

State Nuclear Safety Inspector Office
Maine CDC – DHHS

October 2012 Monthly Report to the Legislature

Executive Summary

As part of the State's long standing oversight of Maine Yankee's nuclear activities, 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 Maine Yankee Independent Spent Fuel Storage Installation facility located in Wiscasset, Maine.

The report covers activities at the storage facility, including the State's on-going environmental radiation surveillance and the national debate over the licensing and construction of a geologic repository for the disposal of spent nuclear fuel at Yucca Mountain in Nevada. The report's highlights assist readers to focus on the significant activities that took place during the month, both locally and nationally.

LOCAL:

- On October 16th a 4.0 magnitude earthquake occurred near Hollis Center in York County. Maine Yankee officials stated that the tremor was not felt at the spent fuel storage facility in Wiscasset. However, the casks were inspected and no damage was observed. Measurements were taken between the casks to verify that there was no movement of the casks. Maine Yankee did provide a courtesy notification to the Nuclear Regulatory Commission's Region I Branch Chief. The Seabrook nuclear power station declared an Unusual Event, the lowest of four emergency classifications. However, the nuclear power station was shut-down at the time for refueling and maintenance and was not affected by the earthquake.
- Maine Yankee held its annual emergency plan exercise with participation from local and state officials. The exercise was a force on force exercise between armed intruders and the State Police's tactical team. The armed intruders were from Maine Yankee's security force. The scenario involved four intruders with backpacks and explosives scaling the ISFSI security fence and positioning their satchels of explosives. Two simulated explosions occurred within the confines of the storage facility and two casks were slightly damaged with localized higher radiation levels. The State Police did set up a roadblock on Ferry Road to prevent entry to the site. The State Police tactical team was called in and neutralized the threat. The tactical team then performed a sweep of the area including the Security and Operations Building. The State Police's bomb squad was also called in to perform a sweep for potentially other explosives that may have been intentionally left behind. None were found. Because of the armed intruders emergency responders were required to report to the alternate emergency operations center at the Wiscasset Airport to receive briefings before being dispatched to execute their emergency functions. The exercise was deemed an overall success by all parties. Some suggestions were made as to how to improve the command center at the Wiscasset Airport.
- Maine Yankee sent a letter to the Nuclear Regulatory Commission (NRC) notifying them of a change in indirect ownership. In July Maine Yankee had previously notified the NRC that the Canadian firm Gaz Metro Limited Partnership had acquired Central Vermont Public Service Corporation, a 2% owner of Maine Yankee. On October 1st Central Vermont Public Service was merged into Green Mountain Power, a Vermont utility that is also owned by Gaz Metro. The directors representing Green Mountain Power on Maine Yankee's Board of Directors are bound by their signed certification in accordance with

Maine Yankee's Negation Action Plan to suppress any potential for foreign ownership, control or influence.

The national highlights primarily focused on the Nuclear Regulatory Commission's activities and consolidated interim storage facilities as noted below:

National:

- The Eddy-Lea Energy Alliance (ELEA) selected an AREVA-led team of companies as its commercial partner for developing a used nuclear fuel storage facility in southeastern New Mexico. The ELEA was originally created by Eddy County, Lea County and the cities of Hobbs and Carlsbad, New Mexico, to secure funding from the Department of Energy for nuclear facilities. However, in 2011 ELEA announced it was interested in hosting an interim consolidated storage facility for spent nuclear fuel. AREVA and ELEA will confer on a memorandum of understanding to develop the nearly 1000 acre ELEA site for an above ground interim used fuel storage facility between the two cities.
- The Nuclear Regulatory Commission (NRC) and the Prairie Island Indian Community signed a Memorandum of Understanding on how they will work together to review the potential environmental impacts of renewing the spent fuel storage facility at the Prairie Island nuclear plant near Red Wing, Minnesota. The NRC will give extra weight to the Community's comments on historic and archeological resources, socioeconomics, land use, and environmental justice. Besides providing copies of technical reports, data and other information, the NRC will, however, retain final authority over whether to renew the storage facility license.
- The Nuclear Regulatory Commission (NRC) issued a press release that it was going to hold public scoping meetings for their waste confidence environmental impact study for extended interim storage of spent nuclear fuel. The study will also include the impacts associated with no permanent geologic repository and spent fuel pool leaks and fires. The scoping meetings are initial steps in the development of the NRC's environmental impact statement to support its waste confidence decision and rule.
- Holtec International introduced its HI-STORM CIS technology for consolidated interim storage of used nuclear fuel. The technology featured an "underground storage design that will house used fuel packaged in any canister supplied by any cask vendor." Each hardened underground cavity holds two spent fuel canisters stacked one on top of the other, thereby halving the storage requirements. According to Holtec their HI-STORM CIS is so compact that it could store nearly 80% of the nation's current nuclear waste stockpile in a 14 acre storage facility.

Introduction

As part of the Department of Health and Human Services' responsibility under Title 22, Maine Revised Statutes Annotated (MRSA) §666 (2), as enacted under Public Law, Chapter 539 in the second regular session of the 123rd Legislature, the foregoing is the monthly report from the State Nuclear Safety Inspector.

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 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.

Commencing with the January 2010 report the glossary and the historical perspective addendum are no longer included in the report. Instead, this information is available at the Radiation Control Program's website noted above. In some situations the footnotes may include some basic information and may redirect the reviewer to

the website. In October 2011 the format of the report was changed to include an executive summary which replaced the official memorandum to the legislative leadership transmitting the report. To further streamline efforts, beginning in August of 2012, the report featured hyperlinks to documents that would normally be attached as copies to the report. The hyperlinks should facilitate the reports review with some readers focusing on the report while others who wish to explore the cited documentation can do so.

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 were no fire-related impairments for the month. Although there were no security-related impairments for the month, there were thirteen security events logged. The first documented a momentary loss of communications with a remote location. The situation cleared in about 1 minute. All the remaining events were related to transitory environmental conditions.

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

1st CR: Was written to track open items from a security drill.

2nd CR: Documented a small spill of diesel fuel to the pavement. The spill was immediately cleaned up.

3rd CR: Was written to document needed changes to a phone list.

4th CR: Involved security sensitive information and not available for public disclosure.

5th CR: Documented the loss of a self-reading radiation dosimeter during a practice drill.

6th CR: Was written to track open items from the practice drill.

7th CR: Was written to document a physical not being complete.

8th CR: Documented an outside electrical outlet having water in it.

9th CR: Was written to document an unlocked filing cabinet containing personnel folders.

10th CR: Documented the October 16th earthquake near Hollis Center in York County.

11th CR: Was written to document a suspicious vehicle.

12th CR: Was written to document night hunters.

13th CR: Was written to track items from a missed self-assessment.

14th CR: Documented a computer problem that cleared itself when the computer was rebooted.

15th CR: Documented page numbering problems with a procedure that was revised.

Other ISFSI Related Activities

1. On October 16th a 4.0 magnitude earthquake occurred near Hollis Center in York County. Maine Yankee officials stated that the tremor was not felt at the spent fuel storage facility in Wiscasset. However, the casks were inspected and no damage was observed. Measurements were taken between the casks to verify that there was no movement of the casks. Maine Yankee did provide a courtesy notification to the Nuclear Regulatory Commission's Region I Branch Chief. The Seabrook nuclear power station declared an Unusual Event, the lowest of four emergency classifications. However, the nuclear power station was shut-down at the time for refueling and maintenance and was not affected by the earthquake.
2. On October 17th Maine Yankee held its annual emergency plan exercise with participation from local and state officials. The exercise was a force on force exercise between armed intruders and the State

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 Program's website.

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

3. On October 19th 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 briefed the group on his past and near term activities for the quarter. Maine Yankee briefed the Group on its successful emergency plan exercise a couple days earlier and the actions it took to verify that the 4.0 earthquake did not do any damage at the site. Maine Yankee also noted that it expects their cask vendor, NAC International, to receive a five year renewal on the transportation certificate of the canisters. The Group discussed the transportation infrastructure for moving casks to an interim used fuel storage facility. It was mentioned that it would take seven to ten years to upgrade some of the infrastructure as each rail shipment could hold from three up to six casks. Maine Yankee also revealed that the Department of Energy visited the Wiscasset facility in late August as part of its work-up on the transportation improvements necessary to transport nuclear fuel away from decommissioned reactor sites. Maine Yankee updated the Group on the status of its spent fuel lawsuit against the federal government. In the Phase I lawsuit the Department of Energy (DOE) asked for a rehearing of the case, which was denied by the Court. The DOE has until December 11th to file an appeal. The Phase II lawsuit, covering the period from 2003 to 2008, has gone to trial and Maine Yankee is awaiting the Judge's decision. Maine Yankee is hoping that DOE will entertain settlement discussions. The DEP stated that a year's worth of quarterly chemical samples will be taken at the former Maine Yankee industrial site starting on September 13, 2013. Maine Yankee did mention that it will conduct neutron measurements next summer to better quantify its neutron dose to workers.
4. On October 23rd there were two incidents at the storage facility. The first involved a suspicious vehicle that was parked on Ferry Road. The individual was taking pictures. The Local Law Enforcement Agencies (LLEA) were notified and responded. The LLEA intercepted the person, who turned out to be a former Maine Yankee employee. The individual was counseled and allowed to leave. The second incident involved some possible night hunting. The LLEA was again notified and responded. The LLEA intercepted two individuals across Ferry Road. The LLEA turned over the information to the Department of Inland Fisheries and Wildlife for further follow-up. Since neither incident resulted in persons trespassing onto Maine Yankee property, there was no need to report the incidents to the Nuclear Regulatory Commission's Operations Center.
5. On October 30th Maine Yankee sent a letter to the Nuclear Regulatory Commission (NRC) notifying them of a change in indirect ownership. In July Maine Yankee had previously notified the NRC that the Canadian firm Gaz Metro Limited Partnership had acquired Central Vermont Public Service Corporation, a 2% owner of Maine Yankee. On October 1st Central Vermont Public Service was merged into Green Mountain Power, a Vermont utility that is also owned by Gaz Metro. The directors representing Green Mountain Power on Maine Yankee's Board of Directors are bound by their signed

certification in accordance with Maine Yankee's Negation Action Plan to suppress any potential for foreign ownership, control or influence.

Environmental

The State performed its quarterly field replacement of its thermoluminescent dosimeters² (TLDs) on October 4th as part of its environmental radiation surveillance of the ISFSI facility. The TLDs were not mailed to the TLD vendor in California until October 15th as there was a delay in retrieving the other TLDs in York County that the State uses to provide coverage for the Portsmouth Naval Shipyard in Kittery and the Seabrook nuclear power station in New Hampshire. Since the TLD results were not available at the end of the month, the results will be reported in the November monthly report.

Other Newsworthy Items

1. On October 5th Senators Bingaman and Udall from New Mexico sent a letter to Energy Secretary Chu and the Acting Director of the Office of Management and Budget urging that the FY 2014 fiscal budget include enough funds to maintain operations at the only geologic repository in the U.S., the Waste Isolation Pilot Plant (WIPP) in New Mexico. In addition, as part of the Blue Ribbon Commission's recommendations to identify disposal options for used nuclear fuel, the Senators noted that the WIPP facility could be an ideal location to perform generic testing of salt repositories. The Senators advocated for the Department of Energy to factor in sufficient funding to accomplish these tasks. The web link for the letter can be accessed through the underlined text.
2. On October 9th the Nuclear Regulatory Commission (NRC) filed with the U.S. Court of Appeals for the District of Columbia Circuit its response to the petitioners September 28th request for the Court to immediately issue the Writ of Mandamus compelling the NRC to reopen the Yucca Mountain licensing proceedings in light of Congress' Continuing Resolution to keep the federal government open. The NRC noted that Congress will not adjourn until December 14, 2012, the day the Court said it would rule, and that there were presently four legislative proposals outstanding before Congress that could impact the appropriations process. On the same day the State of Nevada also filed its intervenor response to the Court on the petitioner's status report. Nevada disagreed with the petitioners' contentions on the meaning of the Continuing Resolution adopted by Congress to keep the government operating and requested that the Court continue to hold its ruling in abeyance until December 14th. The web link for the NRC and Nevada filings can be accessed through the underlined text.
3. On October 9th the Eddy-Lea Energy Alliance (ELEA) selected an AREVA-led team of companies as its commercial partner for developing a used nuclear fuel storage facility in southeastern New Mexico. The ELEA was originally created by Eddy County, Lea County and the cities of Hobbs and Carlsbad, New Mexico, to secure funding from the Department of Energy for nuclear facilities. However, in 2011 ELEA announced it was interested in hosting an interim consolidated storage facility for spent nuclear fuel. AREVA and ELEA will confer on a memorandum of understanding to develop the nearly 1000 acre ELEA site for an above ground interim used fuel storage facility between the two cities. The news release's web link can be accessed through the underlined text.
4. On October 9th the Nuclear Regulatory Commission's (NRC) Atomic Safety and Licensing Board issued a Notice and Order notifying the Northern States Power Company, the Prairie Island Indian

² Thermoluminescent Dosimeters (TLD) are very small, passive radiation monitors requiring laboratory analysis. For a further explanation, refer to the glossary on the Radiation Program's website.

Community (PIIC), and the NRC staff of a prehearing conference scheduled for November 8th and 9th on the PIIC's seven contentions challenging the Prairie Island's spent fuel storage license renewal application. The web link for the Notice and Order can be accessed through the underlined text.

5. On October 10th-11th the [Western Interstate Energy Board's](#) High-Level Waste Committee held a meeting in Denver on the status of the nation's nuclear waste program. They reviewed the Blue Ribbon Commission's findings and recommendations; the current outstanding federal court cases on waste confidence, the Nuclear Waste Fund fee assessment, and the writ of mandamus against the Nuclear Regulatory Commission (NRC); proposed legislation in Congress; NRC regulatory issues on extended storage and transportation, spent fuel transportation risk assessment and the waste confidence environmental impact statement; and the Department of Energy's initiatives. The meeting was largely spent reviewing the National Academy of Sciences' 2006 spent nuclear fuel/high-level waste recommendations pertinent to cask design and testing, cross-country transport, route assessment and selection, emergency response training, transportation security, and organizational structure. The web link for the meeting summary can be accessed through the underlined text.
6. On October 12th the [petitioners](#) (Aiken County, South Carolina, the Tri-City Business Leaders from Washington State, the states of South Carolina and Washington, the National Association of Regulatory Utility Commissioners, and Nye County, Nevada) filed a supplemental status report with the D.C. Court of Appeals. The supplement rebutted the arguments presented by the Nuclear Regulatory Commission and the State of Nevada in their October 9th filings with the D.C. Court and again requested that the mandamus be issued immediately. The web link for the petitioners can be accessed through the underlined text.
7. On October 15th the Nuclear Regulatory Commission (NRC) and the Prairie Island Indian Community signed a [Memorandum of Understanding](#) on how they will work together to review the potential environmental impacts of renewing the spent fuel storage facility at the Prairie Island nuclear plant near Red Wing, Minnesota. The NRC will give extra weight to the Community's comments on historic and archeological resources, socioeconomics, land use, and environmental justice. Besides providing copies of technical reports, data and other information, the NRC will, however, retain final authority over whether to renew the storage facility license. The web link for the NRC's news release can be accessed through the underlined text.
8. On October 17th the U.S. [Nuclear Waste Technical Review Board](#) held its fall meeting in Idaho Falls, Idaho. The discussion topics included state regional groups' views on the Blue Ribbon Commission's transportation recommendations, updates on the Department of Energy's Used Fuel Disposition Program's activities and architectural study, the modeling of used fuel storage temperatures, and the logistical and operational issues associated with the transport of used fuel from shutdown sites. The web link for the meeting agenda can be accessed through the underlined text.
9. On October 18th the Nuclear Waste Strategy Coalition (NWSC) held a conference call to update its membership on the Administration's activities within the Department of Energy, the U.S. Nuclear Waste Technical Review Board, and the Nuclear Regulatory Commission; congressional appropriations action and the Government Accountability Office report on the accumulation of spent nuclear fuel and its storage challenges; the three cases before the U.S. Court of Appeals for the D.C. Circuit (the fee suspension, waste confidence, and mandamus); and upcoming meetings and webinars of interest. The NWSC is an ad hoc organization of state utility regulators, state attorneys general, consumer advocates, electric utilities, local governments, tribes, and associate members. Its primary focus is to protect ratepayer payments into the Nuclear Waste Fund and to support the

removal and ultimate disposal of spent nuclear fuel and high-level radioactive waste currently stranded at numerous sites across the nation.

10. On October 23rd the Nuclear Regulatory Commission (NRC) webcast an overview of its spent fuel storage and transportation, and fuel facilities programs. The purpose of the two hour and forty minute [briefing](#) was for the NRC staff to provide the Commission with a discussion of strategic considerations for these two program elements, including priorities, near and longer term projections and trends, and emerging focus areas. The focus areas for spent fuel storage and transportation were safety and security, waste confidence and the evolving national policy for disposal. The program elements were licensing, oversight, rulemaking, research, international activities, and homeland security. Each element was subdivided into specific tasks. For example, in licensing technical challenges included such topics as fuel clad hydrides in high burnup fuel. The hydrides cause the fuel cladding encapsulating the nuclear fuel to crack due to hydrogen embrittlement. Besides performing fatigue tests on high burnup fuel to determine at what point failure will occur, research is also focused on corrosion in casks and cracks in concrete storage modules. Similar information was presented to the Commission on fuel facilities. The Commissioners questioned the staff on specific program elements and tasks in both programs. The web link for the brief can be accessed through the underlined text.
11. On October 23rd the Department of Energy's (DOE) National Transportation Stakeholders Forum (NTSF) held a webinar on the Nuclear Regulatory Commission's (NRC) rulemakings and other activities, and NTSF engagement in preparing for large-scale shipping campaigns. The NRC representative provided updates on accident and risk studies, the waste confidence ruling, extended spent fuel storage and transportation, and the transportation security rules. In the area of extended storage there were several areas identified for technical investigations.
 - Stress corrosion cracking of stainless steel canisters in marine environments,
 - Effects of residual moisture inside canisters after drying,
 - Improved thermal computer models,
 - Non-destructive methods for inspection and monitoring, and
 - Potential concrete degradation

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

12. On October 24th the Nuclear Regulatory Commission (NRC) issued a press release that it was going to hold public scoping meetings for their waste confidence environmental impact study of extended interim storage of spent nuclear fuel. The study will also include the impacts associated with no permanent geologic repository and spent fuel pool leaks and fires. The scoping meetings are initial steps in the development of the NRC's environmental impact statement to support its waste confidence decision and rule. The meetings were webcast. The [press release's](#) web link can be accessed through the underlined text.

13. On October 25th Holtec International introduced its [HI-STORM CIS](#) technology for consolidated interim storage of used nuclear fuel. The technology featured an “underground storage design that will house used fuel packaged in any canister supplied by any cask vendor.” Each hardened underground cavity holds two spent fuel canisters stacked one on top of the other, thereby halving the storage requirements. According to Holtec their HI-STORM CIS is so compact that it could store nearly 80% of the nation’s current nuclear waste stockpile in a 14 acre storage facility. The web link for the product information can be accessed through the underlined text.