

# MAINE STATE LEGISLATURE

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April 15, 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 January through February 2016 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 123<sup>rd</sup> 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  
Lieutenant Scott Ireland, Special Services Unit, Maine State Police  
Nancy Beardsley, Director, Division of Environmental Health  
Jay Hyland, PE, Manager, Radiation Control Program

State Nuclear Safety Inspector Office  
Maine CDC – DHHS

January 2016 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 nationally during the month.

National:

- The Department of Energy's (DOE) selected Battelle Memorial Institute to lead a team to drill a test borehole of over 16,000 feet into a granite rock formation near Rugby, North Dakota as part of an initiative to explore the disposal of defense-related high-level radioactive waste.
- The International Atomic Energy Agency announced that it had successfully tested a borehole disposal concept for low-level radioactive sealed sources in Croatia using a specially designed, sealed canister and then emplaced it a few hundred meters deep into the earth's crust. The technique would allow countries to dispose of their own unused sealed sources.
- DOE held an invitational meeting in Washington, D.C. to kick-off its consent-based siting process that will be flexible, inclusive, adaptive, and transparent. The process will be a three phase effort with public and stakeholder engagements, design of a formal process, and engaging host communities using the process. DOE was expected to draw on the consent-based siting models from Canada, Finland, and Sweden.
- DOE announced that it will resume its operations at the Waste Isolation Pilot Project (WIPP) in Carlsbad, New Mexico in December 2016. The facility which had been receiving defense-related plutonium waste from the weapons era for over fifteen years was closed after an unplanned release of airborne radioactivity from a faulty drum occurred on February 14, 2014.

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 123<sup>rd</sup> 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](http://www.maineradiationcontrol.org) and by clicking on the nuclear safety link in the left hand margin.



## Independent Spent Fuel Storage Installation (ISFSI)

During January, 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 eight security incident reports logged for the month. Five of the incident reports were written to provide compensatory measures for security system degradations such as a momentary loss in power, a key broken in a lock, a transient environmental condition, and two camera issues. The remaining three were associated with supporting snow removal.

There were twenty-six condition reports<sup>1</sup> (CR) for the month and they are described below.

- 1<sup>st</sup> CR: Documented a camera that was experiencing fogging and icing issues. The internal heater and a thermostat were replaced.
- 2<sup>nd</sup> CR: Documented that small wasp nests were found in several outlet vents in the concrete casks. The nests will be removed, weather permitting.
- 3<sup>rd</sup> CR: Documented a momentary loss in power in which the Uninterruptible Power System (UPS) did not respond as expected as it cycled on-off several times within seconds. Compensatory measure were put into place until the systems could be placed back in service and tested. The UPS was subsequently tested and operated satisfactorily. An old power strip was also replaced as a preventative measure.
- 4<sup>th</sup> CR: Documented that a key broke off in a lock located outside. Compensatory measures were put into place until the lock was replaced.
- 5<sup>th</sup> CR: Documented the loss of offsite internet connectivity with a vendor. The backup system worked as designed and the provider was contacted. The service was returned later that day.
- 6<sup>th</sup> CR: Documented that water was found on the floor in the diesel generator room due to heavy rains. The leakage appeared to have entered via the ductwork.
- 7<sup>th</sup> CR: Documented that a ground wire was found detached on one of the concrete cask pads. The wire was reattached and all other grounding wires were checked and all were found satisfactory.
- 8<sup>th</sup> CR: Documented that water was on the floor of the Storage and Maintenance Building after heavy rains. The water leakage appeared to come through the door seals.
- 9<sup>th</sup> CR: Documented the loss of internet connectivity with an offsite vendor. The backup system worked as designed. The provider was contacted and they were aware of the issue. The service was restored the next day.
- 10<sup>th</sup> CR: Documented that the telephone/internet service was not working. The provider was contacted again and indicated that it was due to some maintenance activities. All other backup systems remained operational and the service was restored later that shift.
- 11<sup>th</sup> CR: Documented that an individual had lost his access card during snow removal activities. The card was de-activated and a new card was issued.
- 12<sup>th</sup> CR: Documented that a small hydraulic fluid leak had occurred from a plow truck. The leakage was small and was contained and the truck was repaired. The leak did not meet the Department of Environmental Protection's reporting threshold.
- 13<sup>th</sup> CR: Documented that the administrative limit of 25% blockage on any one cask inlet vent was reached on several concrete casks due to ice. The limit was for notifying management only. The ice was removed during the shift.
- 14<sup>th</sup> CR: Documented that a computer device used to activate badges was obsolete and should be relocated.
- 15<sup>th</sup> CR: Documented that the system was degraded due to a transient environmental condition. Compensatory measures were instituted until the transient ceased.

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

- 16<sup>th</sup> CR: Documented that the administrative limit of 25% blockage on any one cask inlet vent was reached on several concrete casks due to a snow event. The limit was for notifying management only. No further action was warranted.
- 17<sup>th</sup> CR: Was written to track recommendations from a training review/self-assessment. Appropriate recommendations were incorporated into the 2016 Training Plan.
- 18<sup>th</sup> CR: Documented that a steel exterior door had a small rust hole.
- 19<sup>th</sup> CR: Documented computer system issues regarding cleared alarm events.
- 20<sup>th</sup> CR: Was written to track a potential fitness for duty concern. Management performed an assessment. No fitness for duty concern was found and the issue was closed out.
- 21<sup>st</sup> CR: Documented that a phone line read “no service” for about one minute. The provider was contacted and was not aware of any issues.
- 22<sup>nd</sup> CR: Documented a potential issue with company records containing personal information at a vendor’s facility. The vendor did not receive the company’s policies regarding the protection of such records. The company is the process of forwarding those policies to the vendor.
- 23<sup>rd</sup> CR: Documented that several individuals had signed Lockout/Tagout forms as the Lockout/Tagout Coordinator without proper qualifications. Lockout/Tagout training was being developed and will be given in late February.
- 24<sup>th</sup> CR: Documented that the vehicle barrier system in one location had shifted and created a gap at a corner. The barrier was determined to be functional as is and a full inspection will be performed in 2016 to determine if a long term maintenance program is required.
- 25<sup>th</sup> CR: Documented that a momentary loss of video was experienced on a monitor while a technician was shifting some electronics behind the cabinet. The electronics were moved back to their original position and the video signal returned. The momentary loss was believed to be caused by strain on the connectors.
- 26<sup>th</sup> CR: Documented that an individual mistakenly brought his personal dosimeter home and returned it the next day. The expectation for TLDs<sup>2</sup> to remain onsite was reinforced with the staff.

#### *Other ISFSI Related Activities*

1. On January 6, Maine Yankee informed the Nuclear Regulatory Commission (NRC) of a change in their Board of Directors. Two members from the Canadian firm, Emera, were reappointed and replaced with two other individuals from the firm. Since they represent a foreign sponsor company, both individuals had previously 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.” The previous certifications were still valid.
2. On January 12, 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 annual and monthly reports to the Legislature along with a timetable for completing the reports, his submittal of the Confirmatory Summary Report for management review, his on-going participation in a national interregional team that is developing recommendations from states to DOE on funding emergency preparedness for local communities on spent fuel shipments traversing their jurisdictions, his preparations for determining the radiation dose from the State’s storage facility, his participation in two national Ad Hoc Groups on communications and rail/routing of spent fuel shipment, and attendance at the Northeast High-Level Radioactive Waste Transportation Task Force. 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 noted that it was preparing an official response

<sup>2</sup> Thermoluminescent dosimeters (TLDs) are very small plastic like phosphors or crystals that are placed in a small plastic cage and mounted on trees, electric utility poles, etc. to absorb any radiation that impinges on the material. For a further explanation, refer to the glossary on the Radiation Program’s website.

to DEP's recommendations. Maine Yankee informed the Group of its upcoming NRC inspection, its cask relicensing efforts this summer that would include removing a cask lid, its replacement of the radiation monitors on the security fence, additional security fence work to eliminate intrusion from burrowing animals, its biennial audit of its programs, and its successful emergency plan drill. Maine Yankee also apprised the Group of the status of their ongoing lawsuits against the federal government, the Citizens Advisory Panels' letter to the New England congressional delegation. The Public Advocate and the State Police had nothing to add to the discussion.

3. On January 18, Maine Yankee submitted their third revision to their Post-Shutdown Decommissioning Activities Report to the NRC to reflect the revised cost estimates that were previously forwarded to the NRC on decommissioning and managing the spent nuclear fuel and Greater Than Class C wastes stored at the Wiscasset facility through 2033.

### Environmental:

The environmental radiation badge results will be available in February's monthly report.

### Other Newsworthy Items:

1. On January 5, DOE selected Battelle Memorial Institute to lead a team to drill a test borehole of over 16,000 feet into a crystalline rock formation near Rugby, North Dakota as part of an initiative to explore the disposal of defense-related high-level radioactive waste. The five-year project will examine the chemical and mechanical properties of the host rock besides the drilling and sealing challenges. The first phase of the project will be with a test hole of 8.5 inches in diameter. If that is successful, a 17.5 inch test hole will then be drilled to perform handling and retrieval operations besides testing on storage containers. The web link for the news release can be accessed by positioning the cursor over the underlined text and following the directions.
2. On January 8, the NRC Chair responded to Senator Reid's letter from October 29, 2015, on transportation packages for spent fuel and high-level waste. The Chair noted that the information on three of the six requests was provided on December 11, 2015, to Senator Reid. The remaining requests were answered by providing a list of the seventeen transportation packages and the physical tests that were performed on each package. The information also included the instruments used to measure the stress on the packages and the descriptions of the different types of structural and/or seal tests for each package. The web links for the letter and the results of the packaging testing can be accessed by positioning the cursor over the underlined texts and following the directions.
3. On January 11, the International Atomic Energy Agency announced that it had successfully tested a borehole disposal concept for low-level radioactive sealed sources in Croatia. The sources were placed in a specially designed, sealed canister and then emplaced a few hundred meters deep into the earth's crust. The technique would allow countries to dispose of their own unused sealed sources. The web link for the news article can be accessed by positioning the cursor over the underlined text and following the directions.
4. On January 11, the State participated in a DOE webinar to preview their new Web Visualization Tool as part of DOE's consent-based siting initiative that will commence on January 20. The new communication tool illustrated the number of spent fuel assemblies in either dry or wet storage at each reactor site. Additional features contemplated included posting the quantities of low or high burnup fuel. A question was raised as to how the new tool would advance the development and progress of consent-based siting for a host site and whether the Tool could address changes in spent nuclear fuel inventory.



5. On January 11-13, the Institute for Nuclear Material Management held its 31<sup>st</sup> spent fuel management seminar in Washington, D.C. The seminar topics included national as well as international initiatives. Topics included the France's spent fuel policy and its repository efforts in Bure, France as well as overviews of Sweden's, Korea's, Spain's, and Japan's spent fuel management programs. Presentations also included NRC's perspective on spent fuel, emerging issues such as repository development, consolidated interim storage, consent-based initiatives, and utility perspectives. Other topics included spent fuel manufacturing and technology development, transportation campaigns in the U.S., and international issues related to spent fuel transportation. Other discussions focused on the Yucca Mountain Licensing Project, interim storage and repository options such as deep borehole disposal, and initiatives and perspectives on spent fuel security and aging management. The web link for the agenda can be accessed by positioning the cursor over the underlined text and following the directions. The individual presentations can be accessed by clicking on the blue highlighted topics at the following link: [http://www.inmm.org/Content/NavigationMenu/Events/PastEvents/31stSpentFuelSeminar/31st\\_SF\\_Proceedings.htm](http://www.inmm.org/Content/NavigationMenu/Events/PastEvents/31stSpentFuelSeminar/31st_SF_Proceedings.htm).
6. On January 20, 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 through July 1. The Judge requested post-trial briefings that were originally scheduled for October 2015 but were extended to February this year with oral arguments scheduled for February 19. The General Counsel was optimistic of a spring ruling by the federal Court of Claims Judge. On the national scene it was reported that the Texas Waste Control Specialist Corporation was proposing to submit to the NRC their application for the construction of a consolidated interim storage facility in April 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. Maine Representatives Pingree and Poliquin were both cosponsors of the legislation besides Congressman Welch from Vermont and Congressman Courtney from Connecticut. Another national initiative included the DOE's announcement of a new Consent-Based Siting Initiative that would solicit public input in the development of a national process for the selection of storage or waste disposal facilities for spent nuclear fuel and high-level radioactive waste. DOE was expecting to host a series of public meetings the next few months. It was also reported that the states of Connecticut, Vermont and New York were preparing to file their oral arguments with the U.S. Court of Appeals challenging the NRC's adoption of its Continued Storage of Spent Nuclear Fuel Rule by February 22. The states asserted that the Rule violated the National Environmental Policy Act and the NRC's Environmental Impact Statement process.
7. On January 20, DOE held an invitational meeting in Washington, D.C. to kick-off its consent-based siting process. The process will be a three phase effort with public and stakeholder engagement, design of a formal process, and engaging host communities using the process. DOE was committed to a durable process that will be flexible, inclusive, adaptive, and transparent. Several noteworthy questions were raised such as: "When can a state or community pull out of the process? Will consent be required when determining transportation routes? How will DOE ensure this initiative will last beyond a change in administration?" Several meetings were being planned with the next two public meetings to be held in Chicago in March and Atlanta in April. DOE was expected to draw on the consent-based siting models used in Canada, Finland, and Sweden.

8. On January 21, DOE announced that it will resume its operations at the Waste Isolation Pilot Project (WIPP) in Carlsbad, New Mexico. The facility which had been receiving defense-related plutonium waste from the weapons era for 15 years was closed after an unplanned release of airborne radioactivity from a faulty drum occurred on February 14, 2014. Since then, new ventilation with a higher capacity flow was installed, the radioactive contamination was fixed on salt surfaces using water sprays, and a new emergency operations center was constructed to deal with state and local communities. Disposal operations were expected to resume in December 2016. The web link for the news update can be accessed by positioning the cursor over the underlined text and following the directions.
9. On January 22, the New Mexico Environment Department, DOE and its contractors finalized a settlement agreement with New Mexico that had issued fines on the DOE for two incidents at the WIPP facility in Carlsbad, New Mexico. The two underground incidents, one involving a truck fire and the other a radioactive release from a compromised waste drum, occurred in February 2014. The Environment Department, DOE and its contractors had agreed upon an initial settlement of \$73 million in April 2015. The final settlement of \$74 million allocated funds for road improvements, water infrastructure, and emergency response capabilities. The web link for the news release can be accessed by positioning the cursor over the underlined text and following the directions.
10. On January 27, the U.S. Nuclear Waste Technical Review Board submitted to Congress and the Secretary of Energy a report entitled, "Technical Evaluation of the U.S. Department of Energy Deep Borehole Disposal Research and Development Program," of their assessment of DOE's concept of deep borehole disposal. The report addressed the technical and scientific issues that could affect the feasibility of the borehole concept and whether DOE's field test will supply the appropriate information to assess the feasibility of this disposal concept. The Board highlighted four findings. The borehole approach did not eliminate the need for a mined geologic repository, the effort and time expended could be comparable to a mined repository, the field test will provide limited information on the feasibility of the borehole concept and site selection, and the design of a borehole facility would be very dependent on understanding the implications and limitations of handling and emplacing highly radioactive waste. In view of their findings the Board provided the following nine recommendations for DOE to incorporate into its borehole program.
  - o the need for independent expert reviews with extensive expertise in design and implementation,
  - o a more comprehensive risk analysis for all aspects of the drilling and emplacement phases,
  - o addressing the technical and scientific issues related to the diversity and complexity of the subsurface geology,
  - o performing extensive pre-drilling surveys to characterize the subsurface structure through detailed gravity, magnetic, seismic, or electrical data,
  - o analyzing the safety benefits of more robust waste forms, packages, and seals,
  - o develop an operational safety strategy for the remote handling of highly radioactive waste packages,
  - o working with regulators to define retrievability requirements,
  - o utilize the Borehole Field Test as a means of getting siting experience by engaging stakeholders and establishing transparency,
  - o Appoint a chief scientist in charge of the project.

The Board believed that addressing all the recommendations would greatly improve DOE's technical basis and feasibility of the Borehole Program.

11. On January 28, the NRC Chair forwarded his monthly status report to the House Chair on Energy and Commerce on the staff's activities associated with the resumption of DOE's Yucca Mountain license application. The report summarized NRC's accomplishments since the Appeals Court Order in August 2013. The report also informed the House Chair that the NRC staff had sufficient remaining funds to start loading the licensing support documents into the NRC's publicly accessible library, the



Agencywide Documents Access and Management System. In addition, the NRC estimated that \$100,000 would be required to complete a lessons learned report on the licensing process. In December \$55,000 of the \$58,000 was spent on the development of the supplemental Environmental Impact Statement (EIS) for Yucca Mountain. About \$3 million remains to complete the licensing support documents and the supplemental EIS. The web links for the cover letter and the status report can be accessed by positioning the cursor over the underlined texts and following the directions.