

MAINE STATE LEGISLATURE

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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
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

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.