Department of Health and Human Services
Maine People Living Safe, Healthy and Productive Lives
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MEMORANDUM

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

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

SUBJECT: State Nuclear Safety Inspector's March 2016 Monthly Report 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 report focuses on activities at the site and includes highlights of the national debate on storing and disposing the used nuclear fuel. For your convenience highlights of local and national events are captured in the executive summary to the report.

The enclosed report provides 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 Sorenson, 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
Jay Hyland, PE, Manager, Radiation Control Program

State Nuclear Safety Inspector Office
Maine CDC – DHHS

March 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 both locally and nationally during the month.

Local

- Maine Yankee submitted to the Nuclear Regulatory Commission (NRC) its Decommissioning Funding Assurance Status Report and a Funding Status Report for Managing Irradiated Fuel. The Decommissioning Fund estimated the decommissioning of the storage facility in 2032 would cost about $21.6 million and that $29.6 million was currently available. According to the Funding Status Report, the Fund had accrued $93.3 million to date and $167 million would be required through 2033 to safeguard the spent fuel.
- Maine Yankee informed the Department of Environmental Protection (DEP) that it would implement the consensus agreement forged between DEP and its consultant, Ransom Consulting, on which wells and parameters would continue to be monitored as part of the existing chemical groundwater monitoring program on Bailey Point in Wiscasset.

National:

- Nine congressional representatives from California, Connecticut, Maine (Rep. Chellie Pingree), Texas, and Vermont sent a letter to the Chair and Ranking Member of the Subcommittee on Energy and Water Development of the House's Appropriations Committee requesting their assistance in the judicious removal of spent nuclear from their respective communities in their states and expressed their concerns over the continuing federal government's default with its increasing impact on the federal deficit.
- South Carolina's Representative Mulvaney submitted legislation, entitled, "Interim Consolidated Storage Act of 2016." The proposed legislation was identical to Texas Representative Conaway's, "Interim Consolidated Storage Act of 2015", except that Mulvaney's proposal eliminated the provision authorizing the use of the Nuclear Waste Fund for interim storage facilities.
- The Department of Energy (DOE) held its first of eight public meetings seeking public input into formulating a national consent-based siting process for communities wishing to host an interim spent fuel storage or geologic disposal facility. At the meeting DOE unveiled its booklet listing the six key principles for a consent-based approach.

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

There were no fire- or security-related impairments for the month. However, there were five security incident reports logged for the month. All five incident reports were written to provide compensatory measures to support various maintenance activities for a door, an alarm system, a camera system, the Operations Building, and the access system.

There were twenty-one condition reports[1] (CR) for the month and they are described below.

1st CR: Documented that several concrete cask inlet screens were found to be in non-compliance with vendor drawings. The wire size of the screen mesh was thicker than the design requirements. The screens were replaced with the correct design.
2nd CR: Documented that a procedure enhancement be made regarding visitor access. The requirements were communicated to all staff and the procedure will be updated at the next revision cycle.
3rd CR: Documented that the Temperature Monitoring System's computer clock was not correct with regards to Daylight Savings Time. The time was manually corrected and the automatic feature was disabled.
4th CR: Documented that the Temperature Monitoring System would not print and was locked on the overview screen. The system was rebooted which corrected the problem.
5th CR: Documented that a new video monitor went blank for several seconds and then returned by itself. The monitor will be replaced.
6th CR: Documented that the labelling of the yard light poles did not match the engineering drawing and the breaker labelling. Further evaluation of the labelling was pending.
7th CR: Documented an improvement opportunity from Connecticut Yankee regarding the use of procedure attachments.
8th CR: Documented that the 2016 Training Plan assignment for the Training Coordinator was not correct. The documents were corrected.
9th CR: Documented that the facility's 10 CFR 50.59 and 72.48 logs for 2014 and 2015 could not be located. Although there were no 50.59 or 72.48 evaluations performed during that time period, the logs were required. The logs were created.
10th CR: Documented that a video camera image was experiencing clarity issues. Even though the camera was still functional, the issue remained open pending further evaluation.
11th CR: Documented that a penetration through the Operations Building wall was partially open.
12th CR: Documented that an exterior parking lot light was out. The bulb was replaced.
13th CR: Documented that a video recording system shut down unexpectedly. The system was rebooted and returned to normal. The issue was still under investigation.
14th CR: Documented that an employee left their keycard at home. The card was deactivated until it was retrieved.
15th CR: Documented that a self-assessment was performed on the Maine Yankee Training Program.

[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.

The program was evaluated by an individual from another ISFSI facility (Yankee Rowe in Massachusetts). The recommendations were being evaluated.

16th CR: Documented that a NRC 72.212 evaluation report revision was issued with incorrect data. It was determined that an incorrect draft report was used for the revision. The report was corrected and reissued.

17th CR: Documented that a patrol and operational round were not completed in accordance with procedural requirements. The procedures were completed properly and the human performance issue was addressed.

18th CR: Documented that training materials were not sent to Yankee management for review prior to holding the training with Yankee employees. This expectation was reinforced with the individuals.

19th CR: Documented that the administrative 25% inlet vent blockage limit was reached on several concrete casks due to ice buildup. The ice was immediately removed.

20th CR: Documented that a burning smell was detected within the north end of the Operations Building. All spaces were checked with no evidence of a fire. Upon further investigation it was determined that the smell was originating from Westport Island and entering the building through the building's ventilation system.

21st CR: Documented that an alarm panel was displaying something other than normal color and wording. The system was tested and was found working properly. Upon further investigation it was determined that the menu options during set up were not selected properly. The proper set up was performed and the panel returned to normal.

Other ISFSI Related Activities

1. On March 9, Maine Yankee submitted its yearly "Decommissioning Funding Assurance Status Report" to the NRC. The report estimated that about $21.6 million would be required to decommission the ISFSI in 2032, when it is assumed that the DOE will remove the spent fuel and Greater Than Class C wastes. According to the report approximately $29.6 million was available at the end of December 2015. The funds are segregated from the balance of the Nuclear Decommissioning Trust that is used primarily for the ongoing management of the storage facility.

2. On March 9, Maine Yankee informed DEP that it would implement the consensus agreement forged between DEP and its consultant, Ransom Consulting, on which wells and parameters would be monitored and which will not regarding the existing chemical groundwater monitoring program on Bailey Point in Wiscasset. Maine Yankee stated to the DEP that it will amend its Quality Assurance Project Plan and incorporate DEP's preferred test method for petroleum hydrocarbons as opposed to the older test method which DEP no longer uses.

3. On March 23, Maine Yankee submitted to the NRC their "Funding Status Report for Managing Irradiated Fuel and GTCC (Greater Than Class C) Waste." The report informed the NRC that Maine Yankee had accumulated $93.3 million at the end of 2015 to cover their managing costs and projected $167.4 million would be required through 2033. Maine Yankee's report noted that they had three possible options on how to cover their costs. The first involved their investment return on their Decommissioning Trust Fund, which had an assumed rate of return of 4.5% after fees and taxes. Second, they could collect funds from their power contracts and amendatory agreements with other utilities that own Maine Yankee. Finally, they could receive contract damages from DOE for the federal government's failure to take title and possession of the spent fuel in Wiscasset.

Environmental:

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

Other Newsworthy Items:

1. On March 1, the Pierce County Commission in Rugby, North Dakota, voted unanimously to tell the Energy and Environmental Research Center at the University of North Dakota that they wanted no part of the University's borehole project to help DOE determine if granite rock three miles deep was suitable for storing spent nuclear fuels.

2. On March 2-3, the Nuclear Fuels Storage and Transportation Core Group of DOE's National Transportation Stakeholders Forum received updates from DOE, Tribes, and the Chairs/Co-Chairs of the four State Regional Groups to discuss the consent-based siting process, technical work performed by Argonne National Laboratory on storage and transportation intersections, and funding aspects of the Nuclear Waste Policy Act. The web link for the agenda can be accessed by positioning the cursor over the underlined text and following the directions.

3. On March 15, nine congressional representatives from California, Connecticut, Maine (Rep. Chellie Pingree), Texas, and Vermont sent a letter to the Chair and Ranking Member of the Subcommittee on Energy and Water Development of the House Committee on Appropriations requesting their assistance in the judicious removal of spent nuclear fuel and GTCC from their respective communities in their states where nuclear reactors have permanently ceased operations. They expressed their concerns over the continuing federal government's default on its contracts with nuclear utilities and its increasing impact on the federal deficit. They appealed for the Chair's and Ranking Member's support for DOE's proposed fiscal year 2017 budget requesting funds to construct a pilot interim storage facility to receive spent nuclear fuel from shutdown reactor sites. They advocated for expanding the Energy Secretary's authority to establish such a pilot program and to contract with private storage facilities as a means of ending the government's liabilities. The web link for the letter can be accessed by positioning the cursor over the underlined text and following the directions.

4. On March 15, South Carolina Representative Mulvaney submitted H.R.4745, the "Interim Consolidated Storage Act of 2016." Except for one provision, the proposed legislation was identical to Texas Representative Conaway's H.R.3643, "Interim Consolidated Storage Act of 2015", which was introduced on September 29, 2015. Mulvaney's 2016 Act eliminated the provision authorizing the use of the Nuclear Waste Fund for interim storage facilities. Representative Conaway's has 29 cosponsors, including Maine's two representatives, Rep. Pingree and Rep. Poliquin. The web links for both proposed Acts (H.R.4745 and H.R.3643) can be accessed by positioning the cursor over the underlined texts and following the directions.

5. On March 17, 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 of 2013. The report noted the staff's on-going work loading the licensing support documents into the NRC's publicly accessible library, the Agencywide Documents Access and Management System (ADAMS). In February $98,000 of the $237,900 was spent on loading the support documents into ADAMS while nearly $140,000 was spent on continuing the review of and preparing responses to public comments to complete the final environmental impact statement supplement for Yucca Mountain. About $2.2 million remains to complete the licensing support documents, the supplemental EIS, and the lessons learned report. 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.

6. On March 17, House Chair of the Energy and Commerce Committee and its Chair of the Subcommittee on Environment and the Economy issued a press release and forwarded a letter to Energy Secretary Moniz requesting information on the Secretary's nuclear waste management policy. The Chairs expressed concern over the federal government necessity to fulfill its statutory responsibility under the

Nuclear Waste Policy Act and emphasized the completion of the Yucca Mountain License Application would further the goal for the federal government to meet its obligations under the Act. The letter requested DOE to respond to items from eight topics the Chairs considered critical to its assessment of a comprehensive nuclear waste management policy. The topics included:

- Yucca Mountain Support Activities
- Nuclear Waste policy Act Compliance
- Consolidated Interim Storage
- "Standard Contract" for Nuclear Power Facilities
- DOE's "Strategy for the Management and Disposal of Used Nuclear Fuel"
- Nuclear Waste Fund and Budget Requirements
- Disposal of Defense High-Level Radioactive Waste
- Transportation of Spent Nuclear Fuel

The web links for the press release and the letter can be accessed by positioning the cursor over the underlined texts and following the directions.

7. On March 22, University of North Carolina researchers issued a press release that they had made a breakthrough by separating Americium, a long lived radioactive element, from spent nuclear fuel. The separation will facilitate the recycling of leftover Uranium or Plutonium. The separation of Americium from the nuclear waste stream would reduce the amount of heat generated from its radioactive decay and allow the nuclear waste to be more densely compacted in a storage location.

8. On March 22, The Heritage Foundation published an article, entitled "Real Consent for Nuclear Waste Management Starts with a Free Market." The authors asserted that the current nuclear waste management system was broken and that establishing a consent-based process for interim and long-term storage would not support long-term storage and disposal. They maintained that the DOE's plan would eliminate the federal government's incentive to manage the nation's nuclear stockpile. They argued that a true consent-based process was better achieved through a market-based approach where costs and benefits are negotiated by companies and communities with the federal government functioning as an unbiased regulator as opposed to a process that would be brokered and managed by the government. They cited the successful efforts of Finland and Sweden where nuclear facilities were held responsible for managing their nuclear wastes. Initially, communities were reluctant and opposed hosting nuclear wastes in their backyards. Eventually, host communities consented based on improved community engagement, compensation packages, and tax arrangements. They concluded that Congress should institute reform by holding nuclear waste producers responsible for their own waste management. The web link for the article can be accessed by positioning the cursor over the underlined text and following the directions.

9. On March 29, the Nuclear Waste Management Organization (NWMO) published its "Implementing Adaptive Phased Management 2016 to 2020" report. The report outlined Canada's long-term plan for the management and ultimate disposal of spent nuclear fuel. As part of NWMO's planning process nine key milestones were identified in moving forward over the next five years that included advanced field studies for site characterization, collaborating with communities and tribes, designing and manufacturing used fuel containers, and creating a test facility for repository and transportation containers to a name a few. The report also illustrated NWMO's progress since their last implementation plan and listed their accomplishments for each of their eight core objectives. The report concluded by expanding how the eight core objectives will be met specifically in 2016 and over the five year planning period. The web link for the report can be accessed by positioning the cursor over the underlined text and following the directions.

10. On March 29, DOE held its first of eight consent-based siting public meetings that featured panelist presentations along with public discussions with the panelists followed by facilitated small group

discussions and summaries. The six panelists included the Mayor of Zion, DOE's Acting Assistant Secretary for Nuclear Energy, the Director of Nuclear Energy Information Services, a Commissioner from the Illinois Commerce Commission, a theoretical physicist from the University of Chicago, and the Director of Organizing and Strategy of the Little Village Environmental Justice Organization. The DOE presentation focused on where we stood, how we got here, their vision, and the path going forward. In each of the segments, a historical perspective was provided, including where the thirteen shutdown reactor sites were located, the steps necessary to refine the raw uranium ore into fuel pellets, the types of DOE nuclear wastes, the three strategic foreign countries on waste disposal, and how DOE envisioned the public's participation in developing a consent-based process. In addition, DOE also published a booklet, entitled "Integrated Waste Management Consent-Based Siting 2016." The booklet listed the six key principles of a consent-based approach to siting. They included consent-based, transparent, phased, adaptive, standards- and science-based, and governed by legally enforceable partnership agreements. The booklet depicted how an integrated waste management system of storage, transportation and disposal was necessary to maintain flexibility and adaptability of a geographically dispersed spent fuel inventory. The web links for the agenda, the presentation, and the booklet can be accessed by positioning the cursor over the underlined texts and following the directions.

11. In March, the first issue of the NWMO'S newsletter was published and highlighted three major, ongoing research projects. The first involved the testing of Canada's used fuel container under geologic pressures at the Applied Research Laboratory's High-Pressure Test Facility at Pennsylvania State University. The container's design was unique in that the corrosion–resistant copper coating was applied directly to the steel container as compared to other designs which have a separate copper container encapsulating the steel container containing the spent fuel. The latter was prone to gaps that could, over time, compromise the inner steel container's integrity. The second project was focused on the long-term stability of a repository and its ability to withstand future earthquakes by understanding ancient earthquakes and mapping the landslide deposits on lake bottoms. The mapping and subsequent core samples from lake beds helped date the earthquake's age. The other project was an ongoing study of the University of Toronto's glacial systems model to predict the ice sheet formation and permafrost over the last 120,000 years and the impact of such glaciers on the stability and safety of a geologic repository for spent nuclear fuel. The web link for the newsletter can be accessed by positioning the cursor over the underlined text and following the directions.

12. In March, the NWMO also submitted its annual report to Canada's Minister of Natural Resources. NWMO's responsibilities not only included spent nuclear fuel but also the nation's low and intermediate radioactive waste streams. The report provided an overview of the organization's mandate, the country's inventory of spent nuclear fuel, its vision, mission, and values, and the regulatory oversight of Canada's Plan by the Canadian Nuclear Safety Commission. The report emphasized their major achievements in 2015 on their principle objectives with each objective's accomplishment described in depth. The objectives included
    a) building sustainable relationships,
    b) collaboratively implementing the site selection process,
    c) optimizing repository designs,
    d) continuously improving technical knowledge,
    e) developing transportation plans,
    f) providing financial surety,
    g) ensuring governance and accountability, and
    h) other activities such as Ontario Power's deep geologic repository for low and intermediate waste.

    Besides discussing the NWMO's active committees, the report concluded with an independent auditor's report of the Organization's financial status. The web link for the annual report can be accessed by positioning the cursor over the underlined text and following the directions.

Newsworthy Items Not Previously Reported

1. On January 21, Senator Collins sent a letter to thank the Chair of the Maine Yankee Community Advisory Panel (CAP) for his ongoing support of her efforts to authorize a pilot program for a consolidated interim storage facility and welcomed the CAP's support on nuclear waste storage initiatives. The web link for the letter can be accessed by positioning the cursor over the underlined text and following the directions.

2. On February 12, Senator King responded to the Chair of the Maine Yankee Community Advisory Panel (CAP) thanking him for sharing his perspective on the government's mishandling of the nation's spent nuclear fuel management program. Senator King agreed that the government's approach was untenable and that he wished for a quicker resolution. He noted that he was now a member of the Senate Energy and Natural Resources Committee and would push for the implementation of an interim storage project. The web link for the letter can be accessed by positioning the cursor over the underlined text and following the directions.

3. On February 15, the New Mexico House of Representatives passed a memorial requesting that the Eddy-Lea Energy Alliance develop a consolidated interim storage facility for the nation's spent nuclear fuel at its site in southeastern New Mexico. Over 70% of the House approved the measure with 50 delegates approving, 17 opposed with two abstentions and one absent. The resolution will be forwarded to the New Mexico congressional delegation, to the Secretary of Energy, and the Acting Assistant Secretary of Nuclear Energy. The following day the New Mexico Senate also endorsed the same resolution with 27 concurring, ten in opposition, and five abstaining. The resolutions followed previous public expressions of support from the local community and the Governor for the initiative. The web link for the memorial can be accessed by positioning the cursor over the underlined text and following the directions.