level waste. The NWTRB commented on four major topic areas, each with its own institutional and technical challenges:
  - Fuel Cycle Integration and Evaluation
  - Effects of Waste Package Sizes
  - Work to Prepare for Geologic Disposal
  - DOE Activities Related to Deep Borehole Disposal
8. On April 18<sup>th</sup> the NWTRB sent a letter to Energy Secretary Chu along with appropriate copies to the House and Senate Committees and Subcommittees having jurisdiction over the implementation and funding of the BRC’s recommendations. The Board offered comments on some of the more significant technical issues facing the DOE’s Working Group that was tasked by Secretary Chu to respond to the BRC’s report. Comments were proffered in the following areas:
  - A new consent-based approach to siting
  - A new waste management organization
  - Prompt efforts to develop a geologic repository
  - Support for underground test facilities
  - Prompt efforts to develop one or more consolidated interim storage suites
  - Early preparation for large-scale transport of spent nuclear fuel and high-level waste, and
  - Updating the waste classification system
9. On May 4<sup>th</sup> the Northeast High-Level Radioactive Waste Transportation Project was notified by the Department of Energy that it had received a four year, \$900,000 grant to work on the Nuclear Waste Policy Act transportation provisions and related areas of the BRC’s Report recommendations. The Energy Department grant was in response to one of the BRC’s recommendations to resume funding for state and regional groups to continue their transportation and infrastructure assessment efforts. Those efforts were abruptly terminated when the Administration ceased its funding for the Yucca Mountain repository in Nevada.
10. On May 15<sup>th</sup>-17<sup>th</sup> the Department of Energy held its third annual National Transportation Stakeholders Forum in Knoxville, Tennessee. The State Inspector attended the DOE Forum, which highlighted radioactive materials shipping campaigns, NRC’s storage and disposal topics, and emerging technologies for hazardous materials shipments. In addition, the Forum allowed for the four regional state transportation groups to meet and discuss their respective regional issues. The State Inspector provided a report to the Northeast High-Level Radioactive Waste Transportation Task Force on Maine’s activities and involvement on spent nuclear fuel. Maine Yankee’s Director of Public and Government Affairs also provided a report on their perspective on the BRC’s recommendations and the efforts necessary to ensure early removal of the used nuclear fuel.
11. On May 29<sup>th</sup> the Chair of the DOE’s National Transportation Stakeholders Forum (NTSF) sent a letter to all NTSF attendees in Knoxville, Tennessee highlighting the topics for future ad hoc

working groups and webinars. Most of the topics recommended were tied to the BRC's recommendations and transportation related subjects.

12. On August 30<sup>th</sup> the U.S. NWTRB sent a letter to the DOE requesting them to make a special presentation at their October meeting in Idaho Falls, Idaho on whether sodium bearing waste from the Idaho National Laboratory's treatment project would be classified as high-level waste. The request WAS a follow-up to an earlier DOE presentation.
13. On September 7<sup>th</sup> the NWTRB issued a meeting notice that its next meeting in Idaho Falls, Idaho will focus on the Department of Energy's Office of Used Fuel Disposition activities for packaging, transporting and disposing of spent nuclear fuel and high-level waste.
14. On October 5<sup>th</sup> Senators Bingaman and Udall from New Mexico sent a letter to Energy Secretary Chu and the Acting Director of the Office of Management and Budget urging that the FY 2014 fiscal budget include enough funds to maintain operations at the only geologic repository in the U.S., the Waste Isolation Pilot Plant (WIPP) in New Mexico. In addition, as part of the BRC's recommendations to identify disposal options for used nuclear fuel, the Senators noted that the WIPP facility could be an ideal location to perform generic testing on salt repositories. The Senators advocated for the DOE to factor in sufficient funding to accomplish these tasks.
15. On October 17<sup>th</sup> the NWTRB held its fall meeting in Idaho Falls, Idaho. The discussion topics included state regional groups' views on the BRC's transportation recommendations, updates on the Department of Energy's Used Fuel Disposition Program's activities and architectural study, the modeling of used fuel storage temperatures, and the logistical and operational issues associated with the transport of used fuel from shutdown sites.
16. On October 23<sup>rd</sup> the DOE's NTSF held a webinar on NRC's rulemakings and other activities, and NTSF's engagement in preparing for large-scale shipping campaigns. The NRC representative provided updates on accident and risk studies, the waste confidence ruling, extended spent fuel storage and transportation, and transportation security rules. In the area of extended storage there were several areas identified for technical investigations.
  - Stress corrosion cracking of stainless steel canisters in marine environments,
  - Effects of residual moisture inside canisters after drying,
  - Improved thermal computer models,
  - Non-destructive methods for inspection and monitoring, and
  - Potential concrete degradation

The transportation security rules for spent nuclear fuel and radioactive materials in quantities of concern were expected to be published in the Federal Register in the first quarter of 2013. The DOE representative briefed the attendees on the DOE's work associated with nuclear fuels storage and transportation, especially for shutdown sites. Using the BRC's recommendation on near term activities, the DOE commenced laying the groundwork for implementing consolidated storage and transportation of used fuel from shutdown sites. The DOE visited all nine shutdown reactor sites in the country and evaluated the specific transportation infrastructure at each decommissioned site. The DOE would use the lessons learned from the stranded fuel at shutdown sites as a blueprint for a national large-scale shipping campaign.

17. During Thanksgiving week the DOE's Office of Nuclear Energy posted a notice to identify potential private-sector resources for a large scale spent nuclear fuel storage demonstration project. Although

no funding or program was announced, the solicitation did align with proposals to consolidate used fuel at regional storage facilities in the absence of a geologic repository.

18. On November 29<sup>th</sup> the DOE responded to Duke Energy's Freedom of Information request pertaining to spent fuel or high-level waste reports that the Rand Corporation provided to the DOE. The request was made to gather information from the DOE on the deliberations over its delayed report on its implementation of the BRC's recommendations for the management of spent nuclear fuel. The report was due to Congress in late July. The Rand Corporation had submitted a draft report, entitled "Choosing a New Organization for Management and Disposition of Used Fuel and Defense High-Level Nuclear Waste." The Rand report was addressing one of the BRC's recommendations by evaluating the optimal management structure for the nation's used nuclear fuel and high-level waste program. Since the report is a draft policy document and pre-decisional, the DOE claimed that it was exempted under the Freedom of Information Act to release the document.
19. On December 4<sup>th</sup> the State participated in a national webinar on Radioactive Material Transportation and Public Understanding. All three presenters (Oregon Department of Energy, Colorado State Patrol, and U.S. Department of Energy) focused on methods and approaches to communicating with the public on radioactive material transportation. Each expressed on what lessons were learned and what approaches were successful and meaningful to the public. The Oregon's Energy Department addressed the public's misconceptions of the radiation associated with transportation vehicles by illustrating with photos the extent of the regulation limits compared to what was actually measured, the radioactive shipment routes and numbers as opposed to what the public perceived them to be, and the use of aerial, satellite and Google photos on the low-level radioactive waste burial site near Richland, Washington to alleviate public misconceptions on what areas were affected.
20. On December 11<sup>th</sup> the U.S. NWTRB sent a letter to the DOE's Assistant Secretary for Nuclear Energy expressing their appreciation for the DOE's involvement and participation in the Board's October 16<sup>th</sup>-17<sup>th</sup> meeting in Idaho. The Board strongly recommended that the DOE "continue and strengthen its interactions" with State Regional Groups in preparation for transportation of used nuclear fuel and high-level radioactive waste. The letter also provided feedback on
  - Transportation, Storage and Disposal System Analyses,
  - Evaluations of Canister and Waste Package Temperatures, and
  - The Importance of DOE Fully Engaging Stakeholders and Being Clear and Transparent.
21. On December 14<sup>th</sup> the Council of State Governments Eastern Regional Conference issued a press announcement that it will be co-hosting the National Transportation Stakeholders Forum (NTSF) with the DOE's Environmental Management and Nuclear Energy Divisions on May 14<sup>th</sup>-16<sup>th</sup> of next year in Buffalo, New York. The NTSF is the mechanism through which the DOE communicates at a national level with states and tribes about the Department's shipments of radioactive waste and materials. Maine is a member of the Northeast High-Level Radioactive Waste Transportation Task Force which is coordinating this effort.

## Appendix C

### Blue Ribbon Commission (BRC) on America's Nuclear Future

After the long awaited BRC report was published in late January, it spurred a lot of discussion, meetings, stakeholder feedback, and congressional hearings. As part of a Continuing Resolution Appropriation Congress mandated that the Department of Energy (DOE) provide a blueprint within six months of the issuance of the BRC's report on how it would implement the BRC's recommendations. However, by early summer, the BRC's activities subsided and all interested parties waited for DOE's report. With DOE's failure to issue its congressionally mandated report by year's end, the impetus and hope for prompt changes to resolve the nation's growing crisis dwindled to the point where all stakeholders waited in suspense for the Administration's implementation of the BRC's recommendations.

1. On January 26<sup>th</sup> the Blue Ribbon Commission on America's Nuclear Future (BRC) issued its long awaited Report to the Secretary of Energy on how the nation should manage its used nuclear fuel. The cover letter to the report stressed that the failure to resolve this issue was damaging and costly, and that continued inaction will continue to be damaging and costly to the possibility of losing the nuclear energy option, to state and federal relations, to public confidence, and to America's global issues of nuclear safety, non-proliferation, and security. The letter further mentioned that their approach neither included nor excluded Yucca Mountain. The Commission's report recommended eight essential key elements.
  - a) A new consent-based approach to siting future nuclear waste management facilities.
  - b) A new organization dedicated solely to implementing the waste management program and empowered with the authority and resources needed to succeed.
  - c) Access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management.
  - d) Prompt efforts to develop one or more geologic disposal facilities.
  - e) Prompt efforts to develop one or more consolidated storage facilities.
  - f) Prompt efforts to prepare for the eventual large-scale transport of spent nuclear fuel and high-level waste to consolidated storage and disposal facilities when such facilities become available.
  - g) Support for continued U.S. innovation in nuclear energy technology and for workforce development.
  - h) Active U.S. leadership in international efforts to address safety, waste management, non-proliferation, and security concerns.

The report proposed six legislative changes to affect its recommendations, with one recommendation broadening support to jurisdictions affected by transportation, including funding and technical assistance to public safety officials, states and tribes.

2. On January 26<sup>th</sup> six organizations, comprised of the National Association of Regulatory Utility Commissioners, the Nuclear Energy Institute, the Nuclear Waste Strategy Coalition, the American Public Power Association, the National Rural Electric Cooperative Association, and the Edison Electric Institute, issued a joint statement welcoming the BRC's final report. The organizations endorsed the Commission's eight recommendations, but emphasized that three should receive a high priority.
  - a) Access to the Nuclear Waste Fund and ensure that fees collected are dedicated for nuclear waste management,

- b) Prompt development of consolidated interim storage sites, and
- c) The creation of a new federal corporation to manage the nation's nuclear waste program.

The group fundamentally believed in these points as a means to ensure the future success of the nuclear waste management program.

3. On January 30<sup>th</sup> Maine Yankee, Connecticut Yankee and Yankee Atomic issued a combined statement on the January 26<sup>th</sup> release of the BRC's report highlighting three favorable conclusions from the BRC report:
  - a) A voluntary incentive program for the eventual licensing of a consolidated interim storage facility,
  - b) The recommendation that permanently shutdown or decommissioned reactor sites would receive "first in line" priority for the movement of their spent fuel to a consolidated interim storage site, and
  - c) Providing technical assistance, training and funds to state, local, and tribal efforts in preparation for the transportation of the used nuclear fuel to interim or disposal sites.

The Yankee companies expressed their gratitude for the Commission's work on producing a long term strategy for managing the country's spent nuclear fuel and high-level waste. The three Yankee companies were hopeful that the BRC's recommendations would spawn meaningful legislation.

4. On February 1<sup>st</sup> the Wiscasset Newspaper published an article expressing the three Yankee companies' (Maine Yankee, Connecticut Yankee and Yankee Rowe in Massachusetts) optimism over the Blue Ribbon Commission's (BRC) recommendations. The three Yankees were very pleased with the BRC's recommendations for consolidated storage and for stranded fuel at decommissioned reactor sites to be first in line to move its spent fuel to a consolidated facility. The three Yankee companies were hopeful that the BRC's recommendations would provide the impetus to enact prompt and meaningful legislation.
5. On February 8<sup>th</sup> the National Association of Regulatory Utility Commissioners issued a resolution regarding the Blue Ribbon Commission's (BRC) recommendations. The resolution commended the BRC for their work, for NARUC to review the report and vow to work with all affected parties, to change how the fees are paid into the Nuclear Waste Fund, and to encourage the Administration and Congress to dedicate the fees solely for nuclear waste management instead of its current use to balance the budget.
6. On March 7<sup>th</sup> the U.S. Nuclear Waste Technical Review Board held a meeting in Albuquerque, New Mexico, to receive presentations on the BRC's recommendations, an update of the Department of Energy's (DOE) Used Fuel Disposition Program's activities including repository site selection criteria, the Nuclear Regulatory Commission's report on the content of the DOE's Yucca Mountain license application, performance models for geologic media, research associated with engineered barrier systems, deep borehole disposal, and permeability and fluid flow in the Earth's upper crust.
7. On April 23<sup>rd</sup> one of the Blue Ribbon Commission members, Dr. Per Peterson, sent a letter to Senators Feinstein and Alexander of the Senate Appropriations Committee endorsing the Subcommittee's authorization of a pilot program under the FY2013 Appropriations Bill for the Department of Energy to pursue a consent-based approach to siting a new consolidated interim waste storage facility, with priority given to stranded nuclear fuel at shut down reactors.

8. On April 23<sup>rd</sup> the Co-Chairs of the Blue Ribbon Commission sent a letter to Senators Feinstein and Alexander praising their efforts to propose legislation that would provide for a pilot storage program for used nuclear fuel and high-level waste.

## Appendix D

### Nuclear Regulatory Commission's (NRC) Activities

1. On January 3<sup>rd</sup> the NRC issued a news release seeking public comments on their assumptions to environmentally study extended storage of spent nuclear fuel for as much as 200 years. The report discussed several scenarios including centralized storage sites and reprocessing.
2. On January 4<sup>th</sup> the NRC issued a news release on the availability of a public meeting on a webinar on their draft report, "Background and Preliminary Assumptions for an Environmental Impact Statement – Long-Term Waste Confidence Update". The NRC was seeking feedback on its report from stakeholders and the public through its webinar forum.
3. On January 13<sup>th</sup> NRC Chairman Jaczko sent a letter to the Co-Chairs of the BRC inviting them to brief the NRC on the much anticipated BRC report due at the end of January. The discussion would focus on how the BRC's recommendations on managing the back end of the nation's fuel cycle would impact the NRC's regulatory programs for reactor regulation, fuel cycle, storage, transportation, disposal, and current federal and state co-operative agreements.
4. On January 31<sup>st</sup> the NRC put on a webinar on its draft environmental impact statement (EIS) on its Waste Confidence Ruling. The background document was the first step in a multi-part process that will end in 2019. The draft report explained the basis for the NRC's regulatory role and its confidence that spent nuclear fuel would be safely managed at storage facilities at reactor and decommissioned sites pending disposal in an available geologic repository. The Waste Confidence Ruling was mandated by the U.S. Court of Appeals for the D.C. Circuit in 1979, which based its decision on the National Environmental Policy Act. The report presented some bounding assumptions and typical scenarios, including terrorist threats with specialized weaponry. The final EIS will cover a storage period of 200 years starting mid-century (2050). The overall timeframe will cover a period of about three hundred years starting with the naval nuclear fleet's spent fuel from the 1950's out to the year 2250.
5. On February 16<sup>th</sup> the Decommissioning Plant Coalition (DPC) sent a letter to the NRC commenting on its draft EIS on the Waste Confidence Rule extending storage of spent nuclear fuel out to 300 years. The DPC recommended that the NRC place its draft EIS on hold to ensure that the federal government does not abdicate its responsibility to dispose of the used nuclear fuel. Otherwise, it will appear that the NRC endorsed indefinite on-site storage. The DPC is comprised of the decommissioned reactor sites of Maine Yankee, Connecticut Yankee, Yankee Rowe in Massachusetts, Big Rock Point in Michigan, Lacrosse in Wisconsin and Rancho Seco in California.
6. On February 16<sup>th</sup> the National Association of Regulatory Utility Commissioners (NARUC) sent a letter to the Nuclear Regulatory Commission (NRC) commenting on their draft Environmental Impact Statement (EIS). NARUC took issue with the draft EIS as being in conflict with the intent of the Nuclear Waste Policy Act. NARUC suggested the NRC would benefit from a pause to allow the Department of Energy time to develop a strategy for implementing the BRC's recommendations.
7. On February 16<sup>th</sup> the Nuclear Energy Institute (NEI) forwarded a letter to the NRC expressing their concern that the NRC should wait until their technical evaluation of long-term storage is completed so as to better inform their draft EIS. Even though research on extended storage is underway,

considerable research and validation will be required to fully comprehend all the technical aspects. Therefore, NEI recommended the draft EIS be deferred.

8. On February 17<sup>th</sup> the Nuclear Waste Strategy Coalition (NWSC) sent a letter to the NRC commenting on the preliminary EIS for the NRC's Waste Confidence Rule. The NWSC believed that the draft EIS was premature and did not take into consideration Congressional deliberations in response to the BRC's recommendations, the Department of Energy development of a national nuclear waste strategy, long term research on extended spent fuel storage up to 300 years, and the lawsuit in the Court of Appeals for the DC Circuit. The letter also expressed concern that the draft EIS will divert attention from solving the nation's nuclear waste dilemma and instead accept storage for centuries. The NWSC is an ad hoc organization of state utility regulators, state attorneys general, consumer advocates, electric utilities and associate members, that includes 40 organizations in more than 30 states.
9. On February 17<sup>th</sup> the Sustainable Fuel Cycle Task Force Science Panel forwarded a letter to the NRC expressing their concerns that the NRC process was too lengthy and recommended an accelerated schedule while still considering all the technical and safety issues with long-term storage. They also recommended addressing societal uncertainties on whether future generations will be better equipped to deal with the nuclear wastes. They also expressed concern over the physical size and higher heat loads of some used fuel potentially challenging some repository settings such as salt formations and clays.
10. On February 17<sup>th</sup> the State of Nevada submitted its response to the NRC's preliminary EIS. The State supported the NRC's use of a 200 to 300 year timeframe for the EIS and presumed that technological advances will occur since dry storage technology is less than 30 years old. The State raised concerns over the implications of extended storage and listed five questions the EIS should address. The State also identified human factors and human error, the use of generic and composite sites, terrorism and sabotage, and transportation as major issues the EIS should include in its impact assessment.
11. On March 5<sup>th</sup> NRC's Chairman forwarded a letter to Senator Kirk of Illinois in response to the Senator's request dated December 22, 2011. The Senator questioned the NRC's retention and availability of records on the Yucca Mountain license review activities and the NRC's ability to resume the licensing process. The Chairman noted that the NRC had issued three Technical Evaluation Reports that captured the staff's technical review of the DOE's Yucca Mountain license application. The Chairman further stated that there were 46 additional reports that summed up "important technical or regulatory information, insights, and lessons learned from more than 25 years of work" besides other NRC documents generated over the history of the high-level waste program. The Chairman did say that the Agency did not have a contingency plan to resume the licensing process and would, if directed. However, the Chairman indicated the difficulty in resuming the process.
12. On April 10<sup>th</sup> the NRC received a briefing from two members of the President's Blue Ribbon Commission on America's Nuclear Future (BRC) on their national policy recommendations for managing the country's spent nuclear fuel and high-level waste. The discussion was followed up with additional presentations from senior level NRC staff on the potential implications of the BRC's recommendations on several of the NRC's regulatory programs.
13. On May 7<sup>th</sup> the Chair of the House's Committee on Oversight and Government Reform sent a letter to NRC Chairman Jaczko requesting clarification on previous testimony he provided at a hearing that was found to be inconsistent with other statements made by fellow Commissioners and NRC

staff. The letter listed other examples of Chairman Jaczko's overbearing managerial style. The letter raised the specter of Chairman Jaczko making false statements.

14. On May 21<sup>st</sup> NRC's Chairman Jaczko abruptly resigned, making it effective and contingent upon the confirmation of a successor to his chairmanship.
15. In May the NRC published a draft report for comment, entitled, "Spent Fuel Transportation Risk Assessment". The report utilized improved analysis tools and techniques, improved data availability, and a reduction in the number of conservative assumptions to derive an estimate of the accident risk that is about 100,000 times lower than their 1977 final environmental statement on the transportation of radioactive material. The report listed nine findings, which reconfirmed that the radiological impacts from spent fuel transported in conformance to NRC regulations were low.
16. On June 25<sup>th</sup> the Nuclear Waste Repository Project Office of Nye County, Nevada commented on the Nuclear Regulatory Commission's (NRC) May 2012 report, entitled "Identification and Prioritization of the Technical Informational Needs Affecting Potential Regulation of Extended Storage and Transportation of Spent Nuclear Fuel". The letter expressed agreement with the recent Court decision that vacated the NRC's Waste Confidence Update, raised the issue of repackaging and retrievability of spent nuclear fuel since the current storage technology is predicated on Yucca Mountain as the repository, and suggested the necessity for technical, cost and impact studies on extended storage and repackaging to include worker exposure and disposal of used containers. The letter listed nine specific comments on the NRC report.
17. On June 29<sup>th</sup> the U.S. Senate confirmed both presidential nominees to the NRC. Dr. Allison Macfarlane was confirmed for a year as the NRC's new Chair. Kristine Svinicki was re-confirmed to a five year, second term on the Commission.
18. On June 29<sup>th</sup> the NEI sent a letter to the NRC commenting on its May 2012 report, entitled "Identification and Prioritization of the Technical Informational Needs Affecting Potential Regulation of Extended Storage and Transportation Of Spent Nuclear Fuel". Although the letter commented on the various parties producing similar efforts to the NRC, such as the Energy Department and the Electric Power Research Institute, the letter promoted three noteworthy areas for furthering the development of the technical basis for extended storage. They are NRC's methodology for identifying and prioritizing potential technical information needs, NRC's approach to identifying potential technical information needs, and the regulatory significance and potential impact on safety as key considerations for further research. While the NEI lauded these areas, it also provided further clarifications to enhance the process.
19. On June 29<sup>th</sup> the Nevada Agency for Nuclear Projects sent a letter to the NRC requesting an extension to the 60 day comment period published in the Federal Register. The request was based on the size and complexity of the report, the requirement to contract for outside expertise on some of the specific technical issues and assumptions, and research into why recent NRC studies on transportation were not included in the report's bibliography.
20. On July 9<sup>th</sup> Dr. Allison Macfarlane was sworn as the NRC's new Chairman. Dr. Macfarlane replaced former Chairman Dr. Gregory Jaczko who had resigned in May. Dr. Macfarlane, a geologist, served on the President's Blue Ribbon Commission on America's Nuclear Future.
21. On August 3<sup>rd</sup> the NRC issued a meeting notice for August 16<sup>th</sup>-17<sup>th</sup> to get stakeholder feedback in identifying enhancements to the current licensing and inspection programs for spent nuclear fuel storage and transportation. The topics covered compatibility between storage and transportation

requirements for retrievability, cladding integrity and safe handling; regulating stand-alone Independent Spent Fuel Storage Installations; administration and amendments to storage certificates of compliance; applicability, compatibility, and consistency of spent fuel storage requirements and guidance for specific licensees, general licensees, and certificate of compliance holders, and an update on the Commission's inspection enhancement initiative.

22. On August 24<sup>th</sup> the Prairie Island Indian Community petitioned the NRC for a critical look at the risks of on-site storage since outdoor casks will likely remain in place for decades. The Indian Community's land borders the Minnesota Prairie Island nuclear power plant. The Tribe was one of the original petitioners in the lawsuit that claimed that the NRC overstepped its bounds in its 2010 Waste Confidence Decision and Temporary Storage Rule by not conducting an environmental impact statement on extended storage. The U.S. Court of Appeals for the D.C. Circuit agreed and vacated the NRC's decision and rule.
23. On September 6<sup>th</sup> the NRC directed its staff to conduct a two year environmental study and revision to its waste confidence rule to satisfy the deficiencies noted in the Appeals Court decision. The Appeals Court declared that the NRC Waste Confidence Decision and Temporary Storage Rule were major federal actions requiring either an environmental impact statement or an environmental assessment indicating a finding of no significant impact. The Court also held that the NRC should have evaluated the environmental impacts with no repository available. The Court also found deficiencies in the NRC's consideration of spent fuel pool leaks and fires. The Commission directed the staff to ensure ample opportunity for public engagement and comment.
24. On September 12<sup>th</sup>-13<sup>th</sup> the NRC held a Spent Fuel Storage and Transportation Regulatory Conference. The purpose of the conference was to discuss regulatory and technical issues. Topics included operating experience, non-spent fuel issues, high burnup fuel impact on cladding integrity and fuel reconfiguration, vacuum drying events and shielding issues.
25. On October 9<sup>th</sup> the NRC's Atomic Safety and Licensing Board issued a Notice and Order notifying the Northern States Power Company, the Prairie Island Indian Community (PIIC), and the NRC staff of a prehearing conference scheduled for November 8<sup>th</sup> and 9<sup>th</sup> on the PIIC's seven contentions challenging the Prairie Island's spent fuel storage license renewal application.
26. On October 23<sup>rd</sup> the NRC webcast an overview of its spent fuel storage and transportation, and fuel facilities programs. The purpose of the two hour and forty minute briefing was for the NRC staff to provide the Commission with a discussion of strategic considerations for these two program elements, including priorities, near and longer term projections and trends, and emerging focus areas. The focus areas for spent fuel storage and transportation were safety and security, waste confidence and the evolving national policy for disposal. The program elements were licensing, oversight, rulemaking, research, international activities, and homeland security. Each element was subdivided into specific tasks. For example, in licensing technical challenges included such topics as fuel clad hydrides in high burnup fuel. The hydrides cause the fuel cladding encapsulating the nuclear fuel to crack due to hydrogen embrittlement. Besides performing fatigue tests on high burnup fuel to determine at what point failure will occur, research was also focused on corrosion in casks and cracks in concrete storage modules. Similar information was presented to the Commission on fuel facilities. The Commissioners questioned the staff on specific program elements and tasks in both programs.
27. On November 8<sup>th</sup>-9<sup>th</sup> the NRC's Atomic Safety and Licensing Board held a pre-hearing conference to hear legal arguments on the Prairie Island Indian Community's admissibility of their seven contentions challenging the license renewal application for the Independent Spent Fuel Storage

Installation at the Prairie Island Nuclear Plant in Red Wing, Minnesota. One of the Community's contentions involved the duration of the spent fuel stored at the dry cask facility. The tribe's case was bolstered by a recent Circuit Court decision, which vacated the NRC's rule allowing it to make licensing decisions without considering the long term impact of waste storage.

28. On November 13<sup>th</sup> the NRC Chairman sent a letter to Senator Lieberman, Chair of the Homeland Security and Government Affairs Committee, notifying him of the NRC's response to the Government Accountability Office's (GAO) report on spent nuclear fuel. The GAO report expressed concerns over the identification and accessibility of classified studies for storage and disposal of spent nuclear fuel. The Chair related the indexing process that NRC management had implemented to ensure that institutional knowledge would not be lost.
29. On November 14<sup>th</sup> the NRC held a Waste Confidence scoping meeting for the EIS that it was preparing to respond to the U.S. Court of Appeals June Order vacating the NRC's 2010 waste confidence decision and extended temporary storage rule. The purpose of the meeting was to provide a brief overview of the NRC's scoping process and to provide an opportunity for the public to comment on the extent of the scope of the EIS. The staff offered three possible scenarios as part of its EIS deliberations:
  - Storage until a repository becomes available at the middle of this century,
  - Storage until a repository becomes available at the end of this century, or
  - Continue storing indefinitely in the event that a repository was not available.

The staff welcomed feedback on what scenarios and environmental issues it should consider. It also provided a preliminary two year schedule outlining when the EIS would be finalized and published as a rule.

30. On November 19<sup>th</sup> the Secretary of the Commission issued a memorandum to the NRC's Executive Director of Operations on the staff's briefing to the Commission on their overview of the spent fuel storage and transportation and the fuel facilities programs. The Commission supported the staff's efficiency and effectiveness efforts in the programs and directed the staff to limit its storage issues to the 120 year timeframe. The meeting was webcast.
31. On December 5<sup>th</sup>-6<sup>th</sup> the NRC featured two public scoping webinars as a follow-up to the November 14<sup>th</sup> public meeting seeking input from stakeholders on its proposed scope for its EIS to support the Commission's Waste Confidence Decision and Extended Temporary Storage Rule. About 62 individuals participated in the December 5<sup>th</sup> webinar and 21 participated in the December 6<sup>th</sup> evening seminar. Webinar participants included members of the public, and representatives from federal and state agencies, industry, and public advocacy groups. The concerns and comments ranged from increasing the use of social media for greater public input to multiple regional public meetings to a preference for site-specific instead of a generic assessment to catastrophic natural events and terrorist activities on spent fuel storage facilities, to hardened on-site storage systems instead of fuel pools to the risk of spent fuel pool leaks and fires to the safety and security of spent nuclear fuel.
32. On December 20<sup>th</sup> Private Fuel Storage (PFS), LLC, a consortium of utility companies, requested that NRC terminate its special nuclear materials license for its consolidated interim storage facility on the Skull Valley Band of Goshute Indian reservation in Tooele County, Utah. After a ten year review the NRC had issued a license in 2006 for the storage facility. However, three governors and the state's congressional delegation spearheaded efforts to derail the 100-acre project. Consequently, the firm was unable to secure federal permits from the Department of Interior. The U.S. Bureau of Indian Affairs refused to sign off on the lease agreement between the Goshutes and

PFS and the U.S. Bureau of Land Management refused a right-of-way to allow construction of a rail line near Interstate 80 to the reservation. A federal appeals court threw out the Interior Department rulings two years ago and labeled them as arbitrary and capricious. However, the company never met two of its twenty NRC licensing conditions before construction and operation could begin.

33. On December 27<sup>th</sup> the NARUC submitted its comments on the NRC's EIS scoping process. NARUC supported the NEI's comments and suggestions. NARUC argued that the Court's mandated no repository scenario was an infeasible alternative and suggested instead that the NRC employ its regulatory framework for extended on-site storage.
34. On December 28<sup>th</sup> the Nuclear Waste Repository Project Office (NWRPO) of Nye County, Nevada submitted their comments to the NRC's scoping for the Waste Confidence EIS. The NWRPO proposed fourteen comments and ranged from addressing the Court's findings that originally vacated the NRC's Waste Confidence Ruling, several suggestions on possible scenarios the NRC should evaluate including the defunded Yucca Mountain Project, the importance of financing in a no repository scenario, transportation and repackaging of containers, and raised concerns on future technical, institutional, societal and political uncertainties should the nation indefinitely defer "developing a nuclear waste repository.
35. On December 31<sup>st</sup> the Decommissioning Plant Coalition (DPC) sent a letter to the NRC staffs' November 14<sup>th</sup> submitting its formal comments on the NRC's proposed scoping process for its EIS to support its Waste Confidence Decision and Rule. The DPC recommended that the NRC
  - Maintain its position that it does not support indefinite on-site storage, and
  - Bound or limit the EIS to the Court's designated three deficiencies.

In addition, the DPC offered five specific comments centered on the federal government's obligations, the near universal support for consolidated interim storage, the DOE's responsibility for transportation infrastructure, and for the NRC to avoid reliance on a previous draft document it published.

# Appendix E

## Congressional Reactions and Responses

1. On January 30<sup>th</sup> the House Committee on Energy and Commerce issued an internal memorandum to the Subcommittee on Environment and the Economy announcing the February 1<sup>st</sup> hearing on the “Recommendations of the Blue Ribbon Commission (BRC) on America’s Nuclear Future”. The panel of witnesses included the Co-Chairs of the BRC, past members of the Department of Energy’s Office of Civilian Radioactive Waste Management and the U.S. Nuclear Waste Technical Review Board, the State of Nevada’s legal representative, the Union of Concern Scientists, Citizens Against Government Waste, and the National Association of Regulatory Utility Commissioners. The memorandum raised two issues for discussion during the hearing, financial impacts of repository delays and Nuclear Waste Policy Act suggestions.
2. On January 31<sup>st</sup> the Chair of the House Subcommittee on Environment and Economy commented on the Blue Ribbon Commission’s report in Congress’ blog. His remarks focused on Yucca Mountain, the Administration’s actions to shutter the Project, and the bureaucratic failure of the Nuclear Regulatory Commission and the Department of Energy “to carry out the law of the land”.
3. On February 1<sup>st</sup> the House Subcommittee on Energy and Environment held a hearing to review the Blue Ribbon Commission’s recommendations to solve the nation’s growing stockpile of nuclear waste. The witnesses before the Committee included the Co-Chairs of the Blue Ribbon Commission (BRC) on America’s Nuclear Future, the Union of Concerned Scientists (UCS), the National Association of Regulatory Utility Commissioners (NARUC), the Citizens Against Government Waste (CAGW), the Lawyer representing Nevada but testifying only on his behalf, and presidents of two consulting firms. Both Co-Chairs expressed their concern over the ever growing costly consequences of inaction. NARUC expressed their frustration over ratepayers and ultimately taxpayers paying twice for disposal of spent nuclear fuel with no geologic repository available for decades. The UCS supported most of the recommendations from the BRC but was not persuaded of the necessity of consolidated storage and preferred instead on-site storage. The representative from CAGW stated that “taxpayers and ratepayers have paid tens of billions of dollars over the last 25 years and will pay tens of billions more in the future for a national nuclear waste repository.”
4. On February 2<sup>nd</sup> the Senate Committee on Energy and Natural Resources held a hearing to review the Blue Ribbon Commission’s recommendations on nuclear waste management. The Chairman of the Committee was interested on how Congress could absorb the recommendations, implement appropriate legislation and forge the political consensus to enact it into law. Only the BRC Co-Chairs testified.
5. On February 8<sup>th</sup> the House Committee on Science, Space, and Technology held a hearing to review the Blue Ribbon Commission’s (BRC) Report to the Secretary of Energy and assess the “broader science and technology issues associated with spent nuclear fuel management”. The hearing charter provided a historical perspective on nuclear waste management, a summary of the BRC final report along with the key recommendations from each of its three subcommittees, an overview of current Department of Energy (DOE) nuclear research and development, the BRC perspective on nuclear research and development, and key issues for the Committee to consider. The four key issues highlighted for the Committee were what near term steps could be pursued by DOE, how can DOE factor in the BRC’s recommendations, how a “single-purpose organization” will function, and how would a “consent-based siting process work in practice”.

6. On March 6<sup>th</sup> the House Committee on Energy and Commerce issued an internal memorandum in preparation for the March 8<sup>th</sup> hearing on the Department of Energy (DOE) Budget for FY 2013. The memorandum listed the specific funding requests for the various DOE programs. The most noteworthy is the \$770 million request for the Office of Nuclear Energy, which would have oversight over the spent fuel consolidated interim storage and geologic repository sitings. Of the \$770 million requested \$60 million was apportioned for geologic repositories and consolidated storage sites. Representative Shimkus did ask Energy Secretary Chu on the readiness of DOE to restart the Yucca Mountain licensing process should the Courts deem it so. Although Dr. Chu stated that the DOE would respond accordingly, he did state it could take upwards of two years to fully mobilize his agency.
7. On March 8<sup>th</sup> Senator Lindsey Graham from South Carolina introduced a bill in the Senate, S. 2176, which would require the President to certify Yucca Mountain as the geologic disposal site in the United States. If the president failed to certify the Yucca Mountain site, then the nuclear utilities would not be required to pay into the Nuclear Waste Fund and the balance in the Nuclear Waste Fund would be returned to the utilities. The utilities would then use 75% of the refund to rebate the ratepayers with the remaining 25% to be used at nuclear facilities to enhance the on-site storage and security of the used nuclear fuel.
8. On March 9<sup>th</sup> the National Conference of State Legislatures (NCSL) sent a letter to House Speaker John Boehner, House Minority Leader Nancy Pelosi, Senate Majority Leader Harry Reid, and Senate Minority Leader Mitch McConnell urging them “to move expeditiously” on the BRC’s recommendations to resolving the nation’s used nuclear fuel. The NCSL applauded the BRC for proposing the inclusion of state, local governments and tribes in decisions. The NCSL also noted that the BRC report had included NCSL recommendations on an interim storage facility, on Congress using the Nuclear Waste Fund for its intended purpose, and providing financial support to state, tribal and local governments on the safe transportation of nuclear waste.
9. On March 13<sup>th</sup> the NARUC sent a letter to Senator Feinstein from California attempting to re-initiate momentum on nuclear waste. The letter praised her and other lawmakers’ efforts to revitalize the nation’s nuclear waste program. The letter reproved the Administration for not being proactive in requesting funds from the \$26 billion in the Nuclear Waste Fund to revive efforts to resolve the nation’s decades’ long, nuclear waste dilemma.
10. On March 22<sup>nd</sup> the Chairman of the House Committee on Energy and Commerce and the Chairman of the Subcommittee on Environment and the Economy forwarded a letter to Energy Secretary Chu as a follow-up to Secretary Chu’s March 8<sup>th</sup> testimony before the Committee. The Chairs requested the availability of funds, whether uncosted, unobligated, reserves, or past unspent funds, from the current fiscal year to support the Nuclear Regulatory Commission’s Yucca Mountain license application.
11. On March 27<sup>th</sup> the Nuclear Waste Strategy Coalition (NWSC) issued a release calling on Congressional Offices to enact critical nuclear waste program reforms in funding, reinstating funding for regional transportation groups to support much needed infrastructure planning and preparation, and holding the Department of Energy accountable for developing an action plan.
12. On March 29<sup>th</sup> Representative Duncan of South Carolina introduced legislation that would halt the closure of the Yucca Mountain repository, compel the Nuclear Regulatory Commission (NRC) to complete its review and issue a determination on the license application. In addition, the legislation

would remove the 77,000 metric ton limitation on nuclear waste and require the NRC to create new limits based on scientific and technical analysis of the full capacity of Yucca Mountain. The Yucca Mountain provision is part of an overall energy bill, entitled, “Energy Exploration and Production to Achieve National Demand Act”.

13. On April 11<sup>th</sup> Representative Joe Wilson sent a letter to House members inviting them to become a cosponsor of legislation that he would be introducing. The legislation would provide 30 days for the President to certify that Yucca Mountain remains the site for disposing of high-level waste. If the President failed to certify, then nuclear utilities would no longer be required to pay the fee assessed for generating electricity. The balance including the interest accumulated in the Nuclear Waste Fund would be returned to those utilities that paid into the Fund with the provision that 75% be refunded to ratepayers and 25% would be retained to enhance the security at the nuclear facilities. The final stipulation would be for defense-related wastes to be shipped from the current states to Yucca Mountain starting January 1, 2017. If the DOE failed to start shipments from the affected states, then the DOE would be forced to pay a penalty of \$1,000,000 per day and not to exceed \$100,000,000 per year to the affected states.
14. On April 17<sup>th</sup> the NWSC sent a letter to the Chairman of the House Appropriations Subcommittee on Energy and Water Development thanking the House for their support in prompting the “Department of Energy to meet its obligation to remove used nuclear fuel from reactor sites”. The NWSC proposed three federal actions that could provide a success path going forward. They were ensuring access to the Nuclear Waste Fund for programmatic needs, removing spent nuclear fuel and high-level waste from reactor sites, and converting to an independent management organization. The letter also expressed dismay over the Administration’s and DOE’s passive response to the Blue Ribbon Commission’s report they commissioned. The next day the NWSC followed-up with a similar letter to the Chair of the Senate Appropriations Subcommittee on Energy and Water Development.
15. On April 23<sup>rd</sup> the Chair of the House Committee on Energy and Commerce along with four Subcommittee Chairs and other House members sent a letter to the Chair of the Nuclear Regulatory Commission (NRC) as part of their oversight role of the NRC. They requested specific information on the policies and any revisions to these policies governing the Chairman of the Commission as the principle executive officer of the NRC and the voting records of all five Commissioners. The House last year investigated the Chairman for his conduct with other Commissioners and his management style with the NRC staff.
16. On April 24<sup>th</sup> Senator Heller from Nevada sent a letter to the Chairs of both the Senate and House Appropriations Committees requesting them to continue defunding the proposed Yucca Mountain nuclear waste repository and to seek better alternatives to long term storage. The Senator expressed his distrust of the federal government’s ability “to appropriately manage Yucca Mountain”.
17. On April 24<sup>th</sup> the Senate Committee on Appropriations announced in a press release that the Subcommittee on Energy and Water Development approved an appropriations bill that totaled \$33.361 billion with \$793 million earmarked for nuclear energy. The proposed funding legislation included a measure to begin implementing the BRC’s recommendations on the storage of spent nuclear fuel and defense high-level waste.
18. On April 25<sup>th</sup> an amendment to the Nuclear Waste Policy Act of 1982 entitled “Yucca Utilization to Control Contamination Act” was introduced into the House by Representative Wilson from South Carolina. The legislation, if enacted, would require the President to certify within 30 days Yucca Mountain in Nevada as the designated repository for the disposal of high-level radioactive waste. If

the President failed to certify, then nuclear utilities would no longer be required to make payments to the Nuclear Waste Fund and the balance of the Fund would be returned to the nuclear utilities, which would refund 75% of the monies they received to the ratepayers with the remaining 25% retained for upgrades to enhance storage and security measures at the nuclear power facilities. The bill was comparable to the one Senator Graham from South Carolina introduced in the Senate on March 8<sup>th</sup>.

19. On April 25<sup>th</sup> the Subcommittee on Energy and Water Development approved a bill that would restore \$25 million to the Yucca Mountain licensing proceedings with \$5 million earmarked for affected local communities.
20. On April 26<sup>th</sup> the full Committee on Appropriations approved by a vote of 28-1 the Senate Bill, S. 2465, governing the appropriation bills passed by the Agriculture and Energy Subcommittees. Senator Feinstein reported the Appropriations Bill to the full Senate for its consideration. The Bill authorized the Secretary of Energy to conduct a pilot program to license, construct, and operate one or more consolidated storage facilities for spent nuclear fuel and high-level waste, with priority for storage given to shutdown or decommissioned reactor sites. The Bill also provided within 120 days of enactment for the Secretary to issue request for proposals for cooperative agreements with local communities and states for hosting a storage facility. In addition, within 120 days after the issuance of requests for proposals the Secretary must submit to Congress a Pilot Program Plan that will estimate the annual and expected lifetime costs for a storage facility. The cost estimates would also include estimates for the financial compensation to the host State, Indian Tribe, and local government, and for future reductions in liability damages due to the Department of Energy's delays in accepting the waste. The Plan will also include any recommendations for any additional legislation to further the Pilot Program and to ensure the stored wastes will be moved to a geologic repository.
21. On April 27<sup>th</sup> the House Committee on Energy and Commerce sent a letter to the NRC Chairman requesting information on the NRC's licensing requirements guiding principles to licensees for ensuring a safety conscious environment to preclude the development of a "chilling work environment" and whether or not these guiding principles apply to the Chairman's working relationship with his fellow Commissioners. The letter cited a number of instances where the Chairman's behavior was less than exemplary and that disagreements carried a risk of reprisal. The letter listed seven questions or requests for information for the Chairman to respond to. The letter was signed by the Committee Chair, three Subcommittee Chairs and 19 other House members representing 18 states.
22. On May 7<sup>th</sup> the Chair of the House's Committee on Oversight and government Reform sent a letter to NRC Chairman Jaczko requesting clarification on previous testimony he provided at a hearing that was found to be inconsistent with other statements made by fellow Commissioners and NRC staff. The letter listed other examples of Chairman Jaczko's overbearing managerial style. The letter raised the specter of Chairman Jaczko making false statements.
23. On May 18<sup>th</sup> Senators Olympia Snowe, Susan Collins, Herb Kohl from Wisconsin and Scott Brown from Massachusetts sent a letter to Energy Secretary Chu requesting that Dr. Chu move promptly on the BRC's recommendations for decommissioned reactors, namely the establishment of at least one consolidated interim storage site for used nuclear fuel with decommissioned sites receiving first priority for shipping their spent fuel. The letter raised the concern of the transportation readiness of these sites and the necessary infrastructure to support the rail movements. The letter thanked the Department of Energy for restoring funding to regional transportation groups who are intimately involved in infrastructure assessments of short lines at decommissioned sites.

24. On May 25<sup>th</sup> the House Committee on Energy and Commerce issued an internal memorandum in preparation for a joint hearing scheduled for May 31<sup>st</sup> by the Subcommittees on Environment and Economy and Energy and Power. The purpose of the hearing was to focus on Nuclear Regulatory Commission (NRC) policy and governance with all five NRC Commissioners testifying. Besides the Fukushima incident the hearing continued the House's investigation of Chairman Jaczko's management style with his fellow Commissioners and staff as outlined in the White House's December 12<sup>th</sup> letter response to the House Committee on Oversight and Government Reform.
25. On May 31<sup>st</sup> Representative John Shimkus from Illinois introduced an amendment to H.R. 5325, the House's appropriations bill for Fiscal Year 2013. The amendment would provide \$10 million for the Nuclear Regulatory Commission to complete its assessment of whether or not the Yucca Mountain site was a safe repository. The \$10 million would come from the Department of Energy's administrative account.
26. On June 1<sup>st</sup> the Chair of the Pennsylvania Public Utility Commission sent a memorandum to the Pennsylvania Congressional delegation advocating for the support of the amendment to increase the funding to the Nuclear Regulatory Commission from \$25 million to \$35 million to finish the licensing review of the Yucca Mountain application.
27. On June 6<sup>th</sup> the U.S. House of Representatives passed an amendment to their FY 2013 Appropriations Act to provide an extra \$10 million in funds to the Nuclear Regulatory Commission to complete its review of the Yucca Mountain license application. The amendment received broad bipartisan support and passed with a vote of 326 to 81. Representative Michael Michaud voted in favor of the measure whereas Representative Chellie Pingree did not.
28. On June 7<sup>th</sup> the President of the National Association of Regulatory Utility Commissioners testified before the Senate Committee on Environment and Public Works' Subcommittee on Clean Air and Nuclear Safety. He expressed the Association's frustration with the federal government's handling of spent nuclear fuel and high level radioactive waste. He did praise the BRC's recommendation to change the nuclear waste funding and noted that the consent based approach was critical to the future success of any new nuclear waste policy.
29. On June 7<sup>th</sup> the Senate Environment and Public Works Subcommittee on Clean Air and Nuclear Safety held a hearing on recommendations for siting of nuclear waste storage facilities. The Senators heard from two panels, the first from two members of the Blue Ribbon Commission and the second from five stakeholders from government agencies, nuclear industry and research labs. The industry panel member was Eric Howes, Director of Government and Public Affairs for Maine Yankee. Mr. Howes appeared on behalf of the three Yankee companies (Maine Yankee, Connecticut Yankee and Yankee Atomic). He commended the Blue Ribbon Commission's report and its recommendations and endorsed those that directly affect the decommissioned sites, such as:
  - "A voluntary, incentive-based siting program that would lead to the licensing of a consolidated interim storage facility,
  - A 'first in line' priority for the movement of spent fuel stored at shutdown reactor sites to a licensed storage facility, and
  - The initiation of programs to coordinate federal, state and local efforts for the transportation of the used nuclear fuel to consolidated storage and disposal sites."

Mr. Howes concluded his testimony by listing twelve nationally recognized organizations that support the 'first in line' concept for decommissioned sites.

30. On June 8<sup>th</sup> the Chair of the Nye County Board of County Commissioners sent a letter to Nevada's congressional delegation taking exception to a letter they received from the Chair of the Nevada Commission on Nuclear Projects that had circulated an article from a technical advisor to the State of Nevada that "(1) 'refutes the argument, repeatedly advanced by Yucca Mountain proponents, that Nevada's opposition is based purely on politics and irrational fears'; (2) argues 'that no other repository program in the world is developing a site with the unfavorable conditions present at Yucca Mountain'; and (3) concludes that 'Yucca Mountain is an unsuitable and unsafe site'. The letter included a critique of the State's technical advisor.
31. On June 21<sup>st</sup> the National Council of State Legislatures sent a letter to the Senate Majority and Minority Leaders urging them to support the Senate Appropriations Bill that would "create a pilot program within the Department of Energy to license, construct, and operate consolidated interim storage facilities" for used nuclear fuel. The letter also exhorted the use of the consent based approach for siting such facilities at all levels of government.
32. On July 2<sup>nd</sup> The Energy Council sent a letter to House Speaker Boehner touting the Senate's efforts to establish a pilot program to consolidate spent nuclear fuel at one or more storage sites. The letter further urged the President and Congress to ratify the BRC's recommendations.
33. On July 24<sup>th</sup>, as part of the House Energy and Commerce's Subcommittees on Environment and the Economy and Energy and Power held a hearing on Nuclear Regulatory Commission's Policy and Governance Oversight. Four of the five NRC Commissioner's testified, including the newly sworn in Chairman of the Commission, Dr. Allison MacFarlane, who replaced Chairman Gregory Jaczko, who had resigned. During the hearing the NRC's Inspector General investigative report was released detailing its findings on six allegations against the previous Chairman Jaczko. The allegations ranged from Chairman Jaczko's purported usurping of his powers during the Fukushima accident, his creation of a chilled workplace environment with his fellow Commissioners and NRC staff, and his testimony during a House Committee hearing. Of the six allegations against Chairman Jaczko, only the allegation on a chilled environment was credible, while another seemed to suggest that Chairman Jaczko's testimony before Congress was inconsistent with the information available.
34. On August 1<sup>st</sup> New Mexico Senator Bingaman introduced S.3469 The Nuclear Waste Administration Act - to manage the nation's used nuclear fuel and defense related wastes. The bill closely tracked the recommendations from the Blue Ribbon Commission's report issued last January. However, the bill did depart from the BRC's recommendation of a federal corporation, similar to the Tennessee Valley Authority, to administer the nation's nuclear waste stockpile. The bill instead recommended a new, independent executive branch agency. Although the bill would allow for one pilot storage facility to be built before a host community agreed to a repository, the bill did require "an agreement for a repository before allowing the new agency to store nuclear waste at other storage facilities." The other three senior senators, who assisted in drafting the legislation, parted ways on the issue of storage facilities. Since they wanted to move faster with storage, they expressed concern the legislation's insistence on prior congressional approval for a repository location as delaying progress for decades in the moving of spent nuclear fuel to consolidated storage facilities.
35. On August 1<sup>st</sup> the 15-state Southern Legislative Conference of the Council of State Governments issued a policy urging Congress, the Obama Administration, and the Nuclear Regulatory Commission to meet its federal obligations by adopting the BRC's recommendations; by promulgating legislative and administration actions to enact nuclear waste reforms and begin moving used nuclear fuel from decommissioned and operating sites to centralized facilities; by consulting

with state, local, and tribal officials on transportation to centralized storage facilities; and by completing the Yucca Mountain license application review.

36. On September 7<sup>th</sup> the Southern Association of Regulatory Utility Commissioners (SEARUC) sent a letter to the Senate Majority and Minority Leaders, the Speaker of the House and the Minority Leader of the House calling on Congress to:
- Call on the Department of Energy to remove the spent nuclear fuel from reactor sites in their region,
  - Protect the ratepayers by ensuring the Nuclear Waste Fund was used specifically for managing the nation's used nuclear fuel, and
  - Continue the Nuclear Regulatory Commission's license review of the Yucca Mountain application for a final determination of suitability
37. On September 12<sup>th</sup> the Senate and Natural Resources Committee held a hearing on the Nuclear Waste Administration Act of 2012. The bill closely tracked the recommendations from the BRC's report that was issued last January. However, the bill did depart from the BRC's recommendation of a federal corporation, similar to the Tennessee Valley Authority, to administer the nation's nuclear waste stockpile. The bill instead recommended a new, independent executive branch agency. Although the bill would allow for one pilot storage facility to be built before a host community agreed to a repository, the bill did require "an agreement for a repository before allowing the new agency to store nuclear waste at other storage facilities." The other three senior senators, who assisted in drafting the legislation, parted ways on the issue of storage facilities. Since they wanted to move faster with storage, they expressed concern the legislation's insistence on prior congressional approval for a repository location as delaying progress for decades in the moving of spent nuclear fuel to consolidated storage facilities. Most of the testimony at the hearing expressed concerns over the bill's creation of another federal agency instead of a federal corporation and the mandate of prohibiting interim storage until the Nuclear Regulatory Commission received an application for a permanent disposal facility. Senator Cantwell from Washington raised the specter of more delays by suggesting disposing of defense-related wastes separate from commercial nuclear fuel wastes instead of the commingling plan provided under the Nuclear Waste Policy Act.
38. On October 5<sup>th</sup> Senators Bingaman and Udall from New Mexico sent a letter to Energy Secretary Chu and the Acting Director of the Office of Management and Budget urging that the FY 2014 fiscal budget include enough funds to maintain operations at the only geologic repository in the U.S., the Waste Isolation Pilot Plant (WIPP) in New Mexico. In addition, as part of the BRC's recommendations to identify disposal options for used nuclear fuel, the Senators noted that the WIPP facility could be an ideal location to perform generic testing of salt repositories. The Senators advocated for the Department of Energy to factor in sufficient funding to accomplish these tasks.
39. On November 13<sup>th</sup> the NRC Chairman sent a letter to Senator Lieberman, Chair of the Homeland Security and Government Affairs Committee, notifying him of the NRC's response to the Government Accountability Office's (GAO) report on spent nuclear fuel. The GAO report expressed concerns over the identification and accessibility of classified studies for storage and disposal of spent nuclear fuel. The NRC Chair related the indexing process that NRC management had implemented would ensure that institutional knowledge would not be lost.

## Appendix F

### States, Counties and Local Activities

State and local governments took on a more active role to urge Congress to enact legislation on the BRC's recommendations while pressing the Yucca Mountain issue in the U.S. Court of Appeals.

1. On January 5<sup>th</sup> the Las-Vegas Review Journal published an article on how an August 2011 report prepared by Sandia National Laboratories in New Mexico could shed new light on an alternate disposal medium for spent nuclear fuel other than Yucca Mountain. The report focused on granite formations that are prevalent along the eastern seaboard and the upper Midwest. Vermont has already declined any interest as they did back in the early 1980's when they, along with Maine's Sebago Lake region, were being investigated as potential host sites for the nation's spent nuclear fuel and high level waste. However, an editorial in Duluth News Tribune on the same day suggested that "Minnesota and Wisconsin should keep an open mind". Besides the Sebago Lake region the report also identified two additional granite deposits of interest in Maine, one near Baxter State Park and the other in Washington County.
2. On January 13<sup>th</sup> the Arizona Daily Sun reported that State Senator Al Melvin proposed to finance public education in Arizona by levying a \$50,000 fee per ton of nuclear waste disposed in the state. With the industry generating about 2,000 tons of spent nuclear fuel per year that would amount to \$100 million dollars a year for public schools. The Senator suggested Picacho Peak, Safford, Holbrook, Kingman, and Luke Air Force Base near Phoenix as potential sites considering they were all located near underground salt deposits.
3. On January 18<sup>th</sup> the Pahrump Valley Times announced that Nye County, Nevada, home of Yucca Mountain, will receive a \$3.8 million payment equal to taxes from the Department of Energy (DOE) as part of the Nuclear Waste Policy Act's mandate. Those payments essentially disappeared in fiscal years 2010 and 2011 when the Administration zeroed out the funding for Yucca Mountain.
4. On January 25<sup>th</sup> Forbes ran an article on the "The town that wants America's worst nuclear waste". The article was about Carlsbad, New Mexico, home of the Waste Isolation Pilot Plant, the burial facility for the nation's plutonium waste from the nuclear weapons testing era. With over 10,000 shipments logging twelve million miles without an incident over the last thirteen years and the successful burial of over 200,000 tons of wastes impregnated with plutonium in the salt domes has generated a very positive response from the local citizenry as well as state officials. The city also touted its highly specialized and technical workforce. City officials have advocated for not only storing the nation's spent nuclear fuel stockpile, but have also promoted burying it in their salt formations. It was estimated that it would cost two and one half times less to build a repository in Carlsbad (\$30 billion) than at Yucca Mountain (\$80 billion).
5. On January 31<sup>st</sup> the Conference of (State) Radiation Control Program Director's E-5 Committee on Low-Level Waste held a conference call to discuss various issues. The State Inspector requested that the Committee discuss his concern over DOE's recent labeling of Greater Than Class C (GTCC) waste as low-level waste. The nuclear industry perspective and recent court litigations indicate that GTCC should be entombed in a geologic repository like spent nuclear fuel. Maine Yankee has four dry casks with GTCC waste from the decommissioning stored at its ISFSI. The E-5 Committee agreed to review DOE's draft environmental impact statement on GTCC waste and send a letter to the DOE.

6. On February 1<sup>st</sup> the Wiscasset Newspaper published an article expressing the three Yankee companies' (Maine Yankee, Connecticut Yankee and Yankee Rowe in Massachusetts) optimism over the BRC's recommendations. The three Yankees were very pleased with the BRC's recommendations for consolidated storage and for stranded fuel at decommissioned reactor sites to be first in line to move its spent fuel to a consolidated facility. The three Yankee companies were hopeful that the BRC's recommendations would provide the impetus to enact prompt and meaningful legislation.
7. February 29<sup>th</sup> a resolution was introduced into the Minnesota Senate urging the President and Congress to pass legislation that would:
  - o allow the construction of one or more consolidated storage facilities for spent nuclear fuel,
  - o provide incentives to interested host communities,
  - o ensure access to the corpus of the Nuclear Waste Fund and fees collected, and
  - o allow one or more NRC licensed private interim storage facilities. (This would include the already licensed NRC facility on the tribal lands of the Goshute Indians in Skull Valley, Utah. The private facility was denied permits by the federal government to construct the facility. The congressional delegation and state leaders placed pressure on the federal government to deny access and construction permits.)
8. On March 7<sup>th</sup> the quarterly conference call of the Federal Energy Regulatory Commission rate case settlement briefing took place with representatives from the states of Connecticut, Maine and Massachusetts. The briefing provided the status of the two nuclear waste lawsuits against the federal government. The Phase I lawsuit, which awarded Maine Yankee about \$81 million, was being appealed by the Department of Justice (DOJ). Oral arguments were heard in November and a decision was expected in May. The second suit went to trial in October and the Judge allowed a limited window for the DOJ to reopen the records. Further briefs were scheduled for this year. Other updates were provided on national activities, such as Congressional efforts and hearings on budget proposals to address the Yucca Mountain Project, the Appeals Court ruling that litigation on the Yucca Mountain Project was ripe based on the NRC's Order suspending the Yucca licensing proceedings, the NRC's activities on the new security rule for spent fuel storage facilities and extended storage regulations, and the Council of State Governments extensive involvement in the BRC meeting held in Boston.
9. On March 19<sup>th</sup> a member of the Board of County Commissioners from Nye County, Nevada wrote a letter to the Governor of Nevada expressing his disagreement with the Governor's opposition to Yucca Mountain and urging him to reconsider.
10. On March 29<sup>th</sup> the Minnesota Senate Energy Committee passed in final form a resolution calling on the President of the United States and the Congress "to enact legislation and take other federal government action related to interim storage of used nuclear fuel." The resolution also called for ensuring access to the Nuclear Waste Fund and enabling the NRC to license private interim storage facilities to meet the nation's needs.
11. On March 30<sup>th</sup> the Pennsylvania Public Utility Commission sent a letter to their Congressional Senators unanimously expressing their concerns over the handling of the Nuclear Waste Fund and its impact to the state's ratepayers. The Commissioners stated that ratepayers have contributed about \$1.4 billion into the Nuclear Waste Fund "with little to show for it". The Commissioners asked the Senators for their help to resolve this issue.

12. On April 2<sup>nd</sup>-5<sup>th</sup> a national summit on the Nuclear Fuel Cycle was held in Carlsbad, New Mexico. The summit highlighted some unique attributes as to why Carlsbad and the Waste Isolation Pilot Plant could play a key role in solving America's nuclear waste problems. The discussion included a number of local, state and national government leaders and their willingness to host a consolidated interim storage facility as well as potentially hosting a geologic repository for the nation's used nuclear fuel stockpile. The summit also featured experts covering various facets of the entire nuclear fuel cycle from uranium mining to fuel enrichment to fabrication to waste minimization to power generation and new technology to licensing and regulations to social acceptance and community support to interim storage to reprocessing and recycling and finally, to disposal options for the nuclear waste.
13. On April 18<sup>th</sup> the Minnesota Senate voted 63-0 to pass a resolution calling upon Congress and the White House to enact legislation that would carry out the BRC's recommendations, especially with regard to consolidated interim storage. The resolution will be forwarded to President Obama, Speaker of the House Mr. Boehner, Senate Majority Leader Mr. Reid, and Secretary of Energy Dr. Chu.
14. On April 24<sup>th</sup> the Arizona House approved legislation with a vote of 33 to 17 with 9 abstaining to bring a nuclear waste recycling and storage facility to Arizona. The bill was sent to the Senate which approved it. The legislation notified federal officials that they consider Arizona for hosting a recycling and consolidated interim storage facility. The legislation was formatted as a resolution addressed to the U.S. Congress with notifications to the President of the Senate, to the Speaker of the House and to Arizona's congressional delegation. The communities of Kingman, Holbrook, Safford and Picacho Peak in Arizona were identified as potential host sites for the nuclear waste facility since they are underlain with solid salt formations that are comparable to the Waste Isolation Pilot Plant in Carlsbad, New Mexico. Arizona joined Nye County, Nevada and Carlsbad, New Mexico as willing hosts for the nation's nuclear waste.
15. On June 4<sup>th</sup> a resolution was introduced in the Pennsylvania House for Congress to adopt legislation to construct consolidated interim storage facilities, to recognize communities willing to host such facilities, to ensure access to the Nuclear Waste Fund, and to permit privately owned and licensed storage facilities to meet the public need. The resolution would be transmitted to the President, the presiding officers of each house of Congress, and the Pennsylvania congressional delegation. On June 27<sup>th</sup> the House passed the resolution unanimously (199 to 0).
16. On June 8<sup>th</sup> the Chair of the Nye County Board of County Commissioners sent a letter to Nevada's congressional delegation taking exception to a letter they received from the Chair of the Nevada Commission on Nuclear Projects that had circulated an article from a technical advisor to the State of Nevada that "(1) 'refuted the argument, repeatedly advanced by Yucca Mountain proponents, that Nevada's opposition was based purely on politics and irrational fears'; (2) argued 'that no other repository program in the world is developing a site with the unfavorable conditions present at Yucca Mountain'; and (3) concluded that 'Yucca Mountain was an unsuitable and unsafe site'". The letter included a critique of the State's technical advisor.
17. On June 19<sup>th</sup> the Northeast High-Level Radioactive Waste Transportation Task Project, a subsidiary of The Council of State Government's Eastern Regional Conference (CSG-ERC), sponsored a webinar on nuclear safety in the Northeast. With some states in the Northeast grappling with nuclear safety and relicensing of older plants and the concerns following the Fukushima disaster, the webinar speakers spoke of the future of nuclear power in light of safety, cost and climate change and its impact on the Northeast. The speakers were Dr. Andrew Kadak, professor at Massachusetts Institute of Technology, and David Lochbaum, Director of the nuclear safety program at the Union

of Concerned Scientists. Dr. Kadak explained what happened at the Fukushima reactors, how US reactors are better prepared because of previous upgrades due to the Three Mile Island accident and the 9/11 terrorist attacks, and the NRC's and the nuclear industry's lessons learned and response to the Fukushima tragedy. Mr. Lochbaum expressed how Northeast reactors were vulnerable to extended loss of power but less so due to post 9/11 upgrades, the lessons learned from Fukushima should be implemented as quickly as possible, presented the status of the 24 operating and nine shutdown reactors in the Northeast, which of the 21 operating reactors were leaking radioactive material to the groundwater and which five did not meet the NRC's fire protection regulations, which 13 operating reactors stored too much spent fuel in elevated pools, how the Brookhaven National Laboratory study assessed the consequences of a spent fuel pool mishap, and recommended moving all spent fuel, after five to six years of cooling, to dry cask storage. The webinar was moderated by Maine Representative Jon Hinck, Ranking Minority Member of the Joint Standing Committee on Energy, Utilities and Technology, and presently Vice-Chair of the CSG-ERC's Energy and Environment Committee.

18. On June 20<sup>th</sup> the quarterly conference call of the Federal Energy Regulatory Commission rate case settlement briefing took place with representatives from the states of Connecticut, Maine and Massachusetts. The briefing provided the status of the two nuclear waste lawsuits against the federal government. The Phase I lawsuit, which awarded Maine Yankee about \$81 million, was upheld by the Federal Court of Appeals and increased Massachusetts' Yankee Rowe's award by another \$17 million. However, the expectation was that the government will continue to delay paying the claim. In a separate federal appeals case involving Pacific Gas and Electric, the Court ruled that waste classified as Greater Than Class C will be shipped to the same geological repository that spent fuel was moved to. The Phase II lawsuit went to trial in October of 2011 and the Judge allowed a limited window for the Department of Justice to reopen the records. Further briefs were scheduled for this year and a favorable decision was expected before the end of the year. Other updates were provided on national activities, such as the BRC's recommendations and Congressional efforts to move those recommendations forward. The DOE was identifying near and mid-term actions it could take to implement the recommendations, including some consideration to conduct some survey work of the rail infrastructure in New England by early fall. In addition, the Senate appeared to be more receptive than the House to implement the BRC's recommendations. The Senate Appropriations Committee agreed with Maine Yankee's Citizens Advisory Panel Chairperson, Marge Kilkelly, who suggested flexibility when it came to defining consent-based approach to allow it to emerge since everyone would have their own definition of what consent based meant. The State of Connecticut briefed the group on its involvement in the lawsuit against the NRC's Waste Confidence Update Ruling and the application of the National Environmental Policy Act. Connecticut along with New York and Vermont stated that the NRC did not consider many of the forward looking aspects of the long term storage of spent fuel. The Court's decision vacated the NRC's Waste Confidence Update and remanded it back to the NRC to perform an environmental assessment (EA) or impact statement (EIS). Connecticut did not think this was an insurmountable task as the NRC had most of the information available to perform an EA or EIS. However, until the NRC issued the EA or EIS, upcoming licensing actions, such as the relicensing of Indian Point, were questionable. Senators Snowe's and Collins' letter to the Energy Secretary was mentioned as it recommended DOE to expeditiously address the BRC's recommendations on decommissioned reactor sites.
19. On June 28<sup>th</sup> Governor LePage sent a letter to Maine's Congressional delegation imploring them to act expeditiously to engage the Congressional Leadership and to implement the priority recommendations of the Blue Ribbon Commission, including (1) immediate access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management; and (2) prompt efforts to develop one or more consolidated storage facilities.

20. On August 1<sup>st</sup> the 15-state Southern Legislative Conference of the Council of State Governments issued a policy urging Congress, the Obama Administration, and the NRC to meet its federal obligations by adopting the BRC's recommendations; by promulgating legislative and administration actions to enact nuclear waste reforms and begin moving used nuclear fuel from decommissioned and operating sites to centralized facilities; by consulting with state, local, and tribal officials on transportation to centralized storage facilities; and by completing the Yucca Mountain license application review.
21. On August 21<sup>st</sup> the Nevada Legislative Committee on High-Level Radioactive Waste held its semi-annual meeting on the status of the Yucca Mountain Project. The State of Nevada's opposition to Yucca Mountain remained unchanged. The opposition also included interim storage and reprocessing. The Committee heard presentations on the mission and future activities of the U.S. Nuclear Waste Technical Review Board, updates on the activities of Nevada's Agency for Nuclear Projects, updates on the litigation related to the Yucca Mountain Project, and the lessons learned and best practices on socioeconomic and transportation-related studies. The Nevada's Agency for Nuclear Projects presented its review of the Yucca Mountain project, highlighted recent developments in high-level waste transportation, presented the Government Accountability Office's proposed alternative uses of Yucca Mountain, and the reclassification of melter and feed tanks used to vitrify high level waste from reprocessing of spent nuclear fuel at West Valley in New York as low level waste for shipment and burial at the Nevada National Security Site, formerly known as the Nevada Test Site.
22. On August 28<sup>th</sup> the Environmental Council of the States (ECOS) issued resolution 12-6 urging collaboration between federal agencies and states to manage high-level radioactive waste and spent nuclear fuel. The resolution:
  - Encouraged the DOE, the NRC, and the Environmental Protection Agency (EPA) to fund the development of scientifically based health and environmental standards and model state laws and regulations to guide the siting, storage and disposal of high-level waste;
  - Affirmed the status of states as partners, including having a clear decision-making voice on activities within their borders;
  - Urged the DOE, NRC, and EPA to work with state agencies through ECOS and support ECOS and any state's formal involvement in any rulemaking process addressing the storage and disposal of defense and commercial high-level waste;
  - Urged the DOE to fund ECOS, ECOS member states, and third-party technical experts to provide independent analysis of proposed activities, including analyzing impacts from transporting spent nuclear fuel and high-level waste; to ensure transparency and responsiveness to concerns expressed by states, communities, and the public; and to encourage federal support and funding for research, test, and demonstration projects to inform siting decisions for future storage and disposal facilities.
23. Two counties and two municipalities in New Mexico have combined to form the Eddy-Lea Energy Alliance. The goal of the Alliance is to convince the federal government to cite a spent fuel storage site in their area. The site would be midway between Carlsbad and Hobbs, New Mexico and house nearly 70,000 metric tons of nuclear waste currently stored at nuclear power plants. The Alliance is also pursuing plans to host a geologic repository for disposing of the nation's nuclear waste. Their plans include pushing for a federal study to determine if their underground salt formations are suitable for such a repository.
24. On September 5<sup>th</sup> the quarterly conference call of the Federal Energy Regulatory Commission rate case settlement briefing on spent fuel storage issues was held. The states of Connecticut, Maine, and

Massachusetts were briefed on the status of the Phase I and II cases. The federal government filed a petition with the U.S. Court of Appeals to reconsider its unanimous decision awarding the three Yankee companies (Maine Yankee, Connecticut Yankee, and Yankee Rowe) nearly \$160 million for the federal government's failure to take the used nuclear fuel. The three companies were later notified that the U.S. Court of Appeals for the DC Circuit denied the federal government's petition for rehearing of the Yankee companies' Phase I spent fuel cases. The federal government has 90 days in which to appeal the Court's decision by challenging the Claims Court's favorable decision with the U.S. Supreme Court. The Phase II case record was closed and awaiting a decision. The updates also included the status of congressional appropriation bills and further deliberations on a six-month continuing resolution, Senator's Bingaman comprehensive legislation to implement the BRC's recommendations, the status of the congressionally mandated July 26<sup>th</sup> report from DOE on how they will implement the BRC's recommendations, the DOE's visits to the three Yankee companies sites at the end of August on their available transportation infrastructure, the Court's current abeyance on the mandamus case pending congressional deliberations on appropriations, the NRC's waste confidence ruling, subsequent litigation, and Court order vacating the NRC's decision and ruling, and the NRC ISFSI security rule, which could change the scope of security at stand-alone ISFSIs. It was mentioned that after 75 years the New England Governor's Conference (NEGC) ceased operating on August 31<sup>st</sup> and that the Coalition of Northeastern Governors will make a determination on which NEGC functions will be continued and at what level.

25. On October 9<sup>th</sup> the Eddy-Lea Energy Alliance (ELEA) selected an AREVA-led team of companies as its commercial partner for developing a used nuclear fuel storage facility in southeastern New Mexico. The ELEA was originally created by Eddy County, Lea County and the cities of Hobbs and Carlsbad, New Mexico, to secure funding from DOE for nuclear facilities. However, in 2011 ELEA announced it was interested in hosting an interim consolidated storage facility for spent nuclear fuel. AREVA and ELEA will confer on a memorandum of understanding to develop the nearly 1000 acre ELEA site for an above ground interim used fuel storage facility between the two cities.
26. On December 5<sup>th</sup> quarterly conference call of the Federal Energy Regulatory Commission rate case settlement briefing on spent fuel storage issues reported very promising news. Maine, Connecticut and Massachusetts were briefed on the status of the three Yankee companies (Maine Yankee, Connecticut Yankee, and Yankee Atomic) Phase I and II lawsuits. In the first lawsuit the federal government had until midnight December 4<sup>th</sup> to file a petition with the U.S. Supreme Court to reconsider the U.S. Court of Appeals unanimous decision awarding the three Yankee companies nearly \$160 million for the federal government's failure to take the used nuclear fuel. The federal government chose not to file a petition with the Supreme Court which made the Appeals Court decision final and non-appealable. Maine Yankee was awarded \$81,690,866. Connecticut Yankee will receive \$39,667,243 and Yankee Atomic \$38,268,655. The U.S. Treasury was expected to process the payments but it may take several months before the funds are received as there were no requirements as to when the awards have to be paid out. As soon as the money is received the Yankee companies will contact the appropriate parties and inform them of the recommendations and process going forward. In the second lawsuit the presiding judge issued an order allowing the Yankee companies and the federal government to file supplemental briefs by November 27<sup>th</sup> and until December 17<sup>th</sup> to respond to the respective briefs. Unless the deadlines are extended, the case was closed and awaiting a decision.

The updates also included the enactment on September 28<sup>th</sup> of a six-month continuing appropriations resolution; Senator's Bingaman comprehensive legislation to implement the BRC's recommendations will die in Committee this year; the impasse between the Senate and the House on nuclear waste policy with the Senate supporting a pilot program for interim storage with priority to decommissioned sites and the House holding firm to the completion of the NRC's Yucca Mountain

licensing review; the status of the congressionally mandated July 26<sup>th</sup> report from DOE on how they will implement the BRC's recommendations; the DOE's preliminary site evaluations of their visits to the three Yankee companies' sites at the end of August estimated 5.8 to 7.4 years to remove all the used nuclear fuel from one site and 11 to 12 years for three of the nine shutdown sites; the Court's current abeyance on the mandamus case pending congressional deliberations on appropriations; the Court's order vacating the NRC's Waste Confidence Decision and Ruling and the NRC's public scoping meeting and webinars on its Environmental Impact Statement for long term, on-site storage of used nuclear fuel; the NRC ISFSI security rule, which could change the scope of security at stand-alone ISFSIs; and the NRC's implementation of a National Academy of Sciences recommendation to perform a \$2 million pilot study of cancer risk around six nuclear power plants and a nuclear fuel facility.

27. On December 13<sup>th</sup> South Carolina's Governor's Nuclear Advisory Council held a meeting to discuss uses for the Savannah River Site (SRS). Topics included nuclear material stabilization projects, fissile materials disposition such as mixed oxide fuel, interim storage and recycling of used nuclear fuel. The French nuclear company, AREVA, presented the concept for an interim storage and recycling facility at the SRS.
28. On December 14<sup>th</sup> the Council of State Governments' Eastern Regional Conference (CSG-ERC) issued a press announcement that it will be co-hosting the National Transportation Stakeholders Forum (NTSF) with the DOE's Environmental Management and Nuclear Energy Divisions on May 14<sup>th</sup>-16<sup>th</sup> in Buffalo, New York. The NTSF is the mechanism through which the DOE communicates at a national level with states and tribes about the Department's shipments of radioactive waste and materials. Maine is a member of the Northeast High-Level Radioactive Waste Transportation Task Force, a subsidiary of the CSG-ERG, which coordinated this effort.
29. On December 19<sup>th</sup> the Nevada Agency for Nuclear Projects briefed the Las Vegas City Council on Yucca Mountain and the State's activities. The presentation provided an overview of the BRC's final report and a rationale for Nevada's opposition to the Yucca Mountain Project, the safety and business cases against Yucca Mountain, the status of the licensing and litigation on Yucca Mountain, alternative uses for Yucca Mountain, and DOE's draft site-wide Environmental Impact Statement for the Nevada Test Site, which borders Yucca Mountain.

# Appendix G

## Federal Court Proceedings

1. On January 11<sup>th</sup> the NRC filed with the U.S. Court of Appeals for the District of Columbia their response to the petition submitted by the states of South Carolina and Washington, Aiken County in South Carolina, Nye County in Nevada, the National Association of Regulatory Utility Commissioners, and the Tri-City business leaders from nearby Hanford, Washington. The petitioners' lawsuit claimed the NRC unreasonably withheld action in the Yucca Mountain license proceedings. The NRC listed five arguments why they acted reasonably. Three of the five arguments centered on Congress' failure to fund the Yucca Mountain license proceedings. Without proper funding the DOE and the NRC are unable to complete the proceedings. In addition, the NRC also raised the issue of the Courts being unable to order federal agencies to continue projects without congressional appropriations.
2. On January 18<sup>th</sup> the State of Nevada filed its brief as an intervenor with the U.S. Court of Appeals for the D.C. Circuit in response to the petition submitted by the states of South Carolina and Washington, Aiken County in South Carolina, Nye County in Nevada, the National Association of Regulatory Utility Commissioners, and the Tri-City businessmen from nearby Hanford, Washington. Nevada sided with NRC's earlier filing that it did not unreasonably delay the Yucca Mountain license proceedings.
3. On January 30<sup>th</sup> the petitioners from the states of South Carolina and Washington, Aiken County in South Carolina, Nye County in Nevada, the National Association of Regulatory Utility Commissioners, and the Tri-City businessmen near Hanford, Washington filed their reply brief with the U.S. Court of Appeals from the District of Columbia Circuit. The petitioners reiterate their position as to why the Court should conclude in their favor based on the process decreed in the Nuclear Waste Policy Act and that the actions resulting in the injury were traceable to NRC.
4. On February 10<sup>th</sup> the State of Nevada filed with the U.S. Circuit Court of Appeals for the District of Columbia its final brief as intervenor in the lawsuit against the NRC and its Chairman. Nevada maintained that the NRC and its Chairman acted responsibly and did not unreasonably delay its consideration of the Yucca Mountain license application. On the same day Nevada also filed with the Appeals Court its joint appendix as intervenor in the lawsuit against the NRC and its Chairman. The Appendix included six documents for the Court's consideration on their position supporting NRC's conclusion that they did not unreasonably delay the Yucca Mountain license proceedings.
5. On February 10<sup>th</sup> the State of Nevada filed an unopposed motion to supplement its appendix with the U.S. Circuit Court of Appeals for the District of Columbia. The supplement is part of Nevada's response to the lawsuit filed by the states of Washington and South Carolina, Nye County in Nevada, Aiken County in South Carolina, the Tri-City business leaders near the Hanford reservation in Washington, and the National Association of Regulatory Utility Commissioners against the NRC and its Chairman for its decision to cease the Yucca Mountain license proceedings.
6. On February 13<sup>th</sup> the NRC responded to the lawsuit against it and its Chairman with the U.S. Court of Appeals for the DC Circuit. The NRC Counsel contended that the plaintiffs failed to demonstrate actual or imminent injury from the NRC's inaction or delay in the Yucca Mountain license proceedings. Therefore, the Court should reject the petitioner's lawsuit.

7. On February 13<sup>th</sup> the petitioners (states of Washington and South Carolina, Nye County in Nevada, Aiken County in South Carolina, the Tri-City business leaders near the Hanford reservation in Washington, and the National Association of Regulatory Utility Commissioners) filed their brief with the with the U.S. Circuit Court of Appeals for the District of Columbia maintaining that the NRC reasonably delayed the Yucca Mountain license proceedings.
8. On February 13<sup>th</sup> the petitioners filed their reply brief on NRC's and Nevada's responses to their lawsuit with the U.S. Circuit Court of Appeals. The petitioners maintained that they have a right to the stepwise process as mandated by the Nuclear Waste Policy Act and that the injury is traceable to NRC. For the foregoing reasons the petitioners requested that the Court order the NRC to comply with the Nuclear Waste Policy Act and resume the Yucca Mountain license proceedings. On the same day the petitioners also filed an addendum to their brief with the Court. The addendum listed the applicable statutes that support their contentions against the NRC and its Chairman.
9. On February 13<sup>th</sup> the U.S. Court of Appeals for the District of Columbia Circuit issued an order allowing Nevada to supplement the record. Nevada is an intervenor in the lawsuit against the NRC that was filed by the petitioners (Aiken County in South Carolina, Nye County in Nevada, the states of South Carolina and Washington, the business leaders near the Hanford site in Washington, and the National Association of Regulatory Utility Commissioners) who alleged the NRC unreasonably delayed the Yucca Mountain licensing proceedings.
10. On March 7<sup>th</sup> Nye County in Nevada, Aiken County in South Carolina, the states of South Carolina and Washington, and the National Association of Regulatory Utility Commissioners filed a petition for review with the U.S. Court of Appeals for the District of Columbia Circuit "for protective purposes in the event this Court does not resolve all of the issues on the merits" before the Court. Oral arguments on the case have been scheduled for May 2<sup>nd</sup>.
11. On March 16<sup>th</sup> the U.S. Court of Appeals heard oral arguments on the lawsuits from the states of Connecticut, New York, Vermont, and environmental groups over the NRC's revised Waste Confidence Rule extending on-site storage of used nuclear fuel out to 120 years. The states maintained that the NRC cannot revise their Waste Confidence Rule for that length of time without performing an Environmental Impact Statement as mandated by the National Environmental Policy Act of 1969. The three judge panel expressed skepticism over how the NRC has dealt with issues regarding the potential environmental impact of storing spent nuclear fuel at sites around the country. The NRC argued that a national repository will be constructed within the next 60 years. The Chief Judge told the NRC lawyer, "We don't owe any deference to your political predictions."
12. On April 6<sup>th</sup> the Senior Counsel from the Attorney General's Office of the State of Washington sent a letter to the Clerk of the U.S. Court of Appeals for the D.C. Circuit supplementing additional information on their petition to compel the NRC to reopen and complete the license application review of the Yucca Mountain repository.
13. On April 17<sup>th</sup> the U.S. Court of Appeals for the District of Columbia Circuit issued an Order prescribing the allotted times for the oral arguments for the lawsuit filed by the petitioners (the states of Washington and South Carolina, Aiken County in South Carolina, Nye County in Nevada, and the National Association of Regulatory Utility Commissioners) against the NRC. The oral arguments were slated for May 2<sup>nd</sup>.
14. On April 17<sup>th</sup> NRC's Senior Attorney sent a letter to the Clerk of the Court of Appeals for the D.C. Circuit responding to the petitioners' letter dated April 6<sup>th</sup> on their lawsuit against the NRC for terminating the Yucca Mountain license proceedings. The letter clarified the NRC's perspective and

took exception to the characterization portrayed in the April 6<sup>th</sup>'s letter. Oral arguments were scheduled for May 2<sup>nd</sup>.

15. On April 20<sup>th</sup> the U.S. Court of Appeals for the District of Columbia Circuit heard oral arguments from the petitioners (National Association of Regulatory Utility Commissioners and the Nuclear Energy Institute) and the respondent (DOE). The DOE was represented by the Department of Justice (DOJ). Two of the three judges seemed sympathetic to the petitioners. The tribunal questioned why the DOE, with a Nuclear Waste Fund balance in excess of \$26 billion, was collecting fees for a "program that isn't doing much". When the DOJ counsel argued that the DOE fee assessment was according to the Nuclear Waste Policy Act, one of the judges countered by asking "How can anybody say this is a reasonable interpretation of the statute?" The judge went on to say that the government's assertion was "phonier than a four dollar bill". Legal analysts conjectured that the Court will most likely remand the case back to DOE for Energy Secretary Chu to explain why DOE believes it can continue collecting fees despite no national waste program. If the Secretary's arguments are not convincing, then it is likely the Court will terminate the fees.
16. On May 2<sup>nd</sup> the U.S. Court of Appeals for the District of Columbia Circuit heard oral arguments on why the Court should force the NRC to complete its licensing review of the DOE's Yucca Mountain license application. In its briefs the NRC had cited a lack of funds besides budgetary limitations imposed by Congress in suspending its consideration of the Yucca Mountain Project. However, at the hearing the Court was appraised that the NRC's still had \$10.4 million in unspent funds for the Yucca Mountain licensing review. After hearing oral arguments the Court of Appeals for the D.C. Circuit issued an Order inviting the DOJ to file a brief by June 1<sup>st</sup> expressing its views as to whether the Court should order the NRC to reopen its suspended licensing proceedings on DOE's Yucca Mountain license application. The NRC would be given the opportunity to respond to the DOJ's brief by June 8<sup>th</sup> with petitioners allowed until June 15<sup>th</sup> to respond to both briefs.
17. On May 9<sup>th</sup> the Attorney General's Office from the State of Washington sent a letter to the Clerk for the U.S. Court of Appeals for the DC Circuit providing supporting documentation of at least \$18 million remained in DOE's funds to support NRC's resumption of the Yucca Mountain licensing proceedings. The documentation supported that at least \$18 million was unobligated and available. The Attorney General's letter alluded to the possibility that more funds were available. Copies of the letter and its supporting documentation are attached.
18. On May 16<sup>th</sup> the DOJ filed with the U.S. Court of Appeals for the D.C. Circuit a motion for a 21 day extension in which to file its response to the May 2<sup>nd</sup> Court Order on the mandamus case. The motion provided justification for the extension. On the same day the petitioners in the mandamus case against the federal government filed with the D.C. Circuit its opposition to the 21 day extension.
19. On May 18<sup>th</sup> the U.S. Court of Appeals for the Federal Circuit upheld an earlier U. S. Federal Court of Claims' decision to award the three Yankee Companies (Yankee Atomic in Massachusetts, Connecticut Yankee and Maine Yankee) \$142 million in damages for the federal government's breach of agreements to take possession of the spent nuclear fuel starting in 1998. In addition, the Appeals Court reversed an earlier ruling by the Claims Court that disallowed Yankee Atomic's wet pool costs for the years 2000 and 2001. The reversal raised Yankee Atomic's initial award from \$32 million to \$49 million.
20. On May 18<sup>th</sup> The Yankee Companies of Maine Yankee, Connecticut Yankee, and Yankee Atomic in Rowe Massachusetts issued a statement in regards to the favorable U.S. Court of Appeals ruling on the combined lawsuits of the three Yankee companies. The ruling affirmed the Federal Court of

Claims award of over \$39 million for Connecticut Yankee, nearly \$82 million for Maine Yankee and actually increased Yankee Atomic's award from \$21 million to \$38 million. Wayne Norton, Chief Nuclear Officer for Maine Yankee urged "the federal government to fulfill its commitment to remove the spent nuclear fuel.....and to stop pursuing a strategy of filing costly appeals that are not beneficial to ratepayers or taxpayers".

21. On May 21<sup>st</sup> the U.S. Court of Appeals granted a 21 day extension to the Department of Justice to file a brief on the mandamus request to compel the federal government to continue the licensing proceedings before the NRC. Appropriate time was also set aside for NRC and the petitioners to respond.
22. On June 1<sup>st</sup> the U.S. Court of Appeals rendered their decision on the lawsuit brought on by the National Association of Regulatory Utility Commissioners (NARUC) against the DOE over the Nuclear Waste Fund fee maintained by DOE for managing the nation's nuclear waste. NARUC contended that the November 2010 fee determination performed by the Secretary of Energy claiming that there was no basis for suspending or adjusting annual fees collected from nuclear utilities totaling \$750 million a year, not including interest, especially after the DOE terminated the Yucca Mountain Project, was invalid and the fees should be suspended. The Court agreed with the petitioner and concluded that the Secretary failed to perform a valid evaluation, but did not order the suspension of the fee. Instead, the Court directed the Secretary to comply with the Nuclear Waste Policy Act and render an appropriate fee determination within six months. The Court acknowledged that the DOE is prone to delays and, therefore, retained jurisdiction over the case.
23. On June 7<sup>th</sup> NARUC filed a motion with the U.S. Court of Appeals for the D.C. Circuit to vacate its six month Order to DOE to comply with the Nuclear Waste Policy Act by providing a revised fee determination and requested that the mandate for fee suspension be issued immediately. The petitioner raised concerns that the DOE may seek further delays and not meet the six month deadline imposed by the Court and add further delays to its fee determination.
24. On June 8<sup>th</sup> the U.S. Court of Appeals for the District of Columbia Circuit issued its decision that NRC failed its obligations under the National Environmental Policy Act by not performing a more thorough analysis than what its Waste Confidence Decision Update provided. The Court noted that the Commission did not evaluate the long term consequences of storing spent fuel if a repository was never built as opposed to the Commission's position in its Waste Confidence Update wishing that one will be available when needed. In addition, the Court further decreed that the Commission failed to properly examine the future risks of leaks from spent fuel pools and the potential consequences of pool fires. On the same day the Court also Ordered that the Clerk withhold the issuance of the Court Order pending any petition for rehearing.
25. On June 21<sup>st</sup> DOE filed with the U.S. Court of Appeals for the D.C. Circuit its response to NARUC's June 7<sup>th</sup> motion to expedite the mandate on the Nuclear Waste Fund fee determination. The respondents requested that the motion be denied on the grounds that the June 7<sup>th</sup> motion violated the Federal Rules of Appellate Procedure.
26. On June 22<sup>nd</sup> DOJ filed an amicus curiae (friend of the court) with the U.S. Court of Appeals for the D.C. Circuit as Ordered by the Court of Appeals in its May 2<sup>nd</sup> deliberation of the case against NRC's cessation of the Yucca Mountain project and the Court's May 21<sup>st</sup> Order granting the Justice Department a 21 day extension in responding to its May 2<sup>nd</sup> Order. The Justice Department argued that the case against the NRC should be denied based on the petitioners lack of standing in the case, limited funding available for the NRC as well as the DOE, and general appropriations cannot be

used to fund the Yucca Mountain licensing proceedings unless specifically directed to do so by Congress.

27. On June 29<sup>th</sup>, in compliance with the D.C. Circuit Court of Appeals May 21<sup>st</sup> Order, NRC responded to the Justice Department's amicus curiae brief. The NRC agreed with the Justice's position on all its major contentions as to why the writ of mandamus sought by the petitioners should be denied.
28. On July 6<sup>th</sup> the states of South Carolina and Washington, Aiken County in South Carolina, Nye County in Nevada, the tri-city business leaders from the Hanford area in the state of Washington, and the National Association of Regulatory Utility Commissioners filed with the U.S. Court of Appeals for the District of Columbia their response to the briefs submitted by the NRC and the DOJ on the petitioner's lawsuit that the NRC unreasonably delayed their decision to rule on their Atomic and Safety Licensing Board decision to deny the DOE's motion to withdraw their license application for the Yucca Mountain repository. The petitioners requested the Court to order the NRC to resume their licensing proceedings on the Yucca Mountain construction application.
29. On August 3<sup>rd</sup> the U.S. Court of Appeals for the District of Columbia Circuit issued an Order to hold in abeyance its final decision until December 14<sup>th</sup> on the petition to compel the NRC to reopen its licensing proceedings on the Yucca Mountain nuclear waste repository in Nevada. Two of the three judges agreed that the Nuclear Regulatory Commission was in noncompliance with the Nuclear Waste Policy Act. However, two of the three judges opted to wait for further clarification from pending congressional appropriation deliberations before issuing the Court's decision.
30. On August 3<sup>rd</sup> NARUC, NEI, and NWSC issued press releases expressing their disappointments at the DC Circuit Court of Appeals' decision in the mandamus case to hold in abeyance whether the NRC should be directed to resume its proceedings on the Yucca Mountain license application. All three believed the decision delays the inevitable.
31. On August 22<sup>nd</sup> the NRC failed to file a petition to the full 15 member U.S. Court of Appeals for the DC Circuit to challenge a June 8<sup>th</sup> landmark unanimous decision by a three judge Appellate Court panel on the NRC's Waste Confidence Rule. In June the NRC had asked the Court for time to petition the full Court. The August 7<sup>th</sup> Commission decision to order all future license renewals and new plant licenses held in abeyance was probably an early indication that the NRC would not appeal the Court's decision, but rather spend its energies on addressing the Court's ruling.
32. On September 27<sup>th</sup> Entergy Nuclear Palisades sued the federal government for \$100 million for not taking possession and disposing of its used nuclear fuel at its two Michigan plants, Palisades and Big Rock Point. The Big Rock Point site is full decommissioned. Entergy's lawsuit was the latest legal challenge on the federal government's failure to create a centralized disposal location for used nuclear fuel. With this latest filing all of Entergy's nine nuclear stations have filed suit against the U.S. government.
33. On September 28<sup>th</sup> the petitioners (Aiken County, South Carolina, the three business leaders from the Tri-City area of Hanford Washington, the states of South Carolina and Washington, the National Association of Regulatory Utility Commissioners, and Nye County, Nevada) filed its status report with the U.S. Court of Appeals for the District of Columbia on the mandamus case to compel the Nuclear Regulatory Commission to resume the license proceedings on Yucca Mountain geologic repository. In August the Court ordered the case to be held in abeyance pending congressional deliberations on Fiscal Year 2013 appropriations. The petitioners pointed out that the House and Senate had passed and President Obama signed into law a continuing resolution that did not contain

any specific text relevant to the case. Consequently, the petitioners requested that the Court issue the writ of mandamus.

34. On October 9<sup>th</sup> the NRC filed with the U.S. Court of Appeals for the District of Columbia Circuit its response to the petitioners September 28<sup>th</sup> request for the Court to immediately issue the Writ of Mandamus compelling the NRC to reopen the Yucca Mountain licensing proceedings in light of Congress' Continuing Resolution to keep the federal government open. The NRC noted that Congress will not adjourn until December 14, 2012, the day the Court said it would rule, and that there were presently four legislative proposals outstanding before Congress that could impact the appropriations process. On the same day the State of Nevada also filed its intervenor response to the Court on the petitioner's status report. Nevada disagreed with the petitioners' contentions on the meaning of the Continuing Resolution adopted by Congress to keep the government operating and requested that the Court continue to hold its ruling in abeyance until December 14<sup>th</sup>.
35. On October 12<sup>th</sup> the petitioners (Aiken County, South Carolina, the Tri-City Business Leaders from Washington State, the states of South Carolina and Washington, the National Association of Regulatory Utility Commissioners, and Nye County, Nevada) filed a supplemental status report with the D.C. Court of Appeals. The supplement rebutted the arguments presented by the NRC and the State of Nevada in their October 9<sup>th</sup> filings with the D.C. Court and again requested that the mandamus be issued immediately.
36. On December 5<sup>th</sup> the NRC filed a motion with the U.S. Court of Appeals District of Columbia Circuit for an extension of time until January 4, 2013, to file its status report that is due December 14<sup>th</sup> on the Fiscal Year 2013 appropriations. The Court issued an Order on August 3<sup>rd</sup> presuming that Congress and the President would resolve the issue of the Yucca Mountain licensing proceedings by providing either funding or direction on how the NRC should use their remaining funds on the Yucca Mountain case. The motion was made to accommodate a medical emergency as the lead counsel for the NRC was expected to undergo open heart surgery on December 6<sup>th</sup> and would not be available for some time. In addition, budgetary discussions between Congress and the President over the fiscal cliff crisis would continue until the end of the year. The State of Nevada did not oppose the filing.
37. On December 6<sup>th</sup> the petitioners filed their opposition to the NRC motion with the D.C. Circuit Court of Appeals contending that the other three counsels on this case could easily file a status report by the originally imposed deadline of December 14<sup>th</sup>. The petitioners further contended that they expected no further budgetary discussions on Yucca Mountain since a continuing resolution was signed into law by President Obama extending the budget until March 27, 2013 and provided no further clarity on funding or direction on how the NRC should expend its remaining Yucca Mountain funds.
38. On December 12<sup>th</sup> the U.S. Court of Appeals for the DC Circuit agreed that the Nuclear Regulatory Commission could extend the deadline to file a status report to January 4, 2013. The three judge panel was weighing a lawsuit that charges the NRC illegally halted in 2010 its consideration of a license for the proposed Yucca Mountain nuclear waste repository. The plaintiffs in the case are seeking a court order for the agency to complete its studies of the site.

## Appendix H

### Other Stakeholder and Interested Party Responses

1. On January 9<sup>th</sup> the U.S. Nuclear Waste Technical Review Board held its winter Board meeting in Arlington, Virginia. The Board heard presentations principally from the Department of Energy's Office of Nuclear Energy, Office of Environmental Management, Fuel Cycle Research and Development, Used Fuel Disposition Program, and Disposal Operations. There were two additional presentations, one from Idaho National Laboratory and one from Sandia National Laboratory.
2. On March 7<sup>th</sup> the U.S. Nuclear Waste Technical Review Board held a meeting in Albuquerque, New Mexico, to receive presentations on the Blue Ribbon Commission's recommendations, an update of the Department of Energy's (DOE) Used Fuel Disposition Program's activities including repository site selection criteria, the Nuclear Regulatory Commission's report on the content of the DOE's Yucca Mountain license application, performance models for geologic media, research associated with engineered barrier systems, deep borehole disposal, and permeability and fluid flow in the Earth's upper crust.
3. On April 4<sup>th</sup> the Nuclear Waste Strategy Coalition held a conference call to update its membership on legislation for the Harbor Maintenance Trust Fund. The Fund was established to recover operation and maintenance costs at U.S. coastal and Great Lakes harbors from maritime shippers. Taxes assessed to the shippers are deposited into the Fund account from which Congress appropriates funds for harbor dredging. Despite a large surplus in the trust fund, the busiest U.S. harbors are presently under-maintained with 59 of the nation's busiest ports available less than 35% of the time, which increases the cost of shipping. New legislation was introduced to ensure that the funds in the account are used for their intended purpose instead of being diverted to balance the federal budget. Ironically, the Nuclear Waste Fund (NWF) is set up very similar to the Harbor Maintenance Trust Fund in that Congress appropriates funds from the NWF account based on a fee assessed on nuclear utility generators. As in the Harbor Fund, a very large surplus exists in the NWF (over \$26 billion) with the surplus being used to balance the federal budget. Therefore, there appeared to be an opportunity to seize on the plight of the Harbor Fund as a bridge for the NWF issues. The Harbor Trust Fund was finding traction in the House with over 200 members supporting it. Since most of the 200 members were also supportive of the Yucca Mountain repository, it appeared very beneficial to discuss the NWF issues with those House members and see if enough support could be mounted to tack on an amendment to the existing Harbor Maintenance Trust Fund legislation or craft a similar bill for the NWF.
4. On April 11<sup>th</sup> the National Association of Regulatory Utility Commissioners sent a letter to the Acting Director of the Office of Management and Budget highlighting the steps DOE initiated to support the President's position to terminate the Yucca Mountain Project. The letter also outlined the efforts of the BRC Co-Chairs who sent a letter to the President expressing their sentiments that all the efforts and recommendations of the Commission are for naught if the issue of the nuclear funding was not addressed immediately. The letter further expressed disappointment over the President's Budget not requesting any funding to fix the nation's nuclear waste program by implementing the BRC's recommendations.
5. On May 4<sup>th</sup> the Northeast High-Level Radioactive Waste Transportation Project was notified by the Department of Energy that it had received a four year, \$900,000 grant to work on the Nuclear Waste Policy Act transportation provisions and related areas of the BRC's Report recommendations. The

Energy Department grant was in response to one of the BRC's recommendations to resume funding for state and regional groups to continue their transportation and infrastructure assessment efforts. Those efforts were abruptly terminated when the Administration ceased its funding for the Yucca Mountain repository in Nevada.

6. On May 8<sup>th</sup> the Nuclear Energy Institute held its annual "Used Fuel Management Conference" in St. Petersburg, Florida. The three conference featured presentations on such topics as cask loading operating experience and lessons learned, regulatory improvements to Certificates of Compliance for casks, security for storage and transportation, assuring the transportability of used fuel, the regulatory aspects of long-term used fuel management, Fukushima-driven requirements for spent fuel safety, spent fuel pool criticality analysis, and technical issues associated with extended storage and transportation.
7. On October 10<sup>th</sup>-11<sup>th</sup> the Western Interstate Energy Board's High-Level Waste Committee held a meeting in Denver on the status of the nation's nuclear waste program. They reviewed the Blue Ribbon Commission's findings and recommendations; the current outstanding federal court cases on waste confidence, the Nuclear Waste Fund fee assessment, and the writ of mandamus against the NRC; proposed legislation in Congress; NRC regulatory issues on extended storage and transportation, spent fuel transportation risk assessment and the waste confidence environmental impact statement; and the Department of Energy's initiatives. The meeting was largely spent reviewing the National Academy of Sciences' 2006 spent nuclear fuel/high-level waste recommendations pertinent to cask design and testing, cross-country transport, route assessment and selection, emergency response training, transportation security, and organizational structure.

# Appendix I

## Notable Reports and Documents

1. On March 28<sup>th</sup> the Energy Communities Alliance released “A Community Handbook on Nuclear Energy: Understanding Nuclear Energy and Alternatives for the Future”. The handbook was designed to assist local communities in identifying and understanding the multitude of issues associated with hosting a nuclear facility and the role that local governments can play in the development of a nuclear facility in their community. The handbook outlined five general recommendations for local communities considering hosting a nuclear energy facility. Besides providing a historical context on the nation’s used nuclear fuel, in its 117 page publication four of the ten chapters contained information on the nuclear waste issue: regulating nuclear waste, nuclear waste disposal in the United States, permanent geologic disposal, and interim storage of waste. This handbook was not written by people that work for the nuclear industry, the federal government or anti- or pro-nuclear groups. Instead, it was written from the experience of local governments who host nuclear facilities, who have been and will be most impacted by any policies regarding nuclear energy development and nuclear waste management. The members are mayors, council members, commissioners, chairpersons, judges, city/county managers, economic development professionals, and others. They assisted in the development of this handbook and provided input into the realities of hosting such a facility, including the benefits and challenges.
2. On May 3<sup>rd</sup> the NRC issued for public comment a draft report entitled, “Identification and prioritization of the Technical Information Needs Affecting Potential Regulation of Extended storage and Transportation of Spent Nuclear Fuel”. In the 138 page report the NRC staff considered the performance of storage systems over a 300 year period following the discharge of the used nuclear fuel from a reactor. The staff identified the following degradation mechanisms as requiring top priority:
  - Stress corrosion cracking of the stainless steel canister body and welds,
  - The degradation of cask bolts through corrosion, embrittlement, stress corrosion cracking, and mechanical deterioration, and
  - Swelling of fuel pellets due to helium generated inside the pellet, and fuel rod pressurization due to internal mechanisms.
3. In May the NRC published a draft report for comment, entitled, “Spent Fuel Transportation Risk Assessment”. The report utilized improved analysis tools and techniques, improved data availability, and a reduction in the number of conservative assumptions to derive an estimate of the accident risk that is about 100,000 times lower than their 1977 final environmental statement on the transportation of radioactive material. The report listed nine findings, which reconfirmed that the radiological impacts from spent fuel transported in conformance to Nuclear Regulatory Commission regulations were low.
4. On June 25<sup>th</sup> the Nuclear Waste Repository Project Office of Nye County, Nevada commented on the NRC’s May 2012 report, entitled” Identification and Prioritization of the Technical Informational Needs Affecting Potential Regulation of Extended Storage and Transportation of Spent Nuclear Fuel”. The letter expressed agreement with the recent Court decision that vacated the NRC’s Waste Confidence Update, raised the issue of repackaging and retrievability of spent nuclear fuel since the current storage technology is predicated on Yucca Mountain as the repository, and suggested the necessity for technical, cost and impact studies on extended storage and repackaging

to include worker exposure and disposal of used containers. The letter listed nine specific comments on the NRC report.

5. On June 29<sup>th</sup> the Nuclear Energy Institute (NEI) sent a letter to the NRC commenting on its May 2012 report, entitled "Identification and Prioritization of the Technical Informational Needs Affecting Potential Regulation of Extended Storage and Transportation Of Spent Nuclear Fuel". Although the letter commented on the various parties producing similar efforts to the NRC, such as the Energy Department and the Electric Power Research Institute, the letter promoted three noteworthy areas for furthering the development of the technical basis for extended storage. They were NRC's methodology for identifying and prioritizing potential technical information needs, NRC's approach to identifying potential technical information needs, and the regulatory significance and potential impact on safety as key considerations for further research. While the NEI lauded these areas, it also provided further clarifications to enhance the process.
6. On June 29<sup>th</sup> the Nevada Agency for Nuclear Projects sent a letter to the Nuclear Regulatory Commission requesting an extension to the 60 day comment period published in the Federal Register. The request was based on the size and complexity of the report, the requirement to contract for outside expertise on some of the specific technical issues and assumptions, and research into why recent NRC studies on transportation were not included in the report's bibliography.
7. On August 13<sup>th</sup> economists at the Brattle Group` issued a report, entitled, "Centralized Dry Storage of Nuclear Fuel – Lessons for U.S. Policy from Industry Experience and Fukushima." Their study recommended that the federal government "restart a spent fuel handling program at one or more centralized interim storage facilities by 2020 to avoid adverse engineering and economic consequences. The report presented several assessments on how a new program beginning in 2020 with a removal capacity of 6,000 metric tons of uranium per year for ten years and a 3,000 metric ton pace per year thereafter would be able to allow full decommissioning of sites awaiting fuel removal, retiring all private storage facilities by 2030, and achieving about a 10% reduction in wet pool storage. However, delaying a new federal program by ten years would cost the industry about \$1.6 billion in increased storage costs, increased federal liability for compensation for lawsuits, and result in a failure to timely address some of the important lessons from Fukushima.
8. On August 15<sup>th</sup> the Government Accountability Office (GAO) issued a report, entitled, "Spent Nuclear Fuel – Accumulating Quantities at Commercial Reactors, present Storage and Other Challenges (GAO -12-797)." The GAO was asked to examine the amount of spent fuel expected to accumulate before it can be moved from nuclear reactor sites, the key risks posed by stored spent fuel and actions to help mitigate these risks, and key benefits and challenges of moving spent nuclear fuel out of wet storage and away from nuclear reactors. The study found that the amount of spent fuel will increase by 2,000 metric tons per year and likely double to 140,000 metric tons before it can be moved off-site, because storage or disposal facilities may take 15 to 40 years before they are ready to accept spent nuclear fuel. The key risk posed by spent nuclear fuel would be a release of radiation from a self-sustaining fire in a drained or partially drained spent fuel pool. Studies showed this low probability scenario could have high consequences such as widespread contamination, a significant increase in the probability of fatal cancers in the affected population, and the possibility of early fatalities. Mitigating procedures such as replacement water to respond to a loss of pool water from a terrorist attack or accident could help prevent a fire. Transferring spent fuel from wet to dry storage did offer several benefits such as safely storing spent fuel for decades and reducing the potential of a pool fire. As to challenges, transferring spent fuel from wet to dry storage was generally safe, but there were some risks to moving it and accelerating the transfer of spent fuel could increase those risks. The report noted that the Nuclear Regulatory Commission did not have a mechanism that allowed for easy identification and location of classified studies conducted over the

years and recommended establishing such a system to ensure that institutional knowledge was not lost.

9. On September 13<sup>th</sup> the Electric Power Research Institute (EPRI) released an update to its 2010 study on the “Impacts Associated with Transfer of Spent Nuclear Fuel from Spent Fuel Storage Pools to Dry Storage after five Years of Cooling, Revision 1.” The study was updated in response to the disaster at the Fukushima nuclear reactors. The earlier EPRI study looked at the benefits and risks of early movement toward dry storage. The study confirmed that there were operational trade-offs, such as higher radiation exposures to workers, and little real gain. Besides increasing the collective radiation dose to plant workers by nearly 2000 units, the early movement to dry cask storage could cost the nuclear industry upwards of \$4 billion and take as long as 10 to 15 years to accomplish.
10. On December 3<sup>rd</sup> the Leadership in Nuclear Energy Commission issued a progress report on policies the State of Idaho can adopt to “support and enhance the long-term viability and mission of the Idaho National Laboratory (INL) and the broader nuclear industry.” INL is the nation’s leading nuclear research laboratory and one of Idaho’s largest employers. Several subcommittees were created to address the following topic areas:
  - Safety and the Environment
  - Technology: Current and Future
  - Education and Workforce
  - Infrastructure
  - National and Global Landscape

The Commission report contained over sixty preliminary recommendations. The purpose of the progress report was to spur public comment on Idaho’s nuclear future. One of the recommendations would likely generate controversy as it called for a small interim storage facility for spent nuclear fuel. If adopted, it would require a revision to the 1995 landmark agreement with the federal government that capped the amount of nuclear waste in Idaho. The Governor had already expressed his unwillingness to renegotiate the 1995 agreement. The Commission must finalize its recommendations to the Governor by the end of January.

11. In December the Nevada Commission on Nuclear Projects overseeing the Yucca Mountain Project submitted to the Governor and the Legislature a 127 page report detailing the status of the Yucca Mountain licensing, the future of Yucca Mountain and their recommendations. The report expounded on the technical case against Yucca Mountain, the lessons learned from the Project, listed potential uses for the Yucca Mountain site and why some recommendations are not feasible. The report recommended the Governor and the Legislature maintain its strong opposition to the Yucca Mountain Project, urged Nevada’s congressional delegation seek full implementation of the BRC’s recommendations, and support the Agency for Nuclear Projects and Attorney General in intervening in NRC’s licensing proceedings for Yucca Mountain should they resume.

# Appendix J

## International Highlights

1. On January 6<sup>th</sup> the Electricite de France suspended the construction of a nuclear waste storage facility near Bugey, France in the French Alps, when the administrative tribunal of Lyon canceled the building permit for the facility.
2. On January 13<sup>th</sup> an article published in “The Globe and Mail” noted that nine communities in Canada are vying to host a geologic disposal facility for spent nuclear fuel. The towns are scattered across Saskatchewan and Ontario. Some are old mining and lumber towns, others native reserves and the remainder cottage enclaves. Three of the nine were identified, Hornepayne and Ignace in Ontario and Creighton in Saskatchewan. Many of the towns have shrinking populations and are in dire circumstances to boost their local economies. The article also mentioned that five other Canadian communities are considering joining the nine to host a repository.
3. On February 20<sup>th</sup> a cluster of municipalities in southwestern Ontario’s rural heartland expressed an interest in hosting Canada’s storage of its spent nuclear fuel. The towns of South Bruce, Huron-Kinloss, Brockton and Saugeen Shores have expressed an interest in becoming a host community. They are conveniently located near the Bruce nuclear generating station, the home of eight CANDU reactors. It will take seven to ten years before the site selection process narrows the field down to one site.
4. On February 21<sup>st</sup> Radio Prague reported that the Czech Radioactive Waste Depository Authority promised a financial incentive of 600,000 Czech crowns (about \$32,000) for each town or city that agreed to geological research for a deep nuclear waste repository within their territories. In addition, 0.03 crowns would be paid for each square meter that became part of the research area. However, municipalities were skeptical about the government’s “stance on nuclear power and the changing energy agenda”.
5. On February 23<sup>rd</sup> a subgroup of Japan’s Atomic Energy Commission concluded that direct disposal of spent nuclear fuel is less costly than reprocessing the used fuel for reuse. Although the subgroup stated that reprocessing would be an efficient means to use Japan’s limited uranium resources, the cost of direct disposal would be half of what would be needed to reprocess all of Japan’s spent fuel. The subgroup is in response to last year’s Fukushima reactor accidents and Japan’s nuclear power future.
6. On February 29<sup>th</sup> it was reported that sixteen organizations, including several universities in several European Union countries along with Westinghouse Electric Sweden would commence a four year project to recycle spent nuclear fuel. However, the project would be led by Sweden’s Royal Institute of Technology and would develop fuels that are uranium or plutonium nitrides and carbides as opposed to oxides. The new compounds could result in fuels that are 80% recyclable with a goal of 95% as compared to the current 1%. By decreasing the long-lived nuclear waste by a factor of nearly ten it potentially could decrease the size of a repository by the same amount.
7. On March 16<sup>th</sup> the town of Manitowadge in Ontario, Canada has joined the list of communities looking into the possibility for storing used nuclear fuel. However, the Town has not formally joined the process. The Town joined other communities in various stages of investigating the

feasibility of storing nuclear wastes, such as Ignace, Ear Falls, Schreiber, Nipigon, Wawa and Hornepayne. The town of Red Rock, which was in the program, was deemed by Canada's Nuclear Waste Management Organization as unlikely due to its unsuitable geologic formations. Manitowadge is located approximately 50 miles north of Lake Superior.

8. On March 25<sup>th</sup> the energy company Fennovoima and the nuclear waste disposal company Posiva clashed over Finland's underground nuclear waste disposal site. Fennovoima proposed a stake in the Olkiluoto nuclear waste site near Onkalo. However, Posiva rejected Fennovoima's proposal. The refusal may compel Fennovoima to construct its own waste disposal facility at a cost of about \$1.7 billion. If Posiva had allowed Fennovoima to share in the Onkalo site, it could have saved nearly \$400 million. Before deciding on other alternatives the parties were waiting for a nuclear waste working group report due at the end of the year that will provide recommendations on the number of nuclear waste disposal sites required for Finland.
9. On June 13<sup>th</sup> an international review team, commissioned by the Swedish Government, reviewed the Swedish Nuclear Fuel and Waste Management Company's application to build a final repository for spent nuclear fuel at Fosmark. The international team concluded that the company's analysis met all the safety requirements for the licensing process. The team, which has been reviewing the application for over a year, also pointed out additional opportunities for research to further strengthen the confidence in the findings of the safety analysis.
10. On November 30<sup>th</sup> Germany's Environmental Minister stated that exploration work on turning the temporary nuclear waste storage facility at Gorleben into a permanent facility will be halted until next year's federal elections. Since 1977 various German governments have tried to make Gorleben a permanent, used nuclear fuel storage facility. With considerable public resistance opposing the storage of spent nuclear fuel in the Gorleben salt mines, politicians recently agreed to start fresh talks on finding a permanent storage site and stop the continuing debate on the suitability of the Gorleben site. The European news was reminiscent of the Yucca Mountain debate and the formation of the Blue Ribbon Commission in the United States.
11. On December 28<sup>th</sup> Posiva Oy, a firm jointly owned by the Finnish utilities TVO and Fortum, submitted a construction license application to Finland's Ministry of Employment and the Economy for a final Finnish repository for spent nuclear fuel. The facility will be built at Olkiluoto in Eurakjoki, Finland. The construction application is based on more than 30 years of research and will include an above ground encapsulation plant and an underground final repository 1300 to 1500 feet deep. The application process will require input from several ministries, authorities, organizations, a safety assessment from the Finnish Radiation and Nuclear Safety Authority and a public consultation before it is submitted to the government in late 2014 for a final decision. If the construction application and an operating license are approved, final disposal could start in 2020.

# Appendix K

## Nuclear Waste Fund Balance

### RATEPAYER PAYMENTS BY STATE THROUGH 9-30-10 (MILLIONS OF DOLLARS)

| STATE           | PAYMENTS                    | RETURN ON                    | TOTAL           | DEBT*          | FUND ASSETS**   |
|-----------------|-----------------------------|------------------------------|-----------------|----------------|-----------------|
|                 | 1 mill/kwh,<br>One Time+Int | INVESTMENTS<br>as of 9/30/10 | (PAY+RETURN)    |                | (TOTAL + DEBT)  |
| AL              | 533.9                       | 425.7                        | 959.6           | 0.0            | 959.6           |
| AR              | 358.2                       | 285.6                        | 643.8           | 175.6          | 819.4           |
| AZ              | 266.3                       | 212.4                        | 478.7           | 0.0            | 478.7           |
| CA              | 1,020.3                     | 813.6                        | 1,833.9         | 0.0            | 1,833.9         |
| CO              | 0.2                         | 0.2                          | 0.4             | 0.0            | 0.4             |
| CT              | 295.9                       | 236.0                        | 531.9           | 358.5          | 890.4           |
| DE              | 46.6                        | 37.2                         | 83.8            | 0.0            | 83.8            |
| FL              | 842.4                       | 671.8                        | 1,514.2         | 0.0            | 1,514.2         |
| GA              | 685.5                       | 546.6                        | 1,232.1         | 0.0            | 1,232.1         |
| IA              | 249.4                       | 198.9                        | 448.3           | 45.1           | 493.4           |
| IL              | 1,880.1                     | 1,499.2                      | 3,379.3         | 972.6          | 4,351.9         |
| IN              | 252.1                       | 201.0                        | 453.1           | 229.9          | 683.0           |
| KS              | 133.3                       | 106.3                        | 239.6           | 0.0            | 239.6           |
| KY              | 152.1                       | 121.3                        | 273.4           | 0.0            | 273.4           |
| LA              | 324.2                       | 258.5                        | 582.7           | 0.0            | 582.7           |
| MA              | 356.1                       | 284.0                        | 640.1           | 163.4          | 803.5           |
| MD              | 390.6                       | 311.5                        | 702.1           | 0.0            | 702.1           |
| ME              | 48.5                        | 38.7                         | 87.2            | 116.9          | 204.1           |
| MI              | 314.2                       | 250.6                        | 564.8           | 198.2          | 763.0           |
| MN              | 316.6                       | 252.5                        | 569.1           | 0.0            | 569.1           |
| MO              | 250.7                       | 199.9                        | 450.6           | 5.1            | 455.7           |
| MS              | 161.7                       | 128.9                        | 290.6           | 0.0            | 290.6           |
| NC              | 1,538.0                     | 1,226.4                      | 2,764.4         | 0.0            | 2,764.4         |
| ND              | 18.0                        | 14.4                         | 32.4            | 0.0            | 32.4            |
| NE              | 190.0                       | 151.5                        | 341.5           | 0.0            | 341.5           |
| NH              | 82.2                        | 65.5                         | 147.7           | 23.8           | 171.5           |
| NJ              | 732.3                       | 584.0                        | 1,316.3         | 196.8          | 1,513.1         |
| NM              | 77.4                        | 61.7                         | 139.1           | 0.0            | 139.1           |
| NY              | 850.8                       | 678.4                        | 1,529.2         | 505.3          | 2,034.5         |
| OH              | 461.9                       | 368.3                        | 830.2           | 32.6           | 862.8           |
| OR              | 75.1                        | 59.9                         | 135.0           | 0.0            | 135.0           |
| PA              | 1,378.3                     | 1,099.1                      | 2,477.4         | 66.6           | 2,544.0         |
| RI              | 5.3                         | 4.2                          | 9.5             | 6.1            | 15.6            |
| SC              | 689.4                       | 549.7                        | 1,239.1         | 0.0            | 1,239.1         |
| SD              | 7.1                         | 5.7                          | 12.8            | 0.0            | 12.8            |
| TN              | 580.1                       | 462.6                        | 1,042.7         | 0.0            | 1,042.7         |
| TX              | 801.1                       | 638.8                        | 1,439.9         | 0.0            | 1,439.9         |
| VA              | 698.9                       | 557.3                        | 1,256.2         | 0.0            | 1,256.2         |
| VT              | 100.2                       | 79.9                         | 180.1           | 141.6          | 321.7           |
| WA              | 170.6                       | 136.0                        | 306.6           | 0.0            | 306.6           |
| WI              | 428.2                       | 341.5                        | 769.7           | 0.0            | 769.7           |
| <b>SUBTOTAL</b> | <b>17,763.8</b>             | <b>14,165.3</b>              | <b>31,929.1</b> | <b>3,238.1</b> | <b>35,167.2</b> |
| FEDERAL         | 19.8                        | 15.8                         | 35.6            | 0.0            | 35.6            |
| INDUSTRY        | 16.8                        | 13.4                         | 30.2            | 0.0            | 30.2            |
| <b>TOTAL</b>    | <b>17,800.4</b>             | <b>14,194.5</b>              | <b>31,994.9</b> | <b>3,238.1</b> | <b>35,233.0</b> |

\* Funds owed for fuel burned before 1983 but not yet paid by utilities (as allowed by DOE contract)

\*\* before withdrawals for expenditures by DOE

Prepared by Ron Howe, Michigan Public Service Commission, 517-241-6021, howe@michigan.gov

# Appendix L

## Blue Ribbon Commission's Report - Executive Summary

BLUE RIBBON COMMISSION ON AMERICA'S NUCLEAR FUTURE



# Report to the Secretary of Energy

JANUARY 2012



BLUE RIBBON COMMISSION  
ON AMERICA'S NUCLEAR FUTURE

## PREAMBLE

The Blue Ribbon Commission on America's Nuclear Future (BRC) was formed by the Secretary of Energy at the request of the President to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle and recommend a new strategy. It was co-chaired by Rep. Lee H. Hamilton and Gen. Brent Scowcroft. Other Commissioners are Mr. Mark H. Ayers, the Hon. Vicky A. Bailey, Dr. Albert Carnesale, Sen. Pete Domenici, Ms. Susan Eisenhower, Sen. Chuck Hagel, Mr. Jonathan Lash, Dr. Allison M. Macfarlane, Dr. Richard A. Meserve, Dr. Ernest J. Moniz, Dr. Per Peterson, Mr. John Rowe, and Rep. Phil Sharp.

The Commission and its subcommittees met more than two dozen times between March 2010 and January 2012 to hear testimony from experts and stakeholders, to visit nuclear waste management facilities in the United States and abroad, and to discuss the issues identified in its Charter. Additionally, in September and October 2011, the Commission held five public meetings, in different regions of the country, to hear feedback on its draft report. A wide variety of organizations, interest groups, and individuals provided input to the Commission at these meetings and through the submission of written materials. Copies of all of these submissions, along with records and transcripts of past meetings, are available at the BRC website ([www.brc.gov](http://www.brc.gov)).

This report highlights the Commission's findings and conclusions and presents recommendations for consideration by the Administration and Congress, as well as interested state, tribal and local governments, other stakeholders, and the public.

**BLUE RIBBON COMMISSION**  
**ON AMERICA'S NUCLEAR FUTURE**

January 26, 2012

The Honorable Dr. Steven Chu  
Secretary of Energy  
U.S. Department of Energy  
1000 Independence Ave., SW  
Washington, DC 20585

Dear Secretary Chu:

At the direction of the President, you charged the Blue Ribbon Commission on America's Nuclear Future with reviewing policies for managing the back end of the nuclear fuel cycle and recommending a new plan. We thank you for choosing us to serve on the Commission.

We approached our task from different perspectives but with a shared sense of urgency. Put simply, this nation's failure to come to grips with the nuclear waste issue has already proved damaging and costly. It will be even more damaging and more costly the longer it continues: damaging to prospects for maintaining a potentially important energy supply option for the future, damaging to state-federal relations and public confidence in the federal government's competence, and damaging to America's standing in the world—not only as a source of nuclear technology and policy expertise but as a leader on global issues of nuclear safety, non-proliferation, and security.

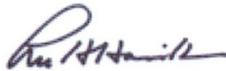
We have sought to ensure that our review is comprehensive, open and inclusive. Our Commission has heard from thousands of individuals and organizations on a wide range of issues through formal hearings, site visits, and written letters and comments submitted through the Commission web site. We have visited several communities across the country that have a keen interest in the matters before the Commission and have also visited a number of other countries to gain insights as to how the United States might proceed. We are indebted to the many people who have offered us their expertise, advice and guidance.

Attached for your consideration is the final report of our Commission. Our report includes recommendations covering topics such as the approach to siting future nuclear waste management facilities, the transport and storage of spent fuel and high-level waste, options for waste disposal, institutional arrangements for managing spent nuclear fuel and high-level wastes, reactor and fuel cycle technologies, and international considerations. We also make recommendations regarding critical changes needed in the handling of nuclear waste fees and of the Nuclear Waste Fund. The majority of these recommendations require action to be taken by the Administration and Congress, and offer what we believe is the best chance of success going forward, based on previous nuclear waste management experience in the U.S. and abroad. We urge that you promptly designate a senior official with sufficient authority to coordinate all of the DOE elements involved in the implementation of the Commission's recommendations.

You directed that the Commission was not to serve as a siting body. Accordingly, we have not evaluated Yucca Mountain or any other location as a potential site for the storage of spent nuclear fuel or disposal of high level waste, nor have we taken a position on the Administration's request to withdraw the Yucca Mountain license application. What we have endeavored to do is recommend a sound waste management approach that can lead to the resolution of the current impasse; an approach that neither includes nor excludes Yucca Mountain as an option for a repository and can and should be applied regardless of what site or sites are ultimately chosen to serve as the permanent disposal facility for America's spent nuclear fuel and other high-level nuclear wastes.

We are committed to seeing action taken on our recommendations because we believe it is long past time for the government to make good on its commitments to the American people to provide for the safe disposal of nuclear waste. This generation has an obligation to avoid burdening future generations with finding a safe permanent solution for nuclear wastes they had no part in creating, while also preserving their energy options. To that end we commit ourselves to provide whatever assistance you deem necessary as you consider how to act on the final recommendations of our Commission. Please do not hesitate to call on us at any time.

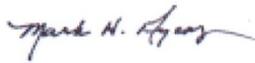
Respectfully submitted,



Lee H. Hamilton  
Co-Chairman



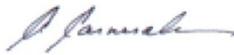
Brent Scowcroft  
Co-Chairman



Mark H. Ayers



Vicky A. Bailey



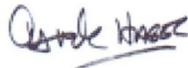
Albert Carnesale



Pete V. Domenici



Susan Eisenhower



Chuck Hagel



Jonathan Lash



Allison M. Macfarlane



Richard A. Meserve



Ernest J. Moniz



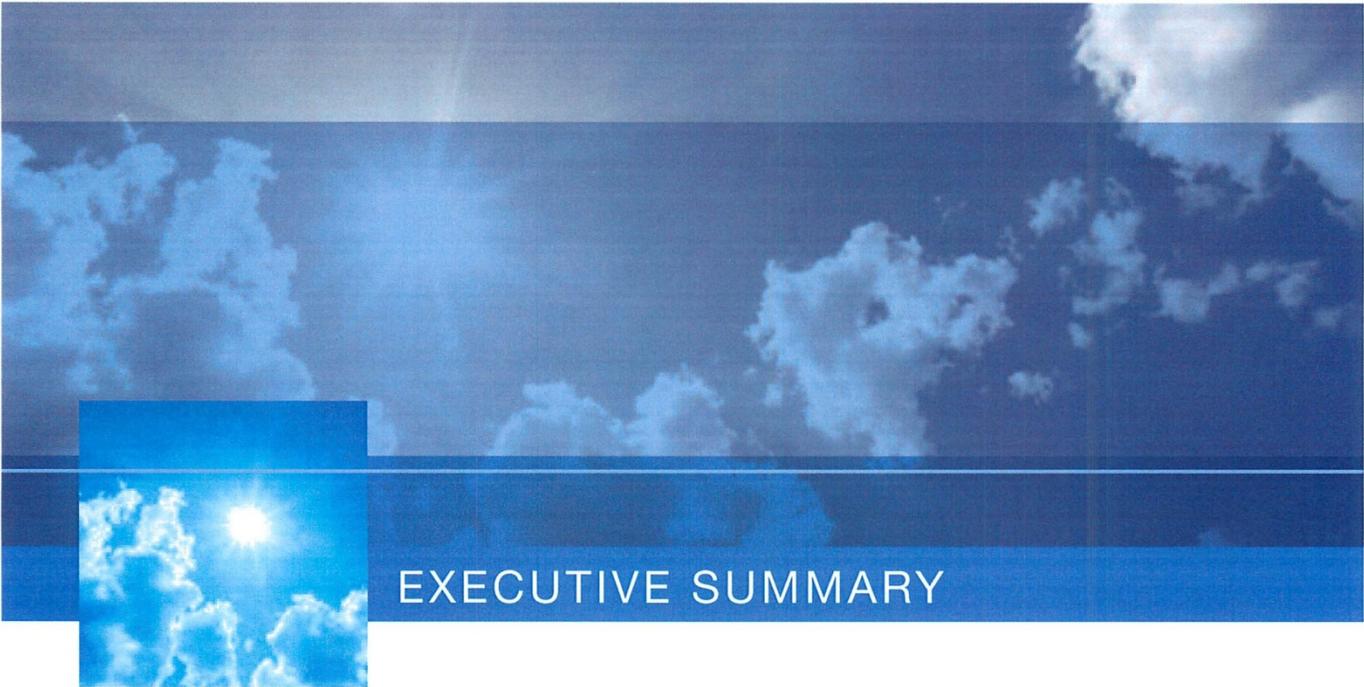
Per F. Peterson



John W. Rowe



Phil Sharp



## EXECUTIVE SUMMARY

# America's nuclear waste management program is at an impasse.

The Obama Administration's decision to halt work on a repository at Yucca Mountain in Nevada is but the latest indicator of a policy that has been troubled for decades and has now all but completely broken down. The approach laid out under the 1987 Amendments to the Nuclear Waste Policy Act (NWPA)—which tied the entire U.S. high-level waste management program to the fate of the Yucca Mountain site—has not worked to produce a timely solution for dealing with the nation's most hazardous radioactive materials. The United States has traveled nearly 25 years down the current path only to come to a point where continuing to rely on the same approach seems destined to bring further controversy, litigation, and protracted delay.

The Blue Ribbon Commission on America's Nuclear Future (the Commission) was chartered to recommend a new strategy for managing the back end of the nuclear fuel cycle. We approached this task from different perspectives but with a shared sense of urgency. Put simply, this nation's failure to come to grips with the nuclear waste issue has already proved damaging and costly and it will be more damaging and more costly the longer it continues: damaging to prospects for

maintaining a potentially important energy supply option for the future, damaging to state–federal relations and public confidence in the federal government's competence, and damaging to America's standing in the world—not only as a source of nuclear technology and policy expertise but as a leader on global issues of nuclear safety, non-proliferation, and security. Continued stalemate is also costly—to utility ratepayers, to communities that have become unwilling hosts of long-term nuclear waste storage facilities, and to U.S. taxpayers who face mounting liabilities, already running into billions of dollars, as a result of the failure by both the executive and legislative branches to meet federal waste management commitments.

The need for a new strategy is urgent, not just to address these damages and costs but because this generation has a fundamental ethical obligation to avoid burdening future generations with the entire task of finding a safe permanent solution for managing hazardous nuclear materials they had no part in creating. At the same time, we owe it to future generations to avoid foreclosing options wherever possible so that they can make choices—about the use of nuclear energy as a low-carbon energy resource and about the management

of the nuclear fuel cycle—based on emerging technologies and developments and their own best interests.

Almost exactly one year after the Commission was chartered and less than five months before our initial draft report was due, an unforeseen event added yet more urgency to our charge and brought the problem of nuclear waste into the public eye as never before. A massive earthquake off the northeastern coast of Japan and the devastating tsunami that followed set off a chain of problems at the Fukushima Daiichi nuclear power station that eventually led to the worst nuclear accident since Chernobyl. In the weeks of intense media coverage that followed, many Americans became newly aware of the presence of tens of thousands of tons of spent fuel at more than 70 nuclear power plant sites around this country—and of the fact that the United States currently has no physical capacity to do anything with this spent fuel other than to continue to leave it at the sites where it was first generated.<sup>1</sup>

The strategy we recommend in this report has eight key elements:

1. A new, consent-based approach to siting future nuclear waste management facilities.
2. A new organization dedicated solely to implementing the waste management program and empowered with the authority and resources to succeed.
3. Access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management.
4. Prompt efforts to develop one or more geologic disposal facilities.
5. Prompt efforts to develop one or more consolidated storage facilities.<sup>2</sup>
6. Prompt efforts to prepare for the eventual large-scale transport of spent nuclear fuel and high-level waste to consolidated storage and disposal facilities when such facilities become available.
7. Support for continued U.S. innovation in nuclear energy technology and for workforce development.
8. Active U.S. leadership in international efforts to address safety, waste management, non-proliferation, and security concerns.

The elements of this strategy will not be new to those who have followed the U.S. nuclear waste program over the years. All of them are necessary to establish a truly integrated national nuclear waste management system, to create the institutional leadership and wherewithal to get the job done, and to ensure

that the United States remains at the forefront of technology developments and international responses to evolving nuclear safety, non-proliferation, and security concerns.

A few general points about the Commission's proposed strategy are worth emphasizing before we discuss each of the above elements in greater detail. First is the issue of cost. In this time of acute concern about the federal budget deficit and high energy prices, we have been sensitive to the concern that our recommendations—particularly those that involve launching a new approach and a new organization for nuclear waste management—could add to the financial burden on the U.S. Treasury and on American taxpayers and utility ratepayers.<sup>3</sup> Certainly it will cost something to implement a successful U.S. waste management program; however, trying to implement a deeply flawed program is even more costly, for all the reasons already mentioned. In fact, U.S. ratepayers are *already* paying for waste disposal (through a fee collected on each kilowatt-hour of nuclear-generated electricity)—but the program they're paying for isn't working. Taxpayers are paying too—in the form of damage payments from the taxpayer-funded Judgment Fund to compensate utilities for the federal government's failure to meet its contractual waste acceptance commitments.

Overall, we are confident that our waste management recommendations can be implemented using revenue streams *already dedicated for this purpose* (in particular the Nuclear Waste Fund and fee). Other Commission recommendations—particularly those concerning nuclear technology programs and international policies—are broadly consistent with the program plans of the relevant agencies.

Another overarching point concerns timing and implementation. All of our recommendations are interconnected and will take time to implement fully, particularly since many elements of the strategy we propose require legislative action to amend the NWPA and other relevant laws (see text box).

Nevertheless, prompt action can and should be taken in several areas, without waiting for legislative action, to get the waste management program back on track. The last chapter of this report (chapter 13) identifies a number of concrete next steps; in addition, the text box on page ix of this Executive Summary lists several ways to get started on the specific task of siting new waste disposal and consolidated storage facilities.

Finally, there are several questions the Commission was not chartered to address. We have not:

- Rendered an opinion on the suitability of the Yucca Mountain site or on the request to withdraw the license

<sup>1</sup> "Spent fuel" is sometimes also referred to as "used fuel." The difference in terminology in fact reflects a profound policy issue as to whether the material should be seen as a waste or a resource. We use the term "spent fuel" in this report, but, as discussed in chapter 11, we believe it is premature to resolve that policy debate.

<sup>2</sup> As used in this report, the term "disposal" is understood to mean permanent disposal; the term "storage" is understood to mean storage for an interim period prior to disposal or other disposition.

<sup>3</sup> Most ratepayers are, of course, also taxpayers (and vice versa). For clarity, we refer to taxpayers and ratepayers as distinct groups here and in the main body of the report.

## PROPOSED LEGISLATIVE CHANGES

Fully implementing the Commission's recommendations will require several changes to the Nuclear Waste Policy Act or other legislation:

**Establishing a new facility siting process** – The NWPA, as amended in 1987, now provides only for the evaluation and licensing of a single repository site at Yucca Mountain, Nevada. The Act should be amended to authorize a new consent-based process to be used for selecting and evaluating sites and licensing consolidated storage and disposal facilities in the future, similar to the process established in the expired Nuclear Waste Negotiator provisions of the Act (but under new organizational leadership, as described below).

**Authorizing consolidated interim storage facilities** – The NWPA allows the government to construct one consolidated storage facility with limited capacity, but only after construction of a nuclear waste repository has been licensed. One or more consolidated storage facilities should be established, independent of the schedule for opening a repository. The Act should be modified to allow for a consent-based process to site, license, and construct multiple storage facilities with adequate capacity when needed and to clarify that nuclear waste fee payments can be used for this purpose.

**Broadening support to jurisdictions affected by transportation** – The NWPA provides funding and technical assistance for training public safety officials to states and tribes whose jurisdictions would be traversed by shipments of spent fuel to a storage or disposal facility. The Act should be amended to give the waste management organization the broader authorities given to DOE in the WIPP Land Withdrawal Act that supported the successful large-scale

transport of transuranic waste to WIPP (including a public information program, support for the acquisition of equipment to respond to transportation incidents, and broad assistance for other waste-related transportation safety programs).

**Establishing a new waste management organization** – Responsibility for implementing the nation's program for managing spent nuclear fuel and high-level radioactive wastes is currently assigned to the U.S. Department of Energy. Legislation will be needed to (1) move this responsibility to a new, independent, government-chartered corporation focused solely on carrying out that program and (2) establish the appropriate oversight mechanisms.

**Ensuring access to dedicated funding** – Current federal budget rules and laws make it impossible for the nuclear waste program to have assured access to the fees being collected from nuclear utilities and ratepayers to finance the commercial share of the waste program's expenses. We have recommended a partial remedy that should be implemented promptly by the Administration, working with the relevant congressional committees and the Congressional Budget Office. A long-term remedy requires legislation to provide access to the Nuclear Waste Fund and fees independent of the annual appropriations process but subject to rigorous independent financial and managerial oversight.

**Promoting international engagement to support safe and secure waste management** – Congress may need to provide policy direction and new legislation to implement some measures aimed at helping other countries manage radioactive wastes in a safe, secure, and proliferation-resistant manner, similar to the expired NWPA provisions for technical assistance to non-nuclear weapons states in the area of spent nuclear fuel storage and disposal.

application for Yucca Mountain. Instead, we focused on developing a sound strategy for future storage and disposal facilities and operations that we believe *can and should be implemented regardless of what happens with Yucca Mountain*.

- Proposed any specific site (or sites) for any component of the waste management system.
- Offered a judgment about the appropriate role of nuclear power in the nation's (or the world's) future energy supply mix.

These are all important questions that will engage policy-makers and the public in the years ahead. However, none of them alters the urgent need to change and improve our strategy for managing the high-level wastes and spent fuel that already exist and will continue to accumulate so long as nuclear reactors operate in this country. That is the focus of the Commission's work and of the specific recommendations that follow.

## 1. A NEW CONSENT-BASED APPROACH TO SITING

Siting storage or disposal facilities has been the most consistent and most intractable challenge for the U.S. nuclear waste management program. Of course, the first requirement in siting any facility centers on the ability to demonstrate adequate protection of public health and safety and the environment. Beyond this threshold criterion, finding sites where all affected units of government, including the host state or tribe, regional and local authorities, and the host community, are willing to support or at least accept a facility has proved exceptionally difficult. The erosion of trust in the federal government's nuclear waste management program has only made this challenge more difficult. And whenever one or more units of government are opposed, the odds of success drop greatly. The crux of the

challenge derives from a federal/state/tribal/local rights dilemma that is far from unique to the nuclear waste issue—no simple formula exists for resolving it. Experience in the United States and in other nations suggests that any attempt to force a top-down, federally mandated solution over the objections of a state or community—far from being more efficient—will take longer, cost more, and have lower odds of ultimate success.

By contrast, the approach we recommend is explicitly adaptive, staged, and consent-based. Based on a review of successful siting processes in the United States and abroad—including most notably the siting of a disposal facility for transuranic radioactive waste, the Waste Isolation Pilot Plant (WIPP) in New Mexico, and recent positive outcomes in Finland, France, Spain and Sweden—we believe this type of approach can provide the flexibility and sustain the public trust and confidence needed to see controversial facilities through to completion.

In practical terms, this means encouraging communities to volunteer to be considered to host a new nuclear waste management facility while also allowing for the waste management organization to approach communities that it believes can meet the siting requirements. Siting processes for waste management facilities should include a flexible and substantial incentive program.

The approach we recommend also recognizes that successful siting decisions are most likely to result from a complex and perhaps extended set of negotiations between the implementing organization and potentially affected state, tribal, and local governments, and other entities. It would be desirable for these negotiations to result in a partnership agreement or some other form of legally enforceable agreement with the organization to ensure that commitments to and by host states, tribes, and communities are upheld. All affected levels of government must have, at a minimum, a meaningful consultative role in important decisions; additionally, both host states and tribes should retain—or where appropriate, be delegated—direct authority over aspects of regulation, permitting, and operations where oversight below the federal level can be exercised effectively and in a way that is helpful in protecting the interests and gaining the confidence of affected communities and citizens. At the same time, host state, tribal and local governments have responsibilities to work productively with the federal government to help advance the national interest.

In this context, any process that is prescribed in detail up front is unlikely to work. Transparency, flexibility, patience, responsiveness, and a heavy emphasis on consultation and cooperation will all be necessary—indeed, these are attributes that should apply not just to siting but to every aspect of program implementation.

This discussion raises another issue highlighted in numerous comments to the BRC: the question of how to define “consent.” The Commission takes the view that this question ultimately has to be answered by a potential host jurisdiction, using whatever means and timing it sees fit. We believe a good gauge of consent would be the willingness of affected units of government – the host states, tribes, and local communities – to enter into legally binding agreements with the facility operator, where these agreements enable states, tribes, and communities to have confidence that they can protect the interests of their citizens.

All siting processes take time; however, an adaptive, staged approach may seem particularly slow and open-ended. This will be frustrating to stakeholders and to members of the public who are understandably anxious to know when they can expect to see results. The Commission shares this frustration—greater certainty and a quicker resolution would have been our preference also. Experience, however, leads us to conclude that there is no short-cut, and that any

## SITING NEW NUCLEAR WASTE MANAGEMENT FACILITIES – GETTING STARTED

*First, the Environmental Protection Agency and the Nuclear Regulatory Commission should develop a generic disposal standard and supporting regulatory requirements early in the siting process.* Generally-applicable regulations are more likely to earn public confidence than site-specific standards. In addition, having a generic standard will support the efficient consideration and examination of multiple sites.

*Once the new waste management organization is established it should:*

- **Develop a set of basic initial siting criteria** – These criteria will ensure that time is not wasted investigating sites that are clearly unsuitable or inappropriate.
- **Encourage expressions of interest from a large variety of communities that have potentially suitable sites** – As these communities become engaged in the process, the implementing organization must be flexible enough not to force the issue of consent while also being fully prepared to take advantage of promising opportunities when they arise.
- **Establish initial program milestones** – Milestones should be laid out in a mission plan to allow for review by Congress, the Administration, and stakeholders, and to provide verifiable indicators for oversight of the organization’s performance.

attempt to short-circuit the process will most likely lead to more delay. That said, we also believe that attention to process must not come at the expense of progress and we are sympathetic to the numerous comments we received asking us to include a more detailed and specific set of milestones in our final report. Obviously there is an inherent tension between recommending an adaptive, consent-based process and setting out deadlines or progress requirements in advance. But we agree that it will be important—without imposing inflexible deadlines—to set reasonable performance goals and milestones for major phases of program development and implementation so that Congress can hold the waste management organization accountable and so that stakeholders and the public can have confidence the program is moving forward. Other countries have taken this approach, in several cases identifying target timeframes, rather than specific dates for completing stages in their process. For example the implementing organization might consider a range of, say, 15 to 20 years to accomplish site identification and characterization and to conduct the licensing process for a geologic repository. A notional timeframe for siting and developing a consolidated storage facility would presumably be shorter, perhaps on the order of 5 to 10 years.

## 2. A NEW ORGANIZATION TO IMPLEMENT THE WASTE MANAGEMENT PROGRAM

The U.S. Department of Energy (DOE) and its predecessor agencies have had primary responsibility for implementing U.S. nuclear waste policy for more than 50 years. In that time, DOE has achieved some notable successes, as shown by the WIPP experience and recent improvements in waste cleanup performance at several DOE sites. The overall record of DOE and of the federal government as a whole, however, has not inspired widespread confidence or trust in our nation's nuclear waste management program. For this and other reasons, the Commission concludes that a new, single-purpose organization is needed to provide the stability, focus, and credibility that are essential to get the waste program back on track. We believe a congressionally chartered federal corporation offers the best model, but whatever the specific form of the new organization it must possess the attributes, independence, and resources to effectively carry out its mission.

The central task of the new organization would be to site, license, build, and operate facilities for the safe consolidated storage and final disposal of spent fuel and high-level nuclear waste at a reasonable cost and within a reasonable timeframe.

In addition, the new organization would be responsible for arranging for the safe transport of waste and spent fuel to or between storage and disposal facilities, and for undertaking applied research, development, and demonstration (RD&D) activities directly relevant to its waste management mission (e.g., testing the long-term performance of fuel in dry casks and during subsequent transportation).

For the new organization to succeed, a substantial degree of implementing authority and assured access to funds must be paired with rigorous financial, technical, and regulatory oversight by Congress and the appropriate government agencies. We recommend that the organization be directed by a board nominated by the President, confirmed by the Senate, and selected to represent a range of expertise and perspectives. Independent scientific and technical oversight of the nuclear waste management program is essential and should continue to be provided for out of nuclear waste fee payments. In addition, the presence of clearly independent, competent regulators is essential; we recommend the existing roles of the U.S. Environmental Protection Agency in establishing standards and the Nuclear Regulatory Commission (NRC) in licensing and regulating waste management facilities be preserved but that steps be taken to ensure ongoing cooperation and coordination between these agencies.

Late in our review we heard from several states that host DOE defense waste that they agree with the proposal to establish a new organization to manage civilian wastes, but believe the government can more effectively meet its commitments if responsibility for defense waste disposal remains with DOE. Others argued strongly that the current U.S. policy of commingling defense and civilian wastes should be retained. We are not in a position to comprehensively assess the implications of any actions that might affect DOE's compliance with its cleanup agreements, and we did not have the time or the resources necessary to thoroughly evaluate the many factors that must be considered by the Administration and Congress in making such a determination.<sup>4</sup> The Commission therefore urges the Administration to launch an immediate review of the implications of leaving responsibility for disposal of defense waste and other DOE-owned waste with DOE versus moving it to a new waste management organization. The implementation of other Commission recommendations, however, should not wait for the commingling issue to be resolved. Congressional and Administration efforts to implement our recommendations can and should proceed as expeditiously as possible.

<sup>4</sup> These factors should include (but not be limited to) those contained in section 8 of the NWPA; see detailed discussion in section 7.3 of this report.

### 3. ACCESS TO UTILITY WASTE DISPOSAL FEES FOR THEIR INTENDED PURPOSE

The 1982 NWPA created a “polluter pays” funding mechanism to ensure that the full costs of disposing of commercial spent fuel would be paid by utilities (and their ratepayers), with no impact on taxpayers or the federal budget. Nuclear utilities are assessed a fee on every kilowatt-hour of nuclear-generated electricity as a *quid pro quo* payment in exchange for the federal government’s contractual commitment to begin accepting commercial spent fuel by January 31, 1998. Fee revenues go to the government’s Nuclear Waste Fund, which was established for the sole purpose of covering the cost of disposing of civilian nuclear waste and ensuring that the waste program would not have to compete with other funding priorities. In contrast, costs for disposing of defense nuclear wastes are paid by taxpayers through appropriations from the Treasury.

The Fund does not work as intended. A series of executive branch and congressional actions has made annual fee revenues (approximately \$750 million per year) and the unspent \$27 billion balance in the Fund effectively inaccessible to the waste program. Instead, the waste program must compete for federal funding each year and is therefore subject to exactly the budget constraints and uncertainties that the Fund was created to avoid. This situation must be remedied to allow the program to succeed.

In the near term, the Administration should offer to amend DOE’s standard contract with nuclear utilities so that utilities remit only the portion of the annual fee that is appropriated for waste management each year and place the rest in a trust account, held by a qualified third-party institution, to be available when needed. At the same time, the Office of Management and Budget should work with the congressional budget committees and the Congressional Budget Office to change the budgetary treatment of annual fee receipts so that these receipts can directly offset appropriations for the waste program. These actions are urgent because they enable key subsequent actions the Commission recommends. Therefore, we urge the Administration to act promptly to implement these changes (preferably in fiscal year 2013). For the longer term, legislation is needed to transfer the unspent balance in the Fund to the new waste management organization so that it can carry out its civilian nuclear waste obligations independent of annual appropriations (but with congressional oversight)—similar to the budgeting authority now given to the Tennessee Valley Authority and Bonneville Power Administration.

We recognize that these actions mean no longer counting nuclear waste fee receipts against the federal budget deficit

and that the result will be a modest negative impact on annual budget calculations. The point here is that the federal government is contractually bound to use these funds to manage spent fuel. The bill **will** come due at some point. Meanwhile, failure to correct the funding problem does the federal budget no favors in a context where taxpayers remain liable for mounting damages, compensated through the Judgment Fund, for the federal government’s continued inability to deliver on its waste management obligations. These liabilities are already in the billions of dollars and could increase by hundreds of millions of dollars annually for each additional year of delay.

### 4. PROMPT EFFORTS TO DEVELOP A NEW GEOLOGIC DISPOSAL FACILITY

Deep geologic disposal capacity is an essential component of a comprehensive nuclear waste management system for the simple reason that very long-term isolation from the environment is the *only* responsible way to manage nuclear materials with a low probability of re-use, including defense and commercial reprocessing wastes and many forms of spent fuel currently in government hands. The conclusion that disposal is needed and that deep geologic disposal is the scientifically preferred approach has been reached by every expert panel that has looked at the issue and by every other country that is pursuing a nuclear waste management program.

Some commenters have urged the prompt adoption of recycling of spent fuel as a response to the waste disposal challenge, as well as a means to extend fuel supply. *It is the Commission’s view that it would be premature for the United*

#### THE DIFFERENCE BETWEEN “STORAGE” AND “DISPOSAL”

Disposal, intended as the final stage of waste management, is isolation that relies in the long term only on the passive operation of natural environmental and man-made barriers, does not permit easy human access to the waste after final emplacement, and does not require continued human control and maintenance. Storage, intended as an intermediate step in waste management, is isolation that permits managed access to the waste after its emplacement, with active human control and maintenance to assure isolation. After a period in storage, waste is subject to disposal. As used in this report, the term “disposal” is understood to mean permanent disposal; the term “storage” is understood to mean storage for an interim period prior to disposal or other disposition.

*States to commit, as a matter of policy, to “closing” the nuclear fuel cycle given the large uncertainties that exist about the merits and commercial viability of different fuel cycles and technology options.* Future evaluations of potential alternative fuel cycles must account for linkages among all elements of the fuel cycle (including waste transportation, storage, and disposal) and for broader safety, security, and non-proliferation concerns. Moreover, all spent fuel reprocessing or recycle options generate waste streams that require a permanent disposal solution. In any event, we believe permanent disposal will very likely also be needed to safely manage at least some portion of the commercial spent fuel inventory even if a closed fuel cycle were adopted.

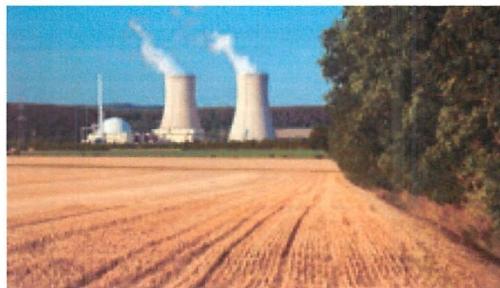
We recognize that current law establishes Yucca Mountain in Nevada as the site for the first U.S. repository for spent fuel and high-level waste, provided the license application submitted by DOE meets relevant requirements.

The Blue Ribbon Commission was not chartered as a siting commission. Accordingly we have not evaluated Yucca Mountain or any other location as a potential site for the storage or disposal of spent nuclear fuel and high-level waste, nor have we taken a position on the Administration’s request to withdraw the license application.<sup>5</sup> We simply note that regardless what happens with Yucca Mountain, the U.S. inventory of spent nuclear fuel will soon exceed the amount that can be legally emplaced at this site until a second repository is in operation. So under current law, the United States will need to find a new disposal site even if Yucca Mountain goes forward. We believe the approach set forth here provides the best strategy for assuring continued progress, regardless of the fate of Yucca Mountain.

## 5. PROMPT EFFORTS TO DEVELOP ONE OR MORE CONSOLIDATED STORAGE FACILITIES

Safe and secure storage is another critical element of an integrated and flexible national waste management system. Fortunately, experience shows that storage—either at or away from the sites where the waste was generated—can be implemented safely and cost-effectively. Indeed, *a longer period of time in storage offers a number of benefits because it allows the spent fuel to cool while keeping options for future actions open.*

Developing consolidated storage capacity would allow the federal government to begin the orderly transfer of spent fuel from reactor sites to safe and secure centralized facilities independent of the schedule for operating a permanent



repository. The arguments in favor of consolidated storage are strongest for “stranded” spent fuel from shutdown plant sites. Stranded fuel should be first in line for transfer to a consolidated facility so that these plant sites can be completely decommissioned and put to other beneficial uses. Looking beyond the issue of today’s stranded fuel, the availability of consolidated storage will provide valuable flexibility in the nuclear waste management system that could achieve meaningful cost savings for both ratepayers and taxpayers when a significant number of plants are shut down in the future, can provide back-up storage in the event that spent fuel needs to be moved quickly from a reactor site, and would provide an excellent platform for ongoing R&D to better understand how the storage systems currently in use at both commercial and DOE sites perform over time.

For consolidated storage to be of greatest value to the waste management system, the current rigid legislative restriction that prevents a storage facility developed under the NWPA from operating significantly earlier than a repository should be eliminated. At the same time, efforts to develop consolidated storage must not hamper efforts to move forward with the development of disposal capacity. To allay the concerns of states and communities that a consolidated storage facility might become a *de facto* disposal site, a program to establish consolidated storage must be accompanied by a parallel disposal program that is effective, focused, and making discernible progress in the eyes of key stakeholders and the public. Progress on both fronts is needed and must be sought without further delay.

Even with timely development of consolidated storage facilities, a large quantity of spent fuel will remain at reactor sites for many decades before it can be accepted by the federal waste management program. Current at-reactor storage practices and safeguards are being scrutinized in light of the lessons that are emerging from Fukushima. In addition, the Commission recommends that the National Academy of

<sup>5</sup> At the March 25, 2010 meeting of the Blue Ribbon Commission, Secretary of Energy Steven Chu told Commissioners “This is not a siting commission.” The same point was reiterated in a February 11, 2011 letter from the Secretary to the BRC Co-Chairmen. Under the Federal Advisory Committee Act, which governs our proceedings, the Department of Energy sets the Commission’s agenda.

Sciences (NAS) conduct a thorough assessment of lessons learned from Fukushima and their implications for conclusions reached in earlier NAS studies on the safety and security of current storage arrangements for spent nuclear fuel and high-level waste in the United States. This effort would complement investigations already underway by the NRC and other organizations. More broadly, it will also be vital to continue vigorous public and private research and regulatory oversight efforts in areas such as spent fuel and storage system degradation phenomena, vulnerability to sabotage and terrorism, full-scale cask testing, and others. As part of this process, it is appropriate for the NRC to examine the advantages and disadvantages of options such as “hardened” onsite storage that have been proposed to enhance security at storage sites.

## 6. EARLY PREPARATION FOR THE EVENTUAL LARGE-SCALE TRANSPORT OF SPENT NUCLEAR FUEL AND HIGH-LEVEL WASTE TO CONSOLIDATED STORAGE AND DISPOSAL FACILITIES

The current system of standards and regulations governing the transport of spent fuel and other nuclear materials appears to have functioned well, and the safety record for past shipments of these types of materials is excellent. But the current set of transport-related regulations will need to be updated to accommodate changes in fueling practices. Moreover, past performance does not guarantee that future transport operations will match the record to date, particularly as the logistics involved expand to accommodate a much larger number of shipments. Experiences in the United States and abroad, and extensive comments to the Commission, indicate that many people fear the transportation of nuclear materials. Thus greater transport demands are likely to raise new public concerns.

As with siting fixed facilities, planning for associated transportation needs has historically drawn intense interest. Transport operations typically also have the potential to affect a far larger number of communities. The Commission believes that state, tribal and local officials should be extensively involved in transportation planning and should be given the resources necessary to discharge their roles and obligations in this arena. Accordingly, DOE should (1) finalize procedures and regulations for providing technical assistance and funds for training to local governments and tribes pursuant to Section 180(c) of the NWPAA and (2) begin to provide such funding, independent from progress on facility siting. While it would be

premature to fully fund a technical assistance program before knowing with some certainty where the destination sites for spent fuel are going to be, substantial benefits can be gained from a modest early investment in planning for the transport of spent fuel from shutdown reactor sites.

Planning and providing for adequate transportation capacity while simultaneously addressing related stakeholder concerns will take time and present logistical and technical challenges. Given that transportation represents a crucial link in the overall storage and disposal system, it will be important to allow substantial lead-time to assess and resolve transportation issues well in advance of when materials would be expected to actually begin shipping to a new facility. For many years, states have been working cooperatively with DOE to plan for shipments, often through agreements with regional groupings of states and in ways that involve radiological health, law enforcement, and emergency response personnel. As has been shown with the WIPP program and other significant waste shipping campaigns, planning, training and execution involves many different parties and takes time. In addition, specialized equipment may be required that will need to be designed, fabricated and tested before being placed into service. Historically, some programs have treated transportation planning as an afterthought. No successful programs have done so.

## 7. SUPPORT FOR ADVANCES IN NUCLEAR ENERGY TECHNOLOGY AND FOR WORKFORCE DEVELOPMENT

Advances in nuclear energy technology have the potential to deliver an array of benefits across a wide range of energy policy goals. The Commission believes these benefits—in light of the environmental and energy security challenges the United States and the world will confront this century—justify sustained public- and private-sector support for RD&D on advanced reactor and fuel cycle technologies. In the near term, opportunities exist to improve the safety and performance of existing light-water reactors and spent fuel and high-level waste storage, transport, and disposal systems. Longer term, the possibility exists to advance “game-changing” innovations that offer potentially large advantages over current technologies and systems.

The Commission believes the general direction of the current DOE research and development (R&D) program is appropriate, although we also urge DOE to take advantage of the Quadrennial Energy Review<sup>6</sup> process to refine its nuclear R&D “roadmap.” We are not making a specific recommendation concerning future DOE funding for

<sup>6</sup> For more information on the Quadrennial Energy Review and Quadrennial Technology Review, see <http://energy.gov/articles/department-energy-releases-inaugural-quadrennial-technology-review-report>.

nuclear energy RD&D; in light of the extraordinary fiscal pressures the federal government will confront in coming years, we believe that budget decisions must be made in the context of a broader discussion about priorities and funding for energy RD&D more generally.

One area where the Commission recommends increased effort involves ongoing work by the NRC to develop a regulatory framework for advanced nuclear energy systems. Such a framework can help guide the design of new systems and lower barriers to commercial investment by increasing confidence that new systems can be successfully licensed. Specifically, the Commission recommends that adequate federal funding be provided to the NRC to support a robust effort in this area. We also support the NRC's risk-informed, performance-based approach to developing regulations for advanced nuclear energy systems, including NRC's ongoing review of the current waste classification system. Changes to the existing system may eventually require a change in law.

Another area where further investment is needed is nuclear workforce development. Specifically, the Commission recommends expanded federal, joint labor-management and university-based support for advanced science, technology, engineering, and mathematics training to develop the skilled workforce needed to support an effective waste management program as well as a viable domestic nuclear industry. At the same time, DOE and the nuclear energy industry should work to ensure that valuable existing capabilities and assets, including critical infrastructure and human expertise, are maintained. Finally, the jurisdictions of safety and health agencies should be clarified and aligned. New site-independent safety standards should be developed by the safety and health agencies responsible for protecting nuclear workers through a coordinated joint process that actively engages and solicits input from all relevant constituencies. Efforts to support uniform levels of safety and health in the nuclear industry should be undertaken with federal, industry, and joint labor-management leadership. Safety and health practices in the nuclear construction industry should provide a model for other activities in the nuclear industry.

## 8. ACTIVE U.S. LEADERSHIP IN INTERNATIONAL EFFORTS TO ADDRESS SAFETY, NON-PROLIFERATION AND SECURITY CONCERNS

As more nations consider pursuing nuclear energy or expanding their nuclear programs, U.S. leadership is urgently

needed on issues of safety, non-proliferation, and security/counter-terrorism. Many countries, especially those just embarking on commercial nuclear power development, have relatively small programs and may lack the regulatory and oversight resources available to countries with more established programs. International assistance may be required to ensure they do not create disproportionate safety, physical security, and proliferation risks. In many cases, mitigating these risks will depend less on technological interventions than on the ability to strengthen international institutions and safeguards while promoting multilateral cooperation and coordination. From the U.S. perspective, two further points are particularly important: First, with so many players in the international nuclear technology and policy arena, the United States will increasingly have to lead by engagement and by example. Second, the United States cannot exercise effective leadership on issues related to the back end of the nuclear fuel cycle so long as its own program is in disarray; effective domestic policies are needed to support America's international agenda.

The Fukushima accident has focused new attention on nuclear safety worldwide. Globally, some 60 new reactors are under construction and more than 60 countries that do not have nuclear power plants have expressed interest in acquiring them. These nations will have to operate their facilities safely and plan for safe storage and disposition of spent nuclear fuel. The United States should help launch a concerted international safety initiative—encompassing organizations like the International Atomic Energy Agency (IAEA) as well as regulators, vendors, operators, and technical support organizations—to assure the safe use of nuclear energy and the safe management of nuclear waste in all countries that pursue nuclear technology.

Nuclear weapons proliferation has been a central concern of U.S. nuclear policy from the earliest days of the nuclear era. These concerns are still prominent, especially where the deployment of uranium enrichment, reprocessing, and recycled fuel fabrication technology is being contemplated. As countries with relatively less nuclear experience acquire nuclear energy systems, the United States should work with the IAEA, nuclear power states, private industry, and others in the international community to ensure that all spent fuel remains under effective and transparent control and does not become “orphaned” anywhere in the world with inadequate safeguards and security.

Longer term, the United States should support the use of multi-national fuel-cycle facilities,<sup>7</sup> under comprehensive IAEA safeguards, as a way to give more countries reliable

<sup>7</sup> The term “multi-national fuel cycle facility” is commonly understood to encompass facilities associated with all aspects of the nuclear fuel cycle. The Commission wishes to stress that our support for multi-national management of such facilities should not be interpreted as support for additional countries becoming involved in enrichment or reprocessing facilities, but rather reflects our view that if these capabilities were to spread it would be far preferable—from a security and non-proliferation standpoint—if they did so under multi-national ownership, management, safeguards, and controls.

access to the benefits of nuclear power while simultaneously reducing proliferation risks. U.S. sponsorship of the recently-created IAEA global nuclear fuel bank is an important step toward establishing such access while reducing a driver for some states to engage in uranium enrichment. But more is needed. The U.S. government should propose that the IAEA lead a new initiative, with active U.S. participation, to explore the creation of one or more multi-national spent fuel storage or disposal facilities.

In addition, the United States should support the evolution of spent fuel “take-away” arrangements as a way to allow some countries, particularly those with relatively small national programs, to avoid the costly and politically difficult step of providing for spent fuel disposal on their soil and to reduce associated safety and security risks. An existing program to accept highly-enriched uranium fuel from research reactors abroad for storage in the United States has provided a demonstration—albeit a limited one—of the national security value of such arrangements. The capability to accept limited quantities of spent fuel from foreign commercial reactors could be similarly valuable from a national security perspective. As the United States moves forward with developing its own consolidated storage and disposal capacity, it should work with the IAEA and with existing and emerging nuclear nations to establish conditions under which one or more nations, including the United States, can offer to take foreign spent fuel for ultimate disposition.

The susceptibility of nuclear materials or facilities to intentional acts of theft or sabotage for terrorist purposes is a relatively newer concern but one that has received considerable attention since 9/11. The United States should continue to work with countries of the former Soviet Union and other nations through initiatives such as the Nunn-Lugar Cooperative Threat Reduction Program and the Global Initiative to Combat Nuclear Terrorism to prevent, detect, and respond to nuclear terrorism threats. Domestically, evolving terrorism threats and security risks must be closely monitored by the NRC, the Department of Homeland Security, and other responsible agencies to ensure that any additional security measures needed to counter those threats are identified and promptly implemented. The recent events at Fukushima have—as they should—prompted the NRC and the industry to re-examine the adequacy of “mitigative strategies” for coping with large-scale events (like an explosion or fire) or catastrophic system failures (like a sudden loss of power or cooling); as noted previously, we also recommend that Congress charter the

National Academy of Sciences to assess lessons learned from Fukushima with respect to the storage of spent fuel.

## TYING IT TOGETHER

The overall record of the U.S. nuclear waste program has been one of broken promises and unmet commitments. And yet the Commission finds reasons for confidence that we can turn this record around. To be sure, decades of failed efforts to develop a repository for spent fuel and high-level waste have produced frustration and a deep erosion of trust in the federal government. But they have also produced important insights, a clearer understanding of the technical and social issues to be resolved, and at least one significant success story—the WIPP facility in New Mexico. Moreover, many people have looked at aspects of this record and come to similar conclusions.

The problem of nuclear waste may be unique in the sense that there is wide agreement about the outlines of the solution. Simply put, we know what we have to do, we know we have to do it, and we even know how to do it. Experience in the United States and abroad has shown that suitable sites for deep geologic repositories for nuclear waste can be identified and developed. The knowledge and experience we need are in hand and the necessary funds have been and are being collected. Rather the core difficulty remains what it has always been: finding a way to site these inherently controversial facilities and to conduct the waste management program in a manner that allows all stakeholders, but most especially host states, tribes and communities, to conclude that their interests have been adequately protected and their well-being enhanced—not merely sacrificed or overridden by the interests of the country as a whole.

This is by no means a small difficulty—in fact, many other countries have not resolved this problem either. However, we have seen other countries make significant progress with a flexible approach to siting that puts a high degree of emphasis on transparency, accountability, and meaningful consultation. We have had more than a decade of successful operation of WIPP. And most recently, we have witnessed an accident that has reminded Americans that we have little physical capacity at present to do anything with spent nuclear fuel other than to leave it where it is. Against this backdrop, the conditions for progress are arguably more promising than they have been in some time. But we will only know if we start, which is what we urge the Administration and Congress to do, without further delay.

# Appendix M

## Governor LePage's Letter



Paul R. LePage  
GOVERNOR

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28 June 2012

The Honorable Olympia Snowe  
United States Senate  
154 Russell Senate Office Building  
Washington, D.C. 20510

The Honorable Susan Collins  
United States Senate  
413 Dirksen Senate Office Building  
Washington, D.C. 20510

The Honorable Chellie Pingree  
United States House of Representatives  
1318 Longworth House Office Building  
Washington, D.C. 20515

The Honorable Michael Michaud  
United States House of Representatives  
1724 Longworth House Office Building  
Washington, D.C. 20515

Dear Senators Snowe and Collins and Representatives Michaud and Pingree:

After two years of fact-finding and intense study, on January 26 the Blue Ribbon Commission on America's Nuclear Future (BRC) released its used-fuel management initiatives. I am writing in support of expedited Congressional action to implement the priority recommendations of the BRC, including (1) immediate access to the funds nuclear utility ratepayers are providing for the purpose of nuclear waste management; and (2) prompt efforts to develop one or more consolidated storage facilities.

Maine Yankee ratepayers paid about \$65.5 million into the Nuclear Waste Fund from 1983-1996 when Maine Yankee ceased operations. Commercial nuclear power plants pay a tenth of a cent per kilowatt hour generated into the Nuclear Waste Fund to pay for the disposal of their fuel by the U.S. Department of Energy. For fuel used prior to 1983 when the *Nuclear Waste Policy Act* was enacted, a trust fund was established through State of Maine legislation which has a current balance of about \$165 million. It was partially drawn down to help pay for the construction of the Independent Spent Fuel Storage Installation but will be fully funded in October of 2013.

The safe storage, processing, transportation and disposal of nuclear fuel, waste and materials derived from nuclear activities is imperative to a sound energy security policy. The Maine Yankee site and its storage facility is one of nine spent fuel storage sites which no longer have operating nuclear power plants affiliated with the ISFSIs. I support the timely, safe, and cost-effective storage and disposal of spent nuclear fuel and high-level radioactive waste in consolidated storage facilities and, eventually, in a permanent repository, and reform of the distribution of the Nuclear Waste Fund such that ratepayer contributions are used for their intended purpose.



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From an economic policy perspective, prompt removal of spent nuclear fuel from decommissioned sites like Maine Yankee and consolidating the nuclear spent fuel will not only reduce the number of sites, it will likely result in cost efficiencies that flow through to ratepayers by relieving them of the cost burden of maintaining sites that no longer generate electricity. Billions of dollars have been spent examining interim and permanent storage options for nuclear spent fuel and waste. Despite decades of research and development activities associated with Yucca Mountain, that project has been terminated with no clear direction for an alternate repository. Meanwhile, Maine Yankee is responsible for storing spent nuclear fuel in accordance with Nuclear Regulatory Commission (NRC) regulations regarding security, emergency planning, radiological monitoring and oversight, quality assurance, inspections and reporting.

I recognize that Maine Yankee is safely and securely storing the more than 550 metric tons of spent nuclear fuel at the ISFSI site and can likely continue to do so while private or government-owned candidate sites for consolidation of used nuclear fuel are identified. However, a comprehensive spent nuclear fuel management program with centralized facilities and rigorous transportation and storage requirements is necessary. It is likely safer to collect materials from these multiple sites and put them in a central location that is designed, managed and operated for that purpose. Ratepayers in Maine and other states continue to pay millions of dollars each year in storage fees, taxes, security and insurance to support the operation of spent fuel storage installations at shutdown reactor sites. Continued storage of spent nuclear fuel at decommissioned plants imposes additional costs on ratepayers and prevents economic reuse of the site. This type of system levies an opportunity cost on Maine and its communities.

The country needs to begin solving this problem. These recommendations of the BRC provide a thoughtful and sensible road map for doing just that. I hope you will act expeditiously to engage the Congressional Leadership and relevant committees to take the necessary policy steps to enable consolidated storage to be constructed, access to the waste fund for that and other waste management functions and, for the long run, establish a non-government corporation for long term management of used nuclear fuel.

Sincerely,



Paul R. LePage  
Governor