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April 4, 2016

MEMORANDUM

TO: Senator Michael Thibodeau, President of the Senate, and Representative Mark Eves, Speaker of the House

FROM: Mary C. Mayhew, Commissioner
Department of Health and Human Services

SUBJECT: State Nuclear Safety Inspector's September through December 2015 Monthly Reports to the Legislature on the Interim Spent Fuel Storage Facility in Wiscasset, Maine

Legislation enacted in the spring of 2008 requires the State Nuclear Safety Inspector to provide monthly reports to the President of the Senate, Speaker of the House, the U.S. Nuclear Regulatory Commission, and Maine Yankee. The reports focus on activities at the site and include highlights of the national debate on storing and disposing of the used nuclear fuel. For your convenience, highlights of local and national events are captured in the executive summary of the reports.

The enclosed reports provide the information required under Title 22 of the Maine Revised Statutes Annotated §666, as enacted under Public Law, Chapter 539, in the second regular session of the 123rd Legislature.

Should you have questions about its content, please feel free to contact Mr. Patrick J. Dostie, State Nuclear Safety Inspector, at 287-6721.

MCM/klv

Enclosure

cc: Mark Lombard, U.S. Nuclear Regulatory Commission
Monica Ford, U.S. Nuclear Regulatory Commission, Region I
J. Stanley Brown, Independent Spent Fuel Storage Installation Manager, Maine Yankee
David Sorensen, Senior Health Policy Advisor
Kenneth Albert, Director, Maine Center for Disease Control and Prevention
Paul Mercer, Commissioner, Department of Environmental Protection
Timothy Schneider, Maine Public Advocate
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Nancy Beardsley, Director, Division of Environmental Health
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State Nuclear Safety Inspector Office Maine CDC – DHHS

September 2015 Monthly Report to the Legislature

Executive Summary

The report covers activities at the Maine Yankee Independent Spent Fuel Storage Installation (ISFSI) facility, including the State's ongoing environmental radiation surveillance and provides updates on the national effort to license and construct a consolidated interim storage facility and/or a permanent geologic repository for the disposal of spent nuclear fuel. Maine's goal is to move the ISFSI waste stored at Maine Yankee to one of these facilities. The report's highlights assist readers to focus on the significant activities that took place both locally and nationally during the month.

Local

- Maine Yankee submitted to the Nuclear Regulatory Commission (NRC) an exemption request from their Technical Specification surveillance after an off-normal, accident, or natural phenomena event. The reason for the request was to eliminate the inconsistencies between two Tech Specs that require separate actions to ensure an operable heat removal system for the concrete casks. The first Tech Spec was only applicable for events whereas the second was applicable under all circumstances.
- A drone flew over Maine Yankee and hovered over various areas of the site, including the protected area where the vertical concrete casks are stored, before leaving the site and heading northwest. The Wiscasset Police Department, the Lincoln County Sheriff's Office and the State Police were notified and responded, but did not find any suspicious activity in the area. The Federal Aviation Administration in Portland and in Nashua, New Hampshire and the NRC Operations Center were also notified.

National:

- Nevada's Governor issued a letter to the NRC commenting on the staff's recently published draft environmental impact statement supplement on the Yucca Mountain repository. The Governor reiterated the State's position that Yucca Mountain was an unsafe repository site based on an unworkable waste management plan and that DOE was lacking the necessary land and water rights to secure a construction authorization for the proposed repository.
- Representative Michael Conaway from Texas along with 15 co-sponsors introduced in the House the "Interim Consolidated Storage Act of 2015." The legislation proposed to amend the Nuclear Waste Policy Act of 1982 by authorizing the Energy Secretary to enter into any contracts for the storage of spent nuclear fuel and high-level waste, to take title of the nuclear wastes, to use funds from the Nuclear Waste Fund to pay for fees and costs associated with the storage of the nuclear wastes, and to give priority for storage to shutdown nuclear sites.

Introduction

As part of the Department of Health and Human Services' long standing oversight of Maine Yankee's nuclear activities under Title 22, Maine Revised Statutes (MRS) §666 (2), legislation was enacted in the second regular session of the 123rd and signed by Governor John Baldacci requiring that the State Nuclear Safety Inspector prepare a monthly report on the oversight activities performed at the ISFSI facility located in Wiscasset, Maine.

The State Inspector's individual activities for the past month are highlighted under certain broad categories, as illustrated below. Since some activities are periodic and ongoing, there may be some months when very little will be reported under that category. It is recommended for reviewers to examine previous reports to ensure

connectivity with the information presented as it would be cumbersome to continuously repeat prior information in every report. Past reports, historical addendum, and glossary are available from the Radiation Control Program's web site at the following link: www.maineradiationcontrol.org and by clicking on the nuclear safety link in the left hand margin.

Independent Spent Fuel Storage Installation (ISFSI)

During September, the general status of the ISFSI was normal with no instances of spurious alarms due to environmental conditions.

There was one fire-related impairment for the month and it involved a fire detection panel that was taken out of service to support the office build out project. Compensatory measures were put into place until the project is completed. The fire impairment was closed on September 1.

There were two security incident reports logged for the month. One was related to supporting compensatory measures associated with a security project that is not available for public disclosure and the other involved the installation of gutters on the Security and Office Building.

There were thirteen condition reports¹ (CR) for the month and they are described below.

- 1st CR: Documented a small diesel fuel spill from a contractor's vehicle onto a paved surface that not reportable to the Department of Environmental Protection. The spill was immediately cleaned up.
- 2nd CR: Documented that designated instructor forms were not filled out for several individuals conducting training to recently hired officers. The forms were completed.
- 3rd CR: Documented an unmanned aerial vehicle lingering around the ISFSI. The small drone was spotted hovering near the casks. The Federal Aviation Administration, the Local Law Enforcement Agencies (LLEA), and the Maine State Police were notified and responded. The drone left the area heading north. The LLEA did not find any potential suspects.
- 4th CR: Documented the finding that any outgoing regulatory correspondence was not adhering to administrative procedures. A recommendation was made for the licensing engineer to review all incoming and outgoing correspondence.
- 5th CR: Documented the puncture damage of a propane line from a screw during the installation of a protective guard. The tank was isolated at the time. The propane line was repaired. In addition, management will review all maintenance activities.
- 6th CR: Documented numerous trouble alarms from the back-up cell phone on the remote alarm system. The issue is being investigated further.
- 7th CR: Documented the loss of a camera during a foundation replacement project. Upon further investigation a loose wire was found and tightened and a fuse was replaced.
- 8th CR: Documented that the video recorder stopped working on several cameras. The digital recorder was rebooted and the problem cleared.
- 9th CR: Documented several security hand held radios were not functioning. Parts were ordered and the radios were repaired.
- 10th CR: Documented that the operations channel of the radio system was broadcasting over State Police statewide car to car frequency. The issue is being investigated.
- 11th CR: Documented that electrical safety issues were identified during a fuse replacement. Apparently, training and protective equipment requirements for working on energized panels were not understood. Currently evaluating the proper training and protective equipment requirements for performing electrical work.

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

12th CR: Documented that during the inspection of the fire hydrant in the northwest corner of the Security and Operations Building had water in it, most likely due to some leaking of the hydrant valve. The valve was checked, shut and the leakage is being monitored.

13th CR: Documented several routine action items not being completed within their required timeframe. The issue is under evaluation to complete the overdue items.

Other ISFSI Related Activities

1. On September 1, Maine Yankee submitted to the Nuclear Regulatory Commission (NRC) an exemption request from their Technical Specification surveillance after an off-normal, accident, or natural phenomena event. The current Tech Specs require that all the casks have to be inspected within four hours of the event to ensure that all the concrete cask inlets and outlets are not blocked or obstructed, and that half of the inlets and outlets for each cask must be cleared of any blockage or debris within 24 hours to restore circulation. Maine Yankee's request would utilize their Tech Spec Surveillance Requirement to meet this Tech Spec by confirming operability of the concrete cask heat removal system by verifying that the difference of the outlet temperature of the cask and the ambient temperature would be less than 102 degrees Fahrenheit. If the temperature difference exceeded the 102 degree limit, then the cask system would be required to meet the temperature limit within eight hours by ensuring the inlet and outlet vents were not blocked or obstructed. The first Tech Spec was only applicable for events whereas the second was applicable under all circumstances. The reason for the request was to eliminate the inconsistencies between the two Tech Specs that require separate actions to ensure an operable heat removal system.
2. On September 2, Maine Yankee submitted to the NRC revision 6 of their ISFSI Emergency Plan. The only change made was to reflect the modifications made to the Security and Operations Building to accommodate extra office space and conference rooms and to inform the NRC of the elimination of the truck bay. The physical changes do not impact the effectiveness of the Emergency Plan.
3. On September 6, a security officer on patrol observed a drone flying over Maine Yankee. The drone hovered over various areas of the site, including the protected area of the vertical concrete casks where the spent nuclear fuel is stored, before leaving the site and heading northwest. The local law enforcement agencies and the State Police were notified. The Wiscasset Police Department, the Lincoln County Sheriff's Office and the State Police responded but did not find any suspicious activity in the area. The Federal Aviation Administration in Portland and in Nashua, New Hampshire and the NRC Operations Center were also notified. The site was placed in a heightened state of awareness for two days.
4. On September 30, the State Inspector received training in order to renew his access and safeguards credentials for the ISFSI facility.

Environmental:

There is no new information to report this month.

Other Newsworthy Items:

1. On September 3, the National Conference of State Legislatures held a webinar on "Solving the Nuclear Waste Storage Dilemma." The three presenters represented the Nuclear Energy Institute (NEI), Holtec International and Waste Control Specialists. NEI's presentation on used fuel management focused on two key questions: "Where are we and how did we get here?" Information provided included spent fuel inventory by state, how much of the inventory was in dry cask storage, the types of dry storage systems, the impacts from a lack of a federal program, key events, what legislation was introduced, the political landscape, and possible timelines for the Yucca Mountain repository. The remaining two presenters

discussed their recent submittals to the NRC to host a consolidated interim spent fuel storage facility in New Mexico (Holtec International) and Texas (Waste Control Specialists). Besides expanding on each's capabilities and experiences, both were expecting the NRC to issue them licenses in 2019 and both would begin receiving spent fuel shipments in 2020. The web link for the power point presentations can be accessed by positioning the cursor over the following link: <http://www.ncsl.org/Portals/1/Documents/energy/Nuclear-waste-storage-pp-final.pdf>. The webinar can be viewed at: <https://www.youtube.com/watch?v=1GhuqqScNT0&feature=youtu.be>.

2. On September 3, the DOE released a revised report, entitled "Initial Standardized Canister System Evaluation." The purpose of the report was to understand the impacts of integrating standardized canisters designed for storage, transportation, and disposal into the nation's waste management system. The technical report did not take into account any contractual limitations under DOE's current standard contract with nuclear utilities, such as DOE only accepting bare used nuclear fuel. This initial evaluation noted that there was a noticeable need for significant data collection and verification as present experience and data were limited. Other areas requiring more information were in the repackaging of stored spent fuel in welded canisters and in the relative costs associated with the size of the waste packages. The evaluation did not consider the benefits of standardization. The web link for the report can be accessed by positioning the cursor over the underlined text and following the directions.
3. On September 3, the Nuclear Engineering International Magazine reported that Sweden's Radiation Safety Authority's preliminary review of the Swedish nuclear fuel and waste management company SKB repository licensing application indicated that it had met several regulatory requirements with further opinions due later this year and a final assessment in 2017. SKB was also anticipating favorable reviews from the land and environmental court and the Swedish government, which would allow it to begin construction of a spent nuclear fuel repository at Forsmark in 2019 and commence disposal operations in 2030. The web link for the article can be accessed by positioning the cursor over the underlined text and following the directions.
4. On September 9, the House Subcommittees of Energy and Power and Environment and the Economy held a joint public meeting on the oversight of the NRC. The four current Commissioners were requested to testify before the Subcommittees on the Commission's activities, inclusive of the progress on the issues associated with the Fukushima incident and the draft Supplemental Environmental Impact Statement on groundwater at the Yucca Mountain repository in Nevada. The NRC Chairman highlighted the Commission's recent accomplishments, most notably the draft supplemental environmental impact statement on groundwater impacts at Yucca Mountain and its preparation for two anticipated license applications for consolidated interim storage facilities, one in New Mexico and the other in Texas. Assuming no contentions, the NRC Chair anticipated three years to issue a storage license. The web link for the background information can be accessed by positioning the cursor over the underlined text and following the directions.
5. On September 10, AREVA Federal Services (AFS) made a presentation to DOE on the "Design and Prototype Fabrication of Railcars for Transport of High-Level Radioactive Material." The presentation laid out DOE's contract and work terms with AFS, the number of work phases, and the team of private organizations involved in the design, fabrication and testing of railcars for spent nuclear fuel shipments by early 2019. Kasgro Rail, a member of the team, is the only designer and fabricator of the approved Association of American Railroads (AAR) cask railcar for the Navy's spent fuel, the M-290 cask railcar. Phase 1 will involve the conceptual design of the ATLAS Cask and Buffer Railcars, the cask loading procedures, and the functional and operational requirements of the cask and buffer railcar designs. Phase 2 will encompass the preliminary design and submittal package to the AAR for approval. Phase 3 will include material procurement and fabrication of the railcars and delivery to AAR's testing site. The

web link for the presentation can be accessed by positioning the cursor over the underlined text and following the directions.

6. On September 15, Nevada's Governor issued a letter to the NRC on their recent activities within his state to acquire comments from the NRC's recently published draft environmental impact statement supplement on the Yucca Mountain repository. The Governor reiterated the State's position that Yucca Mountain was an unsafe repository site based on an unworkable waste management plan and that DOE was lacking the necessary land and water rights to secure a construction authorization for the proposed repository. Although the Governor acknowledged that the NRC's efforts were tied to the Appeals Court mandate to resume the Yucca licensing proceedings, he did state that the NRC's efforts and resources should be directed at finding workable solutions. The web link for the letter can be accessed by positioning the cursor over the underlined text and following the directions.
7. On September 15, the NRC held a public meeting in Las Vegas to receive public comments on their 173 page draft environmental study on the groundwater impacts from the radioactivity released from the spent nuclear fuel. The study had concluded that the impact was small with a maximum calculated impact of 1.3 mrem² in nearby Amargosa Valley as compared to normal background radiation level of 300 mrem. Of the 80 or so persons present, most of the speakers opposed the project. However, there were a few who praised the NRC report. The Nye County Commissioner declared that 9 of the 17 counties in Nevada supported Yucca.
8. On September 16, the Nuclear Waste Technical Review Board issued a notification that it will hold an international workshop on Deep Borehole Disposal of High-Level Radioactive Waste in October. The Board's objective will be to identify technical issues with DOE's research and development program and its implementation. The two-day workshop will focus on DOE's plans and its field test program. After DOE's presentations experts from the U.S. and other countries will discuss hydrogeological and geochemical conditions, waste forms, effectiveness of borehole seals, challenges to deep drilling and placement of waste canisters, the regulatory framework, and the advantages as well as the disadvantages of deep borehole disposal compared to other disposal concepts. The web link for the notification can be accessed by positioning the cursor over the underlined text and following the directions.
9. On September 23, the NRC sent a letter to the House Chair transmitting their monthly status report of their activities associated with Yucca Mountain licensing process. The report noted the NRC's accomplishments to date, namely the publishing of four of the five volumes of the Yucca Mountain Safety Evaluation Report (SER) and the draft supplemental environmental impact statement (EIS) on groundwater, the archiving of documents used in the preparation of the SER, and the development of lessons learned reports. The major expenditure for August activities was the work on the EIS supplement, which accounted for 99.8% of the expended funds. The web links for the cover letter and report can be accessed by positioning the cursor over the underlined texts and following the directions.
10. On September 24, the NRC issued a news release that it will be holding a conference on spent fuel management in November at its headquarters in Maryland. The conference will feature discussions and presentations on such topics as storage licensing, design changes that can be made without NRC approval, research activities, inspections and operating experience, technical issues, transportation package certification, and consolidated storage. The web link for the news release can be accessed by positioning the cursor over the underlined text and following the directions.
11. On September 25, the Nuclear Waste Strategy Coalition sent a letter to Department of Energy's (DOE) Secretary Moniz urging him to pursue funding for the agency's 2017 fiscal budget funds for preparing

² 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.

the nation's infrastructure for spent fuel and high-level waste shipments, engage with potential hosts of consolidated interim storage facilities or additional repositories, and complete the Yucca Mountain licensing process. The letter also advocated for the full testing and production of the cask and buffer railcars, and supporting financial and technical assistance to states for training tribal and local officials along the shipping routes. The web link for the letter can be accessed by positioning the cursor over the underlined text and following the directions.

12. On September 29, Representative Michael Conaway from Texas along with 15 co-sponsors introduced in the House the "Interim Consolidated Storage Act of 2015." The legislation proposed to amend the Nuclear Waste Policy Act of 1982 by authorizing the Energy Secretary to enter into any contracts for the storage of spent nuclear fuel and high-level waste, by authorizing the Secretary to take title of the nuclear wastes, and by allowing the Secretary to use funds from the Nuclear Waste Fund to pay for fees and costs associated with the storage of those wastes. The bill provided priority for storage to shutdown nuclear sites. The web links for the legislation and a summary of that legislation can be accessed by positioning the cursor over the underlined texts and following the directions.
13. In September, the Bipartisan Policy Center, a Washington think tank, issued two primers in its nuclear waste series. The first was entitled, "Transporting Spent Nuclear Fuel in the United States: An Assessment of Current Capabilities and Future Challenges." The brief summarized three key points. First there are the hardware and infrastructure challenges such as up to 50 unique storage canister varieties which do not meet the DOE's acceptable waste form for its transportation cask. Next there are the special railcars that have to be built to accommodate the canister varieties to meet the Association of American Railroads standard. Then the rail, road, and barge infrastructure near storage sites have to be evaluated and in most cases upgraded and maintained for the heavy loads. The second key point was the transportation of spent nuclear fuel from shutdown reactors. It was noted that the capability to transfer storage canisters to transportation casks was very limited if not nonexistent. The final key point was the systemic issues that will strain efforts going forward. First there are the management challenges of a new organization to manage DOE's current program. Next there is the complexity of the regulatory oversight from several government agencies, including NRC, DOE, the Federal Railroad Administration, the Pipeline and Hazardous Materials Safety Administration, Department of Homeland Security and the Coast Guard, each with their own individual set of requirements. Then there are the roles of state, tribal, and local governments that would come into play with shipments transiting their jurisdictions and their specific requirements. Finally, the lack of consistent funding has been an outstanding issue ever since the inception of the nation's nuclear waste program.

On a more optimistic note the second primer summarized the main findings of a legal analysis of the 2012 Blue Ribbon Commission's (BRC) near term action recommendations and "to what extent key actions can be taken under current statutory authority." The brief highlighted some key developments since the publication of the BRC's recommendations, namely the three D.C. Court of Appeals rulings that forced the NRC to issue a new Continued Storage Rule, the DOE to stop collecting fees for the Nuclear Waste Fund, and the resumption of the Yucca Mountain licensing proceedings. The brief concluded that important steps could be implemented under existing authority such as the development of consolidated interim storage facilities, changing the order in which spent fuel is removed from reactor sites with preference given to those shutdown/decommissioned sites, and changing the timing and method of the Nuclear Waste Fee by having utility generators remit only that percentage of the annual fee appropriated for waste management with the remainder placed in an irrevocable trust fund.

State Nuclear Safety Inspector Office
Maine CDC – DHHS

October 2015 Monthly Report to the Legislature

Executive Summary

The report covers activities at the Maine Yankee Independent Spent Fuel Storage Installation (ISFSI) facility, including the State's ongoing environmental radiation surveillance and provides updates on the national effort to license and construct a consolidated interim storage facility and/or a permanent geologic repository for the disposal of spent nuclear fuel. Maine's goal is to move the ISFSI waste stored at Maine Yankee to one of these facilities. The report's highlights assist readers to focus on the significant activities that took place both locally and nationally during the month.

Local

- The State Inspector reviewed Maine Yankee's recent Technical Specification exemption request from the Nuclear Regulatory Commission (NRC) on one of their surveillance requirements in off-normal, accident or natural phenomena events and concluded that Maine Yankee's request was more restrictive than the present requirement and had no objection to the request.

National:

- The NRC Commissioners accepted the staff's recommendations to postpone for five years the proposed security rulemaking for facilities storing spent nuclear fuel and high-level waste.
- The U.S. Nuclear Infrastructure Council forwarded a letter to the Senate and House Appropriations Committees urging them to end the impasse and reshape the country's nuclear waste management program by appropriating funds to complete the Yucca Mountain licensing process, to establish consolidated storage for shutdown sites, and to provide infrastructure and other transportation needs to support a national shipping campaign. Likewise, the Nuclear Waste Strategy Coalition also sent a letter urging the same themes as well as engaging potential host communities.

Introduction

As part of the Department of Health and Human Services' long standing oversight of Maine Yankee's nuclear activities under Title 22, Maine Revised Statutes (MRS) §666 (2), legislation was enacted in the second regular session of the 123rd and signed by Governor John Baldacci requiring that the State Nuclear Safety Inspector prepare a monthly report on the oversight activities performed at the ISFSI facility located in Wiscasset, Maine.

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

Independent Spent Fuel Storage Installation (ISFSI)

During October, the general status of the ISFSI was normal, with no instances of spurious alarms due to environmental conditions.

There was one fire-related impairment for the month and it involved putting compensatory measures in place to support the testing of the fire suppression system. There were four security incident reports logged for the month. Two of the incident reports were related to camera issues and the remaining were due to surveillance testing of the security system.

There were fourteen condition reports¹ (CR) for the month and they are described below.

- 1st CR: Documented a procedure not being updated from changes made during the office build-out project. The procedure will be updated.
- 2nd CR: Documented that a floor plug on the second floor of the Security and Operations Building may not have been rated for walking traffic. The area was cordoned off. Engineering assessed the plug's rating and found it acceptable.
- 3rd CR: Documented a camera issue. The unit was restored. However, the unit eventually had to be repaired.
- 4th CR: Documented a utility vehicle was not running properly. The vehicle was test driven and found to be satisfactory with the condition not repeating itself.
- 5th CR: Documented that a sewer pump trouble alarm was on high level. The pump overload relays had tripped and the relays were reset.
- 6th CR: Documented various electrical safety issues such as training, labelling, and the use of proper protective equipment regarding the replacement of a fuse in a 120 volt panel. The evaluation is ongoing.
- 7th CR: Documented Central Maine Power (CMP) Security observing Maine Yankee personnel near the switchyard security system and notified the local law enforcement agency. Apparently, the CMP security system was left on after testing without clear guidance for their security officers on how to respond.
- 8th CR: Documented that a tracking condition report was issued for lessons learned that radiation protection training should be considered for local offsite responders.
- 9th CR: Documented several instances of security officers not filling out a security form properly. The form required date and time entries but only dates were entered.
- 10th CR: Documented the wireless fence line Radiation Monitoring System losing its wireless signal. An upgrade to the system was being planned for next year.
- 11th CR: Documented that one of the front inner doors had cracked glass and was awaiting repairs.
- 12th CR: Documented a repeat of a sewer pump trouble alarm. Again, the relays were reset but vendor trouble shooting was being planned.
- 13th CR: Was written to track lessons learned from this year's emergency plan drill.
- 14th CR: Documented a repeat of the wireless fence line radiation monitoring system experiencing intermittent wireless signal issues with the monitor readout not fluctuating as it was supposed to. A system upgrade was being planned for next year.
- 15th CR: Was written to document that a security procedure required coversheets for safeguards documents. The procedure governing security incident reports did not contain mandate coversheets. The procedure was revised.
- 16th CR: Documented that a fire protection procedure contained incorrect step numbers. The procedure will be revised.

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

Other ISFSI Related Activities

1. On October 7, Maine Yankee conducted its annual emergency plan training with state officials representing the Maine Emergency Management Agency, the State Radiation Control Program, the Maine National Guard Civil Support Team, and State Police. Other attendees included the Lincoln County Emergency Management Agency and Central Maine Power's security. Training included an overview of recent projects at the site, the construction of the vertical concrete casks, the emergency action levels and who would be notified.
2. On October 9, the State Inspector forwarded a letter to the NRC's Spent Fuel Licensing Branch commenting on the State's position relative to Maine Yankee's recent Technical Specification exemption request from one of their surveillances in off-normal, accident or natural phenomena events. The State Inspector reviewed the exemption request and concluded that Maine Yankee's request was more restrictive than the present requirement and had no objection to the request.
3. On October 14, the legislatively mandated group representing the Department of Environmental Protection (DEP), the State Police, the Public Advocate, the Department of Health and Human Services' Radiation Control Program and Maine Yankee, met for its quarterly meeting to discuss the State's and Maine Yankee's activities pertinent to the oversight of the ISFSI. The State Inspector's report highlighted the status of his monthly and annual reports to the Legislature, the Center for Disease Control Director's decision to forego his reviews of the monthly reports to streamline the management review process, his work on the Confirmatory Summary Report, his on-going participation in a national interregional team that is developing recommendations from states to the Department of Energy (DOE) on funding emergency preparedness for local communities on spent fuel shipments traversing their jurisdictions, and his evaluation of the State's field radiation monitoring devices along with an explanation of associated timelines, process issues and unknowns, and goals to determine the radiation dose from the storage facility. Maine Yankee informed the Group of their recommendations to reduce the number of wells chemically sampled on-site. DEP informed the Group that they have reviewed Maine Yankee's proposed changes and have come up with their own set of recommendations. Maine Yankee and DEP will meet to discuss the State's recommendations. Maine Yankee also apprised the Group that its office project at Maine Yankee was completed and that they are in the process of installing 3500 feet of barbed wire fence along Ferry Road to keep out trespassers and hunters, and that they have requested an exemption from the NRC on their license technical specifications, which the State Inspector informed the NRC that the State had no objection to the exemption request. In addition, they also mentioned that their annual emergency plan exercise will be held the following week on October 21st and that there was very little development on the congressional front. The Public Advocate's Representative and the State Police did not have anything new to report.
4. On October 21, Maine Yankee conducted an annual emergency plan drill. The scenario was a tornado with visible debris impacting the concrete containers on the south side of the storage facility. The debris resulted in clogging two of the four inlet vents for all eight concrete casks on the south side. However, one of the concrete casks was damaged by a flying tree trunk, which resulted in some damage to the cask. The impact created a hole about the size of a softball and about three inches deep. The radiation levels in the vicinity of the damaged cask were slightly elevated. In the aftermath of the tornado, facility personnel were developing a recovery plan to ensure that the heat removal system was still functional for all the casks. The plan involved inspecting all the bottom vents, remove any debris from the inlet screens of the affected casks, perform additional radiological measurements such as taking air samples at the top outlet vents and contamination swipes of the bottom vents of the damaged cask, and establishing a work order to patch the hole in the concrete cask.

Environmental:

There is no new information to report this month.

Other Newsworthy Items:

1. On October 1, the House Subcommittee on Environment and the Economy held on the design, logistics, and transporting of nuclear materials. The focus of the hearing was to discuss current efforts to transport nuclear materials, opportunities for states and local stakeholder involvement, and DOE's plans to resume the National Transportation Project for shipping spent nuclear fuel. Six witnesses testified before the Subcommittee. They included a consulting firm, the American Railroads' Association, the Council of State Governments' Midwestern Radioactive Materials Transportation Committee, a shipping cask manufacturer, the Government Accountability Office (GAO), and a radioactive waste watchdog organization. The Chair of the House Committee on Energy and Commerce and the Chair of the Subcommittee opening remarks expressed the importance and role that transportation will play in the future shipping of spent nuclear fuel. Although the consulting firm's representative noted certain transportation accomplishments, he did say that the greatest challenge in the current uncertain policy environment facing us was "to discern what level of activities" would be appropriate. The President of the Railroad Association touted the safety of rail transportation, but stated that maximizing the safety of spent fuel shipments could be achieved by the use of dedicated trains that would be monitored from origin to destination. He also mentioned upgrading rail infrastructure and provided other examples to make shipments safer. The Midwestern states representative noted that "states were co-regulators" since they "bear the primary responsibility for protecting the health and safety of the public and environment." He stated that the National Academy of Sciences 2006 report and the President's Blue Ribbon Commission's report contained important information that should be factored into a national shipping campaign. He also mentioned the Waste Isolation Pilot Project's shipping model. However, he expressed concern that the federal funding mechanism for states was limited when compared to the allotments that states received as part of the national WIPP program. For his part the cask manufacturer remarked on the extent of the NRC's involvement in the design and fabrication of shipping casks. The GAO representative informed the Subcommittee of the key legislative, technical and societal challenges to the transportation of spent nuclear fuel, namely that the Nuclear Waste Policy Act did not provide clear authority for either consolidated interim storage or a permanent repository other than Yucca Mountain, the technical uncertainties associated with high burn-up fuel and upgrades to the rail infrastructure, and public acceptance. The watchdog organization listed all the reasons why the current national waste management system was ineffective, considered the transportation scheme to be risky, that certain types of terrorists' activities could potentially breach the shipping casks releasing its radioactive contents, and called for the cessation of the production of nuclear waste and the hardening of on-site storage at existing sites. The web links for the Subcommittee's agenda and separate testimonies can be accessed by positioning the cursor over the underlined texts and following the directions.
2. On October 1, the National Transportation Stakeholders Forum held a webinar, entitled "Rail Transport 101." The presentation was made by the Director of Hazardous Materials at CSX Transportation, owner of a Class I railroad with 21,000 miles of network, all east of the Mississippi River. The Director emphasized the special characteristics of rail shipments, including how private ownership of the rail lines affected operations and oversight, and how decisions regarding scheduling and routing could be driven by business considerations. A major portion of his presentation dealt with safety and hazmat training through exercises, drills, inspections, and interface with emergency response agencies. The web link for the overview can be accessed by positioning the cursor over the underlined text and following the directions.
3. On October 1, the NRC held a public meeting to discuss the Commission's work in decommissioning, low-level waste, and spent fuel storage and transportation. The spent fuel discussion centered on its manpower and funding resources with an eye to its 2020 goals. The plan envisioned licensing improvements, establishing a renewal regulatory framework and risk informing it, resolving technical issues, and improving efficiency for the safety-security interface. The staff also informed it was

adapting to longer storage periods and scenarios such as storage to transportation to storage. The staff also noted external and internal influences, like an evolving national strategy, increased public interaction, and storage at non-reactor sites. Other issues confronting the Commission were the impending surge of storage renewals (35 in 2020), managing aging processes and time-limited aging analyses for concrete containers and spent fuel canisters, and technical issues associated with chloride induced stress corrosion cracking, high burnup fuel, in service inspections, and thermal modeling. The web links for the agenda and presentation slides (can be accessed by positioning the cursor over the underlined text and following the directions. (Note: The spent fuel slides run from number 35 to number 62.)

4. On October 6, the four regional transportation committees sent a letter to the Acting Assistant Secretary to the DOE's Office of Nuclear Energy alerting him of their disappointment when it came to DOE's internal review process for releasing draft information that was consulted on or for DOE to provide draft documents requested by the regional groups. The regional groups urged the Acting Assistant Secretary to streamline this process so as to timely share documents with states and tribes. The web link for the letter can be accessed by positioning the cursor over the underlined text and following the directions.
5. On October 6, NRC's Executive Director of Operations issued a memorandum on the proposed rulemaking on security requirements for facilities storing spent nuclear fuel and high-level waste. The memorandum noted that the Commissioners accepted the staff's recommendations to postpone for five years the proposed security rulemaking after which time the staff will re-evaluate whether the rulemaking is necessary. However, the memorandum also highlighted that the staff could accelerate the rulemaking prior to the five years provided the staff provided the Commission with their basis for the change.
6. On October 6, the President and CEO of Connecticut Yankee forwarded a letter to Connecticut Congressman Courtney applauding his initiative to co-sponsor the "Interim Consolidated Storage Act of 2015" and his continuing efforts for nuclear waste reform legislation. The House legislation would provide for the priority removal of stranded spent nuclear fuel at shutdown reactor sites, allow the Secretary of Energy to enter into contract with private companies that hold a license for an interim consolidated storage facility, and, very importantly, allow for the transfer of title of the spent nuclear fuel from the nuclear utilities to the Energy Secretary. The web link for the letter can be accessed by positioning the cursor over the underlined text and following the directions.
7. On October 7, the National Transportation Stakeholders Forum's Rail/Routing Ad Hoc Working Group held a web meeting to discuss the groups work plan for the next couple of years. The work plan will develop a common understanding of how future rail shipments of spent nuclear fuel will operate, identify outstanding issues or questions to resolve in advance of commercial shipping campaigns, and facilitate a dialogue between DOE and Federal Rail Administration and Tribes and states. The goal will be to identify key issues to rail transport, address those issues and document the work done through issues papers. The Group did review a Sample Route analysis that was performed for an eastern and a western shipping site. The eastern site example was a heavy haul truck to a rail spur starting from Connecticut Yankee and ending in Kansas City. Likewise the western example was from Humboldt Bay in California to Kansas City. The analysis identified certain rail characteristics that need to be factored into the rail selection criteria. They were track class, signal type, route clearances, and carrier interchanges. The meeting closed with a discussion on the agenda for the November meeting in Des Moines, Illinois. The Group will focus on a routing background information paper, a discussion on reciprocal rail inspections, and impending enhancements to DOE's START planning tool. The web link for the routing analysis can be accessed by positioning the cursor over the underlined text and following the directions.

8. On October 8, the U.S. Nuclear Infrastructure Council forwarded a letter to both Chairs and Ranking Members of the Senate and House Appropriations Committees urging them to end the impasse and act to reshape the country's nuclear waste management program by appropriating funds for spent nuclear fuel and high-level waste disposal. The Council noted that federal inaction and delays has already costs taxpayers billions in settlements that continue to mount and further emphasized that the Yucca Mountain Project "has consistently been shown to be a workable option." The Council requested that Congress provide appropriate funds for DOE and NRC to complete the Yucca Mountain licensing process, to establish consolidated storage for shutdown sites, and provide infrastructure and other transportation needs to support a national shipping campaign. The web links for the letter and a perspective on the backend outlook can be accessed by positioning the cursor over the underlined texts and following the directions.

9. On October 14, the quarterly brief of the Federal Energy Regulatory Commission (FERC) Rate Case Settlement took place. The three Yankee Companies held their quarterly conference call to brief interested stakeholders from the states of Maine, Massachusetts, and Connecticut on the status of FERC's rate case settlement on spent nuclear fuel storage issues. A spokesperson for the General Counsel updated the attendees on Yankee Companies' Phase III litigation damage claims for the period 2009 through 2012. The trial was held June 30 and ran through July 1. The Judge requested post-trial briefings be completed by October 14, 2015. The Department of Justice filed a motion to extend the time for briefing and the three Yankee's response to the motion was due October 28. Once the briefings are filed, the case will be ready for a decision. However, it was presumed that the decision would not be rendered until next year. On the national scene it was reported that the Texas Waste Control Specialist Corporation was on schedule to submit to the NRC their application for the construction of a consolidated interim storage facility in March 2016. It was also noted that the New Mexico Eddy-Lea Energy Alliance was expecting to submit their consolidated storage application to NRC by June 2016. On the congressional side Representative Conaway from Texas introduced The Interim Consolidated Storage Act of 2015. The proposed legislation would allow the DOE to contract with private organizations that are developing consolidated interim storage facilities. The bill also maintained priority for shutdown reactor sites. Congresswoman Pingree from Maine and Congressman Courtney from Connecticut were cosponsors of the legislation. Other national initiatives included the DOE's contract award to AREVA for the design and fabrication of a rail cask and buffer railcars to meet new federal standards on shipping high-level radioactive material. It was also reported that President Obama had created the Basin and Range National Monument in Nevada that would prevent the construction of a proposed rail line to Yucca Mountain. No new developments were expected on congressional funding for nuclear waste initiatives as the government was now operating under a limited continuing resolution. It was further mentioned that the NRC continued its public comment process on its draft supplemental environmental impact statement on Yucca Mountain. The State of Nevada had requested a 60 day extension on the comment deadline. The NRC responded by extending the deadline by 30 days with the comment period closing on November 20.

10. On October 15, the NRC held a conference call with the public on comments they may have on its draft supplemental Environmental Impact Statement (EIS) on Yucca Mountain. Twenty-five individuals commented on the draft EIS. The comments were similar to previous ones with some advocating stopping the production of the waste, while some brought up the issue of safety for the long term storage of spent fuel in the pool at the Pilgrim nuclear power station in Plymouth, Massachusetts.

11. On October 19, the National Transportation Stakeholders Forum held a webinar on "NRC Regulation of Spent nuclear Fuel Shipments." The NRC staff explained how spent nuclear fuel shipment routes are reviewed and approved. The staff did note that the primary road routes are approved for five years whereas the primary rail routes are approved for seven years since they are less prone to change. The attendees also received information on advance notification of shipments to states and tribes, timing, and restrictions on sharing safeguards information. The NRC also discussed changes to the regulations

when it came to Tribes and coordination and pre-planning requirements. The web links for the presentations on routes, notifications, and tribes can be accessed by positioning the cursor over the underlined texts and following the directions.

12. On October 20, the U.S. Nuclear Waste Technical Review Board held an international workshop on Deep Borehole Disposal. The two day event featured speakers and panelists from the United Kingdom, Germany, Sweden, Canada, and Norway, besides the U.S.'s DOE, EPA, Universities, and National Laboratories. Specific questions were posed for some presenters and most panelists. The topics included DOE's Deep Borehole Program and Field Test, an international as well as an EPA perspective on the Borehole concept, experience in deep drilling in crystalline rock, emplacement method(s) at depths of two to three miles underground, borehole seals, hydrogeology and geochemistry of fluids at depth, multiple barriers, efficacy of the concept and risk analysis, and key observations from the panelists. The web link for the agenda can be accessed by positioning the cursor over the underlined text and following the directions. The presentations can be found at the following link <http://www.nwtrb.gov/meetings/2015/oct/15oct.html> and by clicking on the individual underlined links.
13. On October 20, the Council of State Governments Eastern Regional Conference's Director of the Northeast's Transportation Task Force transmitted to the DOE the states evaluation report of the DOE's grant approval process for future funding of shipping spent nuclear fuel. The report outlined the states four major goals and expectations for the exercise. Each goal was evaluated with a listing of what worked and what areas needed improvements. Additional comments were provided on the support state participants received from the staff of DOE and the Council's four regional groups, on the participants' use of the DOE's START planning tool, and their overall assessment of the exercise. The participants proposed four recommendations. They noted that the previous DOE cost assumptions for funding states were underestimated, state involvement greatly exceeded DOE's estimates, DOE's START tool needed further development, and any future exercise needed to test DOE's funding allocation formula. The web link for the letter and report can be accessed by positioning the cursor over the underlined text and following the directions.
14. On October 21, the Black Mountain Research Organization provided a report to Nevada's Agency for Nuclear Projects that provided a summary of all the congressional districts potentially affected by shipments to Yucca Mountain in Nevada. The report was based on DOE's final supplemental environmental impact statement of representative routes that could be used to ship spent fuel by rail or highway. The web link for the report can be accessed by positioning the cursor over the underlined text and following the directions.
15. On October 27, the Bipartisan Policy Center (BPC), a Washington think tank founded by four former Senate Majority Leaders, held a live webcast to explore the major themes that surfaced at five regional meetings discussing America's nuclear waste management program with industry and community leaders. Three themes stood out; consent-based siting, the need for a separate agency to manage the nation's nuclear stockpile, and transportation. The BPC announced that they were releasing another issue brief today on the major themes underscored at the regional meetings over the past 18 months. The brief listed ten areas of general agreement as well as eight areas of disagreement and continued discussion. The brief also pointed out regional attitudes and differences on nuclear waste issues and concluded that the major areas of agreement and disagreement could provide insights to achieving a national consensus on how to proceed. The webcast (<http://bipartisanpolicy.org/events/exploring-major-themes-nuclear-waste-conversation/>) and the brief can be accessed by positioning the cursor over the underlined texts and following the directions.
16. On October 27, the Nuclear Information and Resource Service (NIRS) issued a press release stating that a new map showed the Washington, D.C. area would be part of a corridor for extremely dangerous radioactive nuclear waste shipments. The group stated that over 250 nuclear waste shipments from

reactors in Virginia and Maryland would cross the Washington DC metropolitan area. A NIRS representative was quoted as saying that the DC area was not ready for a mass shipping campaign of this magnitude. The web link for the press release can be accessed by positioning the cursor over the underlined text and following the directions.

17. On October 28, the Nuclear Waste Strategy Coalition sent a letter to both the House and Senate Chairs and Ranking Members Appropriations Subcommittees urging them to fund for Fiscal Year 2016 a re-start of the government's spent nuclear fuel management program without any more delays. The Coalition advocated for consolidating spent fuel storage with priority given to shutdown reactor sites, completing the Yucca Mountain license application review process, preparing the transportation infrastructure for a national shipping campaign, and engaging potential host communities. The web link for the letter can be accessed by positioning the cursor over the underlined text and following the directions.
18. On October 29, the Nuclear Waste Management Organization (NWMO) of Canada completed the first phase of its Preliminary Assessment for Central Huron in Ontario. The municipality was assessed as having the potential to meet the site selection criteria for the disposal of spent nuclear fuel. Canada's NWMO published nine reports on the suitability of the Central Huron area. The reports covered such topics as geologic fitness, community profile and well-being, the environment, a summary of the Phase I decisions, and a preliminary integrated assessment. The reports ranged in size from 22 pages to 172 pages with over half of the information referring to the geologic suitability of the area. The web links for the news article (http://www.nwmo.ca/news?news_id=457), and the reports can be accessed by positioning the cursor over the underlined texts and following the directions. The individual reports can be further accessed by clicking on the individual titles at the bottom of the web page.

State Nuclear Safety Inspector Office
Maine CDC – DHHS

November 2015 Monthly Report to the Legislature

Executive Summary

The report covers activities at the Maine Yankee Independent Spent Fuel Storage Installation (ISFSI) facility, including the State's ongoing environmental radiation surveillance and provides updates on the national effort to license and construct a consolidated interim storage facility and/or a permanent geologic repository for the disposal of spent nuclear fuel. Maine's goal is to move the ISFSI waste stored at Maine Yankee to one of these facilities. The report's highlights assist readers to focus on the significant activities that took place both locally and nationally during the month.

Local

- The Chairs of the Communities and Citizens Advisory Panels for Maine, Connecticut, Massachusetts, and Vermont forwarded a letter to members of the New England delegation urging them to overcome the stalemate in Congress over nuclear waste management policy by supporting legislation introduced in the House on interim storage. The Panels declared that indefinite on-site storage of spent nuclear fuel in their communities was unacceptable and instituting a pilot consolidated storage facility focused on the stranded spent fuel at their sites would go a long way in relieving their communities' burden by returning these sites to productive use.

National:

- A team of Chinese scientists have moved a step closer to a breakthrough that could end the nuclear waste problem and remove the meltdown threat. The Chinese used an external, accelerator-driven proton beam to sustain nuclear fission, which stopped immediately when the beam was turned off. The proton beam was able to change heavy elements such as plutonium, americium and other long-lived radioactive elements into elements with much shorter half-lives decreasing significantly the geologic isolation time for disposal from the current one million years to a few hundred years.
- On November 12, Finland became the first country in the world to approve the construction of a permanent underground repository for spent nuclear fuel. Construction will start in 2016 and the facility could begin operation in 2023.
- In its initial license application to the Nuclear Regulatory Commission on constructing a consolidated storage facility in Andrews, Texas, Waste Control Specialists stated that they will be concentrating on stranded fuel from the shutdown reactor sites of Maine Yankee, Connecticut Yankee, Millstone Unit 1 in Connecticut, Yankee Rowe in Massachusetts, La Crosse Power Station in Wisconsin, Zion Units 1 and 2 in Illinois, Oyster Creek in New Jersey, and the California sites of Rancho Seco and San Onofre Unit 1.

Introduction

As part of the Department of Health and Human Services' long standing oversight of Maine Yankee's nuclear activities under Title 22, Maine Revised Statutes (MRS) §666 (2), legislation was enacted in the second regular session of the 123rd and signed by Governor John Baldacci requiring that the State Nuclear Safety Inspector prepare a monthly report on the oversight activities performed at the ISFSI facility located in Wiscasset, Maine.

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

Independent Spent Fuel Storage Installation (ISFSI)

During November, the general status of the ISFSI was normal, with no instances of spurious alarms due to environmental conditions.

There were no fire-related impairments for the month. However, there were five security incident reports logged for the month. Three of the incident reports were written to provide compensatory measures to support a system maintenance activity. The other two reports were due to a security system degradation due to an equipment malfunction which required compensatory measures until the system was restored.

There were twelve condition reports¹ (CR) for the month and they are described below.

- 1st CR: Was written to track three deficiencies noted in a recent quality assurance surveillance regarding proper documentation and closure of engineering, license basis documents and regulatory correspondence. The CR remained open pending resolution of these issues.
- 2nd CR: Was written to track seven areas for improvement from a recent quality assurance surveillance regarding various documentation issues including logging, closure, and transmittal to records. All seven issues were addressed.
- 3rd CR: Documented an incorrect time stamp on the temperature monitoring computer. The time was reset and a tracking item was created to ensure the time was correct at daylight savings time changes.
- 4th CR: Documented the degradation of the security system due to an equipment malfunction. Compensatory measures were put into place until the system was restored the same day.
- 5th CR: Documented the degradation of the security system due to another equipment malfunction. Compensatory measures were put into place until the system was restored.
- 6th CR: Documented a video monitor degrading. Adjustments were made to improve the quality and the CR remained open pending replacement of the monitor.
- 7th CR: Documented that a utility vehicle was running poorly. The vehicle was sent out for repairs and was returned.
- 8th CR: Documented that the Diesel Generator shut down in five minutes after a momentary loss of offsite power. It was determined that this was the expected response as the transfer switch did not actuate because the power loss was so short.
- 9th CR: Documented a potential trend in nuisance alarms for the third quarter. The frost heaves project corrected some of the issue. Therefore, a project is planned for next year to address the rodent issue.
- 10th CR: Documented that numerous bolts along the fence line protruded into a walkway causing a safety concern for catching clothing with the CR remaining open pending an evaluation.
- 11th CR: Documented that the patrol vehicles do not have storage devices for long guns. The CR remained open pending an evaluation.
- 12th CR: Documented a process improvement for temporary weapons storage. Weapons had been stored in an area not designated for storage. Guidance was provided on approved storage areas.

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

Other ISFSI Related Activities

1. On November 9, Maine Yankee informed the NRC of a change in their Board of Directors. Two members from the Canadian firm, Emera, were removed and replaced with two other individuals from the firm. Since they represent a foreign sponsor company, both signed certifications of foreign sponsor representatives to “ensure that Emera Maine will not exert control, domination, or influence over operational, safety or security matters at Maine Yankee.”
2. On November 17, Maine Yankee submitted comments to the NRC on their draft Fuel Retrievalability in Spent Fuel Applications document. Maine Yankee had four comments. They supported the NRC staff’s position that retrievability should include removal from both a canister loaded with spent fuel from a storage cask and a cask loaded with spent fuel from a storage location. Maine Yankee also supported NRC’s reliance on Aging Management Programs and Time-Limited Aging Analyses for license renewals. Since Maine Yankee no longer has the capability to retrieve fuel loaded in their casks, they advocated for retrievability to be performed at future consolidated storage or repository facilities.

Environmental:

The State received the third quarter results in late October from the field replacement of its thermoluminescent dosimeters (TLDs) around the ISFSI and the Maine Yankee industrial site. The results from the quarterly TLD change out continued to illustrate three exposure groups: elevated, slightly elevated, and normal. The two usual high stations were stations G and K with one extra station this quarter, F, all with an average of 27.2 milliRoentgens² (mR).

There were ten stations in the slightly elevated group (A, C, D, E, I, J, L, M, O, and Q) with an average of 24.6 mR. Normally, stations C, D, M, and O are in the normal group. For the second consecutive quarter there were more stations that experienced higher than normal readings as evidenced by three stations in the elevated grouping and ten in the slightly elevated group. Fluctuations in the background are not unusual and are expected. These appear to be within the statistical boundaries of seasonal variations. That left only four stations (B, H, N, and P) in the normal group with an average of 22.0 mR for this quarter.

The Maine Yankee industrial site TLDs averaged 22.3 mR, which is comparable to the normally expected background radiation levels of 15 to 30 mR for the coast of Maine. The industrial site TLD results exhibited the expected seasonal variations with the third quarter results being slightly higher than the previous quarter. Some of the stations have background levels that are highly dependent upon tidal effects, and local geology. However, virtually all the stations display some seasonal fluctuations that are affected by the out gassing of the naturally occurring radioactive gas, Radon.

The four control TLDs that were stored at the State’s Health and Environmental Testing Laboratory (HETL) in Augusta averaged about 11.7 mR. Although the storing of the control TLDs at HETL’s pre-World War II steel vault lowers the natural background values, the 11.7 mR value for this quarter was slightly higher than the second quarter’s control results of 11.0 mR. There appears to be no obvious reason for the increase. The controls were initially part of a program to better quantify the individual impacts of storage and transit exposures on the TLDs. However, as indicated above, they also have been instrumental in pointing out changes that normally would have not been captured if it were not for the program.

As a further application of this TLD control assessment, every quarter three of the seven control TLDs received for the upcoming quarter are typically returned to the State’s TLD vendor, Global Dosimetry in California, for an analysis of the transportation exposures. The initial set of results from the control TLD badges returned indicated an average of 7.0 mR for the total exposure picked up between leaving the vendor, arriving at the

² A milliRoentgen (mR) is a measurement of radiation exposure in air. For a further explanation, refer to the glossary on the Radiation Program’s website.

State and then immediately being shipped back and received by the vendor. The 7.0 mR was higher than the previous quarter's reported 6.0 mR transit badges. After three years the State started to see signs of a pattern developing for the different quarters. Nevertheless, it is too early to tell if the pattern was real. More time is needed to verify if the pattern continues. Besides seasonal and daily fluctuations in the background, modest increases or decreases could be attributed to an extra few days or a few days less transit.

The field control TLDs at Ferry Landing on Westport Island, the Edgecomb Fire Station and the roof of the State's Laboratory read 23.8, 25.0, and 20.5 mR, respectively. Historically, the Edgecomb Fire Station value is higher than the Westport Island location.

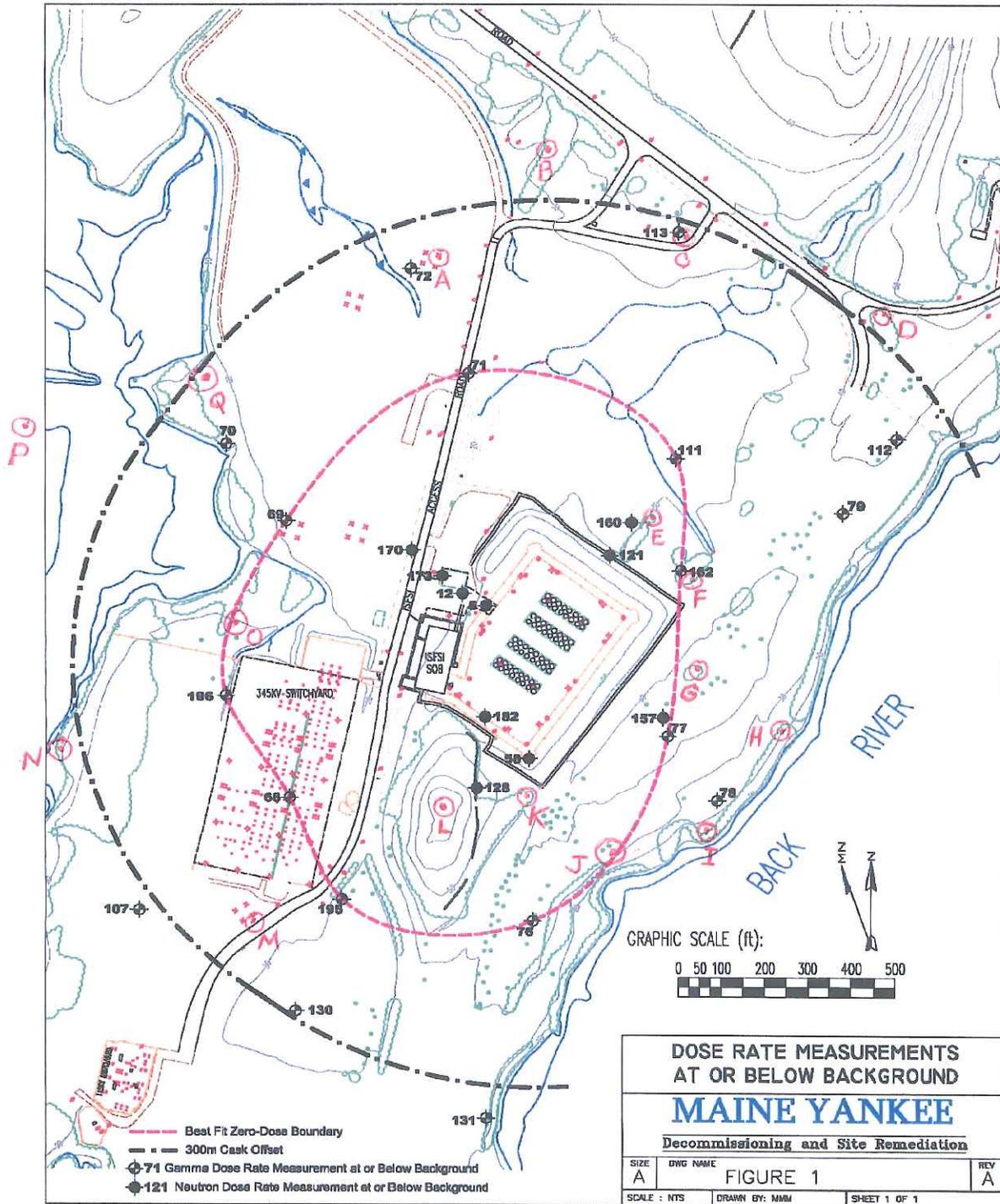
As noted in earlier reports, the State's maintains an environmental air sampler on the roof of HETL for local or national events. The air sampler was extremely instrumental during the Fukushima event in Japan over three years ago in quantifying the levels of radioactivity that was coming from the crippled reactors. This year's third quarter results did not identify any unusual radioactive elements and were within historical ranges for both gross beta³ and Beryllium-7, a naturally radioactive cosmogenic element that is produced from cosmic rays interacting with the nitrogen and oxygen atoms in the atmosphere. The gross beta results ranged from 10.3 to 36.4 femto-curies per cubic meter (fCi/m³)⁴. A composite of the seven bi-weekly air filter samples was used to measure the Beryllium-7's concentration of 71.3 fCi/m³.

For informational purposes Figure 1 on page 5 illustrates the locations of the State's 17 TLD locations in the vicinity of the ISFSI. The State's locations are identified by letters with the highest locations for this quarter as F, G, and K.

³ Gross Beta is a simple screening technique that measures the total number of beta particles emanating from a potentially radioactive sample. Refer to the glossary on the website for further information.

⁴ A fCi/m³ is an acronym for a femto-curie per cubic meter, which is a concentration unit that defines how much radioactivity is present in a particular air volume, such as a cubic meter. A "femto" is a scientific prefix for an exponential term that is equivalent to one quadrillionth (1/1,000,000,000,000,000).

Figure 1



Other Newsworthy Items:

1. On November 3-4, the Western Interstate Energy Board held its fall meeting in Spokane, Washington. Most of the meeting dealt with the U.S. Nuclear Waste Management Program. Presentations included the current status on nuclear waste issues and policy, a status report on nuclear waste activities in the West, a review of NRC activities on Yucca Mountain licensing, spent nuclear fuel storage, aging management, and transportation, DOE's nuclear fuel storage and transportation planning project, transportation security and safety, social risks in transporting spent nuclear fuel and high-level waste, and a discussion on how to capture 30 years of effort going forward. The web link for the meeting [summary](#) can be accessed by positioning the cursor over the underlined text and following the directions.

On November 3-5, the Idaho National Laboratory published the Transactions Report from the Fuel Cycle Technologies Annual Meeting. The meeting encompassed a broad array of Department of Energy (DOE) programs such as fuel resources program, the advanced fuels, nuclear fuels storage and transportation planning project, material recovery and waste form development, joint fuel cycle studies, used fuel disposition research and development, material protection, accounting, and control technologies, and fuel cycle options. The programs covered the entire fuel cycle from the front end to the back end, and the integrating campaigns. The nuclear fuel storage and transportation program (pages 31-47) concentrated on developing options for consolidated storage and transportation with an emphasis on consent-based siting, storage, transportation, and strategic crosscuts. This section also listed the major accomplishments to date, the modeling tools in development, and hardware. The used fuel disposition research and development (pages 79-91) focused on alternatives to support storage, transportation, and disposal in the near-term and long-term. This section also discussed deep borehole testing, international collaboration on disposal research, modeling spent fuel under transportation and storage loads, and the development of inspection and robotic systems for dry storage casks. The report can be accessed at the following web link <https://curie.ornl.gov/system/files/documents/1362/fct-2015-transactions-report-5nov15.pdf> and following the directions.

2. On November 4, an article was published in the South China Morning Post that indicated a team of Chinese scientists had moved a step closer to a breakthrough that could end the nuclear waste problem and remove the meltdown threat. The Chinese used an external, accelerator-driven proton beam to sustain nuclear fission. As soon as the beam was turned off the reactor stopped splitting atoms. Furthermore, the proton beam was able to generate enough fast neutrons to change other heavy elements such as plutonium, americium and other long lived radioactive elements into elements with much shorter half-lives decreasing significantly the geologic isolation time for disposal from the current million years to a few hundred years.
3. On November 6, the White House held a Summit on Nuclear Energy. The summit consisted of three panel discussions: the importance of nuclear energy to meeting low-carbon goals, maintaining U.S. leadership in nuclear energy, and innovation by unlocking the potential of nuclear energy. There were also four presentations on "a new generation – building the future of nuclear energy" that reported on new developments and technologies. At the summit, the DOE announced the establishment of Gateway for Accelerated Innovation in Nuclear (GAIN). The purpose of GAIN was to provide the nuclear energy community with access to the technical, regulatory, and financial support necessary to move new or advanced nuclear reactor designs toward commercialization. The web link for the [Summit's agenda](#) can be accessed by positioning the cursor over the underlined text and following the directions. The White House also circulated a fact sheet for the event that can be found at the following link: <https://www.whitehouse.gov/the-press-office/2015/11/06/fact-sheet-obama-administration-announces-actions-ensure-nuclear-energy>. The DOE GAIN initiative can be found at the following web link: <https://gain.inl.gov/SitePages/Home.aspx>.

3. On November 6, Duke Energy submitted their comments to the NRC on its draft Supplement Environmental Impact Statement on the Yucca Mountain groundwater system. Duke Energy agreed with the NRC staff's conclusion that the groundwater impacts would be small and contended that the assumption employed by NRC was a conservative one as it focused on the maximally exposed individual. Duke also attached a table comparing the maximum calculated groundwater dose with other activities that a U.S. citizen would normally be exposed to radiation. Duke Energy concluded that with the impacts being so minor, they urged the NRC to seek funding from Congress to complete the Yucca Mountain licensing application process. The web link for the [letter](#) can be accessed by positioning the cursor over the underlined text and following the directions.
4. On November 8, the National Association of Regulatory Utility Commissioners held its annual meeting in Austin, Texas. Three presentations at the summit focused on spent fuel management. The first presentation was from the Nuclear Energy Institute (NEI) and presented the inventory of the spent fuel as of December 2014 in wet and dry storage, listed the nation's shutdown reactor sites, reported on what ratepayers and taxpayers have paid into the system, and listed the legislation that was introduced in the last four Congresses. The second presentation was from Waste Control Specialists (WCS) and their bid to build an interim storage facility in western Texas. The presentation centered on the size of the facility they were contemplating constructing, their storage capability, a timeline for filing a license application with the NRC, and their anticipation of the year 2020 when the spent fuel storage facility would be operational. The third presentation was from the Nuclear Waste Strategy Coalition (NWSC). The presentation provided an overview of the member organizations involved, such as state agencies, including Maine, tribal and local governments, and nuclear utilities, their legislative and congressional focus, and their outreach activities. All three presentations ([NEI](#), [WCS](#), and [NWSC](#)) are accessible through their respective web links and can be accessed by positioning the cursor over the underlined texts and following the directions.
5. On November 10, Eureka County in Nevada forwarded their comments to the NRC on the staff's draft supplement to the environmental impact statement (EIS) on groundwater for the Yucca Mountain repository. The County's primary concern was on the health and safety risks associated with the transportation of spent fuel through their county and the need for appropriate emergency response capability. The County argued that the NRC's draft EIS did not meet the demanding environmental review directed by the National Environmental Policy Act. They contended that DOE's conclusions in their final EIS submitted in 2008 was based on their Transportation, Aging, and Disposal (TAD) canister for containing the radioactivity and instead the DOE was now proposing to use the Standardized Transportation, Aging, and Disposal (STAD), which was significantly different than the TAD. The County also maintained that the NRC's generic EIS on continued storage of spent nuclear fuel contradicted the Yucca Mountain EIS. The County further insisted that a new draft supplemental EIS be composed and reissued for public review and comment. The web link for the [letter](#) can be accessed by positioning the cursor over the underlined text and following the directions.
6. On November 12, the NRC held its final public conference call to receive comments on their draft supplemental environmental impact statement for the proposed yucca mountain repository. The NRC provided a background on the environmental review, the scope of the supplement, its findings on what areas and resources would be potentially affected, what bounding conditions, and its conclusions. There were ten commenters. The web link for the [presentation slides](#) can be accessed by positioning the cursor over the underlined text and following the directions.
7. On November 12th the Bipartisan Policy Center, a Washington think tank, held a meeting to discuss "Moving Forward on Nuclear Waste: Novel Approaches, Solutions, and Considerations". Topics included Korea's spent nuclear fuel management program, consolidated storage, defining consent-based approaches, and technical perspectives and considerations on factors affecting geological suitability of

repository sites. The web link for the [agenda](#) can be accessed by positioning the cursor over the underlined text and following the directions.

8. On November 12, Finland became the first country in the world to approve the construction of a permanent underground repository for spent nuclear fuel on Olkiluoto Island. The spent nuclear waste will be packed in copper canisters and placed in holes lined with bentonite. Construction will start in 2016 and was expected to cost \$1 billion. The facility could receive an operating license and begin operation in 2023 provided the government receives and reviews analyses on environmental impacts, retrievability of the spent nuclear fuel, and transport risks.
9. On November 16, the Chairs of the Communities and Citizens Advisory Panels for Maine, Connecticut, Massachusetts, and Vermont forwarded a letter to Senator Leahy of Vermont and other members of the New England delegation urging them to overcome the stalemate in Congress over nuclear waste management policy by supporting legislation introduced in the House on interim storage. The Panels declared that indefinite on-site storage of spent nuclear fuel in their communities was unacceptable and instituting a pilot consolidated storage facility focused on the stranded spent fuel at their sites would go a long way in relieving their communities' burden by returning these sites to productive use. The web link for the [letter](#) can be accessed by positioning the cursor over the underlined text and following the directions.
10. On November 17, NEI forwarded their comments to the NRC on their draft supplement to the DOE's Environmental Impact Statement (EIS) on the Yucca Mountain repository in Nevada. Based on the NRC staff's determination that groundwater impacts would be small, NEI urged NRC to complete the Yucca Mountain licensing process by having their Atomic Safety and Licensing Board rule on the 299 contentions to the license application. NEI submitted supporting arguments as to why the NRC scope of the draft EIS was appropriate and in accordance with the National Environmental Policy Act and that NRC's conclusion of small environmental impact was justified based on their safety analysis report. NEI also took issue with comments from the Amargosa Conservancy that disputed the NRC's groundwater assessment and sought an independent assessment of the contentions raised by the Amargosa Conservancy. The independent evaluation addressed the Conservancy assertions and contended that the likely groundwater source cited in the Conservancy reports were from the Spring Mountains and not Yucca Mountain as they presumed. The web link for the [letter, comments, and the independent assessment](#) can be accessed by positioning the cursor over the underlined text and following the directions.
11. On November 17, the Yankee Atomic Electric Company submitted their comments on the NRC's draft guidance on spent fuel retrievability in storage applications. The company agreed with the NRC guidance on what spent fuel configurations could be retrieved and the NRC staff's reliance on the facility's aging management programs and time-limited aging analysis. Yankee Atomic is part of the three Yankees consortium that includes Maine Yankee and Connecticut Yankee. The web link for the [letter](#) can be accessed by positioning the cursor over the underlined text and following the directions.
12. On November 17-18, the National Transportation Stakeholders Forum's Rail/Routing Working Group held a meeting to discuss its future work plan. The Navy presented an overview of its spent nuclear fuel shipping program, the different shipping containers, and examples of two shipping events. The state of Illinois provided its perspectives on rail inspections while the Federal Railroad Administration provided theirs. The second day featured a mock inspection based on the Commercial Vehicle Safety Alliance Inspection Program. The day was capped with further discussions on issue papers such as routing and sample routes, an update and demonstration of the DOE's Stakeholder Tool to Assess Radioactive Transportation, and future activities. The web links for the meeting [agenda](#) and [summary](#) can be accessed by positioning the cursor over the underlined text and following the directions. The Navy presentation is available by clicking on the following link: [Navy Program](#).

13. On November 18, the Nuclear Waste Strategy Coalition submitted their comments to the NRC's draft Supplemental Environmental Impact Statement on the groundwater from the Yucca Mountain repository. Armed with the conclusions that the groundwater environmental impact would be small and the safety evaluation report confirming the safety of the Yucca Mountain repository, the Coalition urged the NRC to seek funding from Congress to complete the Yucca Mountain licensing review. The Coalition is an ad hoc organization of state utility regulators, consumer advocates, energy officials, and radiation officials, tribal governments, local governments, electric utilities, and other private and public sector experts. The web link for the [letter](#) can be accessed by positioning the cursor over the underlined text and following the directions.
14. On November 18-19, the NRC held its annual spent fuel management regulatory conference to discuss issues involving spent fuel storage and transportation. The first day was concentrated on storage licensing, change control threshold issues for tests, physical changes, and experiments, spent fuel storage and transportation research activities, and stakeholder perspectives. The second day focused on inspections and operating experience, transportation certification, technical issues such as extended storage and cladding, and potential consolidated storage in Texas and New Mexico. The web link for the agenda can be accessed by positioning the cursor over the ensuing underlined text <http://www.nrc.gov/public-involve/conference-symposia/dsfm.html> and following the directions. The individual presentations can be accessed by clicking on their titles.
15. On November 19, Waste Control Specialists stated that they will be concentrating on stranded fuel from the shutdown reactor sites in its initial license application to the NRC on constructing a consolidated storage facility in Andrews, Texas. Their license application will cover the spent fuel from Maine Yankee, Connecticut Yankee, Millstone Unit 1 in Connecticut, Yankee Rowe in Massachusetts, La Crosse Power Station in Wisconsin, Zion Units 1 and 2 in Illinois, Oyster Creek in New Jersey, and the California sites Rancho Seco and San Onofre Unit 1. However, the largest obstacle looming will be the revision to the Nuclear Waste Policy Act (NWPA) to allow for the construction of interim storage facilities. Representative Conaway from Texas introduced legislation in the House to amend the NWPA to permit DOE to partner with private companies for storing spent fuel. The web link for the [article](#) can be accessed by positioning the cursor over the underlined text and following the directions.
16. On November 20, the Swedish Radiation Safety Authority announced that their preliminary assessment indicated that, of all the Swedish sites investigated for a deep geologic repository, the Forsmark site was the most suitable because of its dry and low fracturing granite bedrock. The Authority will submit its final conclusions to the court next spring and then the government. The government was expected to make a final decision in 2017 with construction and operation beginning in 2030.
17. On November 20, the Massachusetts Institute of Technology (MIT) issued a news release indicating that new research showed cement was an effective binding agent for containing radioactive materials and a compelling choice for long-term confinement of nuclear wastes. The study was performed with cement as a waste form and using Strontium-90 and its decay products (Yttrium-90 and Zirconium-90) as the radioactive constituents. The web link for the MIT news release is <http://mitei.mit.edu/news/nanoscale-concrete-proves-effective-nuclear-containment>.
18. On November 20, the State of Nevada submitted their comments to the NRC's draft Supplemental EIS on the Yucca Mountain repository's groundwater impact. The letter reiterated what the Governor previously maintained in his September 15 letter to the NRC that the DOE license application was untenable, the repository was unsafe, and that DOE does not have the necessary land and water rights to construct the repository. The State asserted that the draft EIS violated both the National Environmental Policy Act (NEPA) and the Nuclear Waste Policy Act (NWPA) as amended. The comment section outlined 19 major points of contention on how the draft utterly failed to meet the requirements and intent

of NEPA and NWPA. In addition, the State took issue with the groundwater assessment by citing 13 deficiencies relative to climate conditions, water intrusion, modeling, and dose consequences. In the end the State concluded that the proposed repository would not be protective of its people and environment. The web links for the [letter and comments](#) can be accessed by positioning the cursor over the underlined texts and following the directions.

19. On November 23, NEI sent a letter to the House Chair of the Energy and Commerce informing on their updated principles for managing the country's spent nuclear fuel. NEI revised their legislative principles based on NRC's determination that the Yucca Mountain repository would meet EPA's radiation standards, NRC's completion of the supplemental environmental statement on ground water, and the D.C. Court of Appeals ruling that DOE cease collecting fees until the Yucca Mountain Project is resurrected or another site has been chosen to dispose of the spent nuclear fuel. NEI urged congressional leaders to support funding for a consolidated storage facility and for completing NRC's Yucca Mountain license proceedings. NEI listed ten legislative principles for Congress to consider ranging from a new management organization other than DOE to the intended use of the Nuclear Waste Fund to developing a consolidated storage facility with priority to shutdown reactor sites to research reducing the volume, heat, and toxicity of the by-products of spent nuclear fuel to states and communities receiving benefits for hosting storage or disposal facilities. The web link for the [letter](#) can be accessed by positioning the cursor over the underlined text and following the directions.
20. On November 23, the NRC forwarded to the House Chair of Energy and Commerce their Yucca Mountain status report for October. The report noted the staff's achievements to date, such as the publication of the remaining four volumes of the Yucca Mountain Safety Evaluation Report and the draft supplement to the DOE's EIS of the Yucca Mountain repository. The report stated that the October expenses amounted to \$78,809 with \$78,442 of that spent on the development of the EIS supplement. The total unobligated funds remaining amounted to about \$2.8 million, of which \$1.1 million would be needed to load all the licensing documents into the NRC's public document system. The web link for the [cover letter](#) and [report](#) can be accessed by positioning the cursor over the underlined texts and following the directions.
21. In November, the Nuclear Waste Technical Review Board issued to Congress and the Secretary of Energy two reports, both entitled, "Designing a Process for Selecting a Site for a Deep-Mined, Geologic Repository for High-Level Radioactive Waste and Spent Nuclear Fuel." However, one of the reports was an Overview and Summary while the other was a Detail Analysis Report. The Board recommended that DOE's siting guidelines for 1984 were appropriate for site selection as long as they contained Host-Rock-Specific-Criteria for the different types of geologic formations, such as salt, clay/shale, and crystalline rock. However, DOE's 2001 site suitability for Yucca Mountain would not be appropriate for the initial site selection. The Board further recommended that "any new site-suitability criteria minimize ambiguity" and the "final choice of a site await extensive underground characterization." The web link for the [Overview and Summary](#) can be accessed by positioning the cursor over the underlined texts and following the directions. For those who wish to review the Detailed Analysis Report, the web link is http://www.nwtrb.gov/reports/siting_report_analysis.pdf.

State Nuclear Safety Inspector Office
Maine CDC – DHHS

December 2015 Monthly Report to the Legislature

Executive Summary

The report covers activities at the Maine Yankee Independent Spent Fuel Storage Installation (ISFSI) facility, including the State's ongoing environmental radiation surveillance and provides updates on the national effort to license and construct a consolidated interim storage facility and/or a permanent geologic repository for the disposal of spent nuclear fuel. Maine's goal is to move the ISFSI waste stored at Maine Yankee to one of these facilities. The report's highlights assist readers to focus on the significant activities that took place both locally and nationally during the month.

Local

- Maine Yankee submitted its updated Decommissioning Funding Plan to the Nuclear Regulatory Commission (NRC). The Plan listed the costs for managing the spent nuclear fuel and Greater Than Class C Waste and decommissioning the ISFSI through 2033. The Decommissioning Cost Estimate submitted as part of the Plan appraised the total cost for decommissioning the ISFSI at \$27.4 million with the radiological portion costing about \$21.6 million.

National:

- The Department of Energy's (DOE) Office of Inspector General released an audit report of the Nuclear Waste Fund, which showed a balance of \$34.4 billion with the Fund earning over \$1.5 billion in interest in Fiscal Year 2015. Since the federal government's 1998 default on its contracts with nuclear utilities to take the spent nuclear fuel, the report highlighted that taxpayers have paid \$5.3 billion to date in awards to utilities with an estimated federal liability of \$23.7 billion remaining. The Fund is used for the ultimate disposal of the nation's spent fuel stockpile.
- The Western Governors' Association issued a Policy Resolution on the transportation of radioactive waste, radioactive materials, and spent nuclear fuel. The resolution stressed the federal government's role in ensuring "early coordination and communication with state, tribal, and local governments" and emphasized the "responsibility of the federal government and the generators of spent nuclear fuel to pay for all transportation costs" borne by states, tribes, and local governments.
- DOE published in the Federal Register its intent to seek public comment on what elements should be contained in a consent-based process for the siting of nuclear waste storage and disposal facilities. To facilitate involvement DOE provided five questions to start the discussion on designing a process.

Introduction

As part of the Department of Health and Human Services' long standing oversight of Maine Yankee's nuclear activities under Title 22, Maine Revised Statutes (MRS) §666 (2), legislation was enacted in the second regular session of the 123rd and signed by Governor John Baldacci requiring that the State Nuclear Safety Inspector prepare a monthly report on the oversight activities performed at the ISFSI facility located in Wiscasset, Maine.

The State Inspector's individual activities for the past month are highlighted under certain broad categories, as illustrated below. Since some activities are periodic and ongoing, there may be some months when very little will be reported under that category. It is recommended for reviewers to examine previous reports to ensure connectivity with the information presented as it would be cumbersome to continuously repeat prior information

in every report. Past reports are available from the Radiation Control Program's web site at the following link: www.maineradiationcontrol.org and by clicking on the nuclear safety link in the left hand margin.

Independent Spent Fuel Storage Installation (ISFSI)

During December, the general status of the ISFSI was normal, with no instances of spurious alarms due to environmental conditions.

There were no fire-related impairments for the month. However, there were four security incident reports logged for the month. Two of the incident reports were written to provide compensatory measures to support a system maintenance activity, while a third was to support snow removal. The fourth report involved a degradation security system due to an offsite equipment malfunction which required compensatory measures until the system was repaired and restored later that day.

There were twenty-two condition reports¹ (CR) for the month and they are described below.

- 1st CR: Documented a potential tripping hazard on the second floor of the building. The area was evaluated and caution tape and signage was added.
- 2nd CR: Documented that one radio channel was not working when contacting Lincoln County. Troubleshooting determined that the problem was with the Lincoln County's radio set. The radio was repaired.
- 3rd CR: Documented an outside light was turning off and then back on at different times during the night. The light was observed for three weeks with no repeat occurrence. If the problem recurs, the ballast will be replaced.
- 4th CR: Documented an evaluation of the Maine State Police notification protocol during an Unusual Event. The evaluation recommended that the protocol be discussed with the State to determine which State agency should take ownership of the protocol.
- 5th CR: Documented a potential procedure non-compliance regarding weapons storage requirements. Personnel were briefed on the weapons storage and availability requirements.
- 6th CR: Documented two suspect phone calls on the same day. The first caller phoned several times requesting to speak to a staff member but would not say why. The second caller asked to speak to a person not employed by Maine Yankee. Since the phone calls did not meet the suspicious activity definition, the NRC was not notified. However, a courtesy notification was made to the Maine Information and Analysis Center.
- 7th CR: Documented that some wooden planks covering the gaps between cask pads had come loose. The planks were reattached with new screws.
- 8th CR: Documented the identification of some chipping of concrete along the bottom edge of several concrete casks. These were previously identified and found acceptable. Their condition will be tracked for any further degradation.
- 9th CR: Documented that during movement of file cabinets, a fire door was received a small dent. The door was assessed to be functional with no impact to its fire rating. The dent was repaired.
- 10th CR: Documented that an earthquake had occurred in Waldoboro. No movement was felt or seen at the site. Nevertheless, a site inspection was performed as a precaution.
- 11th CR: Was written to track recommendations from the Independent Management Assessment performed in November. The Assessment made twelve recommendations including training on a safety conscious work environment, enhancing procedure change tracking, and modifying the condition report process. The CR will remain open pending evaluation of each recommendation.
- 12th CR: Documented a procedural weakness with vehicle control. The procedure did not contain an

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

- expiration date column and a company vehicle's access authorization form had expired.
- 13th CR: Documented that a trouble alarm was received in an alarm system. Compensatory measures were put into place. A vendor representative was brought in to troubleshoot. The problem was determined to be due to an offsite vendor's equipment. The equipment was repaired and the system was tested satisfactorily later that day.
- 14th CR: Documented the notification of a vendor informing Maine Yankee of a trouble alarm received at their end from the previous day. The system was working satisfactorily.
- 15th CR: Documented a battery pack/emergency light was not listed in Attachment D of a fire protection procedure. The procedure was updated to reflect the equipment.
- 16th CR: Documented an additional comment from the Independent Management Assessment. Two CRs written in 2015 were suggested for possible re-opening based on the corrective actions. Both CRs were reviewed and determined to be closed appropriately.
- 17th CR: Documented a repeat issue with the Lincoln County's radio system identified earlier in the month. Lincoln County switched to their back-up radio and eventually replaced their primary radio.
- 18th CR: Documented a log entry was missing for the inventory of two computer thumb drives. The inventory records were correct but the initiating log entry was not made.
- 19th CR: Documented that a heater had failed in an equipment cabinet, even though the cabinet temperatures met procedural requirements. A heater was ordered and the failed unit replaced.
- 20th CR: Documented that a Digital Video Recorder (DVR) had lost its recording capability. All security systems were operational. The DVR was re-booted and restored to normal operation.
- 21st CR: Documented the results of the annual Fire Protection Program review. The review noted that one of the fire protection procedures required a revision to delete a reference to transient combustibles permits. All document changes were completed.
- 22nd CR: Documented the receipt of a sewer pump trouble alarm. The cause of the alarm was due to high groundwater in the sewer vault. The alarm was cleared when the vault was pumped out.

Other ISFSI Related Activities

1. On December 15, Maine Yankee submitted to the NRC their seventh revision to their Emergency Plan. The eight changes were mostly administrative in nature. They included reformatting, renumbering pages, deleting a note in one of the tables, adding one reference, and title changes such as Emergency Coordinator to Emergency Director, General Employee Training to ISFSI Access Training, and updated titles to the Fire Protection and Physical Security Plans. The remaining two changes dealt with radiation protection issues. The first involved removing the specific location where potentially contaminated individuals would be monitored and leaving it up to the radiation protection personnel to decide where the monitoring and decontamination, if necessary, would be performed. The second radiation issue designated the Radiation Protection Contractor as responsible for providing the appropriate personnel protective equipment to work in contaminated areas.
2. On December 16, Maine Yankee submitted its updated Decommissioning Funding Plan to the NRC. The Plan updated the costs for managing the spent nuclear fuel and Greater Than Class C (GTCC) Waste and the ISFSI Decommissioning Cost Estimate (DCE) through 2033. The DCE appraised the total cost for decommissioning the ISFSI at \$27.4 million for 2015. The radiological decontamination portion was estimated at \$21.6 million for 2015 with the remaining \$5.8 million for the non-radiological decontamination costs. The submittal included a certificate of financial assurance that funds would be available to perform the ISFSI decontamination and decommissioning and that funds for decommissioning were segregated from the funds for ongoing management of the stored spent nuclear fuel and GTCC wastes.

Environmental:

There is no environmental data to report on this month.

Other Newsworthy Items:

1. On December 1, DOE's Office of Inspector General released an audit report, entitled, "Department of Energy Nuclear Waste Fund's Fiscal Year 2015 Financial Statement Audit." The report outlined the independent audit conducted on the Fund's financial statements and noted that the accounting complied with generally accepted government auditing standards with no instances of non-compliance or deficiencies with laws or regulations. The balance sheets illustrated the assets and liabilities as of September 30, 2014 and 2015. According to the audit report cumulative billings from fees to nuclear generating utilities, the Defense Nuclear Waste Disposal Appropriations, and investment interest earnings totaled \$48.8 billion as of September 30, 2015 whereas the cumulative expenditures were \$11.4 billion leaving a Fund balance of \$34.4 billion. Since the federal government's 1998 default on its contracts with nuclear utilities to take the spent nuclear fuel, the report highlighted that taxpayers have paid \$5.3 billion in awards to utilities with an outstanding, estimated federal liability of \$23.7 billion. The web link for the report can be accessed by positioning the cursor over the underlined text and following the directions.
2. On December 3, the House Subcommittee on Environment and the Economy held a hearing on "The Nuclear Waste Fund: Budgetary, Funding, and Scoring Issues." The Subcommittee's background document provided an insightful historical perspective on "the formation and implementation of the Nuclear Waste Fund (NWF)" and how Congress enacted several laws that reduced the funding flexibility initially envisioned in the Nuclear Waste Policy Act. The laws enacted spending and revenue controls that made the Fund dysfunctional and prevented the Fund from being used for its intended purpose. Three witnesses were asked to testify before the Subcommittee. One was from the Congressional Research Service (CRS), another from the Congressional Budget Office (CBO), and one from the National Association of Regulatory Utility Commissioners (NARUC). The CRS testimony centered on explaining the budgetary framework of the NWF (how receipts are treated and how the Fund is invested in U.S. Treasury securities) and the status of the NWF with an expectation of receiving \$1.53 billion in interest in FY 2015 with a current balance of \$34.3 billion as of November 2015. The CBO testimony focused on the federal government's responsibilities and liabilities under the Nuclear Waste Policy Act, financing the costs for disposing of civilian and defense-related nuclear waste, and the budgetary impacts of activities related to nuclear waste management from a historical perspective to projections to a long-term outlook. The NARUC testimony emphasized three points. "America needs, and consumers have paid for, a permanent solution to nuclear waste disposal." "The NWF is a self-funded, special-purpose program and it should be treated as such." "Congress should establish an independent body that has the single-minded mission of nuclear waste disposal and has access to the billions ratepayers have contributed for this purpose." The web link for the Subcommittee background document can be accessed by positioning the cursor over the underlined text and following the directions. The testimonies can be accessed by positioning the cursor over the underlined texts above.
3. On December 4, the Western Governors' Association issued Policy Resolution 2016-03 on the transportation of radioactive waste, radioactive materials and spent nuclear fuel. The resolution listed twelve objectives that must be maintained and continued to ensure for the safe and uneventful transport of such material with all modes of transportation. The resolution stressed the federal government's role in ensuring "early coordination and communication with state, tribal, and local governments" and receiving "the full commitment and cooperation from the rail industry in implementing best practice transport." The policy resolution also emphasized the "responsibility of the federal government and the generators of spent nuclear fuel and high-level waste to pay for all costs associated with assuring safe transportation and responding to accidents and emergencies that may occur." The web link for the resolution can be accessed by positioning the cursor over the underlined text and following the directions.

4. On December 9, AREVA issued a press release that they were awarded a \$9.5 million contract by DOE to design and fabricate railcars for spent nuclear fuel and high-level waste shipments. The railcars will include transport cask cars and buffer cars as spacers between the cask cars and the locomotive. The prototype cars are expected to be designed, tested, and delivered to DOE in 2019. AREVA is a French multinational firm specializing in nuclear and renewable energy that is headquartered in Paris. It is the largest nuclear company in the world. The web link for the news release can be accessed by positioning the cursor over the underlined text and following the directions.
5. On December 9-10, the Southern States Energy Board held a joint meeting of the Radioactive Materials Transportation Committee and the Transuranic Waste Transportation Working Group. The Board received updates from various federal programs that included an NRC's overview of their ongoing activities (the Yucca Mountain license application, spent fuel storage and transportation, and interim storage), the status and preliminary results of the states' involvement in a mock grant process with DOE for training local responders in preparation for a national, spent fuel shipping campaign, the U.S./Canadian shipping campaign of highly enriched uranium from the Chalk River Laboratories in Canada to the Savannah River Site in South Carolina, tribal perspectives on emergency response and radioactive materials, and DOE's reviews and updates of the world's first geologic repository (Waste Isolation Pilot Project) near Carlsbad, New Mexico, the status of the reactor shutdown sites available transportation infrastructure, and the nuclear fuels storage and transportation planning project. The agenda, the meeting summary, and all the presentations can be accessed at the following web link: <http://www.sseb.org/news-and-events/past-events/>. Although all the presentations were valuable, the states' mock grant exercise, the NRC, and the three DOE's presentations were especially useful in depicting the current status of national efforts to move spent nuclear fuel.
6. On December 11, the NRC Chairman responded to Nevada Senators Reid's and Heller's six requests they raised on additional information on packages that the NRC has approved for the transportation of spent nuclear fuel and high-level radioactive waste (SNF/HLW). The Chairman included responses to three of the requests and deferred the other three to a later date when that information becomes available. The Chair informed the Senators that the NRC has 19 packages that are under review or have been certified to transport SNF/HLW. Two of the 19 packages were designed by the Naval Reactors Program and were classified as "Confidential – Restricted Data." Consequently, information on these two packages was not included, but the NRC staff could brief appropriately cleared individuals from the Senators' staffs. The Chair included two attachments with the enclosure that responded to three of the requests. The first attachment provided a physical description of each packaging under review or certified along with a physical description of the impact limiters, the design waste volumes, and the approved modes of transportation such as rail, truck, or boat. None of the packages were approved for air transportation. The second attachment explained the "three main safety criteria for package performance: maintaining package radiation dose rates, maintaining release of radioactive material below the maximum allowable limits, and ensuring the contents remain subcritical (unable to sustain a chain reaction)." The second attachment not only described the specific radiation levels, but also the types of testing the package must meet for normal conditions of transport as well as for hypothetical accident conditions. The web links for the letter, enclosure, and attachments 1 and 2 can be accessed by positioning the cursor over the underlined texts and following the directions.
7. On December 16-17, the Northeast High-Level Radioactive Waste Transportation Task Force, a subsidiary of the Eastern Regional Conference's Council of State Governments, held its fall meeting in Portsmouth, New Hampshire. The Task Force received several updates from DOE on their railcar award, their training and planning activities, the status of their geologic repository in New Mexico, and their transportation related activities for environmental clean-up at sites across the country. Additional updates were provided by Maine Yankee on the modes of transportation available at the three Yankee sites along with the current landscape of congressional activity and by Pennsylvania on their participation in the DOE's mock grant process for funding emergency preparedness training for local

responders for spent fuel shipments. Tribal perspectives on transportation of radioactive material were also shared with the Task Force. Two firms competing for constructing an interim storage facility, one in Texas and one in New Mexico, shared their views on why their proposals merited attention. Holtec discussed their efforts and strengths in obtaining an NRC license for the New Mexico site, based on their previous experience with a storage facility in Utah that was licensed by the NRC, an underground storage system, and 53% of the dry storage systems used in the U.S. for operating reactors are manufactured by Holtec. In addition, Holtec also coupled their presentation with an international shipper who recommended barging the spent fuel casks from Maine Yankee, Connecticut Yankee and Yankee Rowe in Massachusetts to Texas as the most effective transportation mode. Likewise, Waste Control Specialists (WCS) demonstrated their enhanced approach to low-level waste disposal and highlighted their strengths with proven programs and a strong infrastructure for rail access for managing radioactive materials such as irradiated hardware and large components. WCS also shared their efforts to submit a license application to the NRC to construct consolidated interim storage facility by April of 2016. All the presentations can be accessed at the following web link: <http://www.csg-erc.org/policy-radioactive-transportation/> and by scrolling down and clicking on the appropriate presentation.

8. On December 18, DOE responded to the Council of State Governments October 6 letter, which expressed frustration over sharing and receiving documents. The Acting Assistant Secretary informed the Co-Chair that his staff was required to adhere to federal laws, which could add to delays. However, he noted that his staff had made significant strides in 2015 in improving DOE's internal processes by releasing from their backlog six technical documents and 27 conference papers. The web link for the letter can be accessed by positioning the cursor over the underlined text and following the directions.
9. On December 22, the NRC voted on the staff's paper, "Historical and Current Issues Related to Disposal of Greater Than Class C (GTCC) Low-Level Radioactive Waste." The staff's paper proposed three options on whether an Agreement State such as Texas can license a GTCC disposal facility. NRC Chairman Burns voted in part to approve the staff's recommendations on initiating a rulemaking to address inconsistencies in the regulations on transuranic waste and developing generic criteria for disposal of GTCC waste. He considered the jurisdictional issue on this as premature. Commissioner Svinicki approved the staff's position provided the NRC develops a process that that would allow an Agreement State to exercise its authority to license such a facility. Since Texas has experience in licensing a low-level waste disposal facility, then the NRC could benefit from the technical exchange. Commissioner Ostendorff agreed that an Agreement State would have the authority to license such a facility under the Atomic Energy Act as amended. Since the current regulations do not address specific requirements for GTCC disposal, the Commissioner opted for the staff to develop a rulemaking to establish what forms of GTCC waste that could be disposed in a near-surface facility. Commissioner Baran took issue with the staff's position that an Agreement State could license a GTCC waste disposal facility. He cited portions of the Low-Level Waste Policy Amendments Act which states that any low-level waste in concentrations exceeding the Class C limits would be regarded as a federal responsibility and, therefore, required federal licensing. On the transuranic waste issue the Commissioner agreed that the NRC staff should initiate a rulemaking to include transuranic waste disposal as part of its regulations. Since no GTCC facilities have ever been licensed and GTCC waste by its very nature contains high concentrations of radioactive material, the presumption is that GTCC waste can only be disposed in a deep geologic repository. (Maine Yankee has four concrete casks containing GTCC material.) The web link for the voting record can be accessed by positioning the cursor over the underlined text and following the directions.
10. On December 23, DOE published in the Federal Register its intent to seek public comment on what elements should be contained in a consent-based process for the siting of nuclear waste storage and disposal facilities. To facilitate public involvement DOE listed five questions to the public to elicit a response. The five questions were:
 - a) How can the Department of Energy ensure that the process for selecting a site is fair?

- b) What models and experience should the Department of Energy use in designing the process?
- c) Who should be involved in the process for selecting a site, and what is their role?
- d) What information and resources do you think would facilitate your participation?
- e) What else should be considered?

The intent of the questions was to start the discussion on designing a process. DOE was planning on holding a number of public meetings to receive feedback. The Federal Register notice can be accessed at the following link: <https://www.federalregister.gov/articles/2015/12/23/2015-32346/invitation-for-public-comment-to-inform-the-design-of-a-consent-based-siting-process-for-nuclear>.

11. In December, the International Atomic Energy Agency published a final report on coordinated research conducted between 2011 and 2015. The report was entitled, "Evaluation of Conditions for Hydrogen Induced Degradation of Zirconium Alloys during Fuel Operation and Storage." The report evaluated the delayed hydride cracking (DHC) in several types of reactors and the zircaloy-4 cladding that houses the nuclear fuel. The types of reactors included pressurized water reactors, like Maine Yankee, boiling water reactors, Canadian reactors (CANDU), pressurized heavy water reactors, and the Russian pressurized water and graphite reactors (VVER and RBMK). The research was performed by representatives from 13 laboratories from all over the world and involved such countries as Argentina, Brazil, Canada, India, Japan, South Korea, Lithuania, Pakistan, Romania, Russia, Sweden, Switzerland, and Ukraine. The DHC issue is important as several components have failed by this degradation mechanism. "Zirconium alloys are susceptible to embrittlement (loss of a material's ability to stretch under stress) by hydrogen when hydrides (hydrogen combining with another element) are precipitated." The hydrogen follows the stress to a flaw where hydrides form a nucleus and grow slowly. When the hydrides reach a critical point, they fracture and extend the crack and the process begins again. "DHC is important in dry storage of spent nuclear fuel since the temperature history is ideal for such cracking." Therefore, it is crucial to understand the conditions under which the DHC will initiate cracking, what conditions are necessary to propagate the crack, and whether the crack will affect the cladding's structural integrity, which would be an important consideration for transporting spent nuclear fuel. The web link for the report can be accessed by positioning the cursor over the underlined text and following the directions.