# MAINE STATE LEGISLATURE



# State Nuclear Safety Inspector Office

# August 2008 Monthly Report to the Legislature

## 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 second monthly report from the State Nuclear Safety Inspector under this new legislation.

The State Inspector's individual activities for the past month will be 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.

To better understand some of the topics, some effort was placed in providing some historical information. However, for the time being this historical context will be provided as an addendum to the report.

## Independent Spent Fuel Storage Installation (ISFSI)

During August the general status of the ISFSI was normal. There were no fire or security related impairments. Although there was one spurious alarm, there were no security events logged for August. There were four condition reports[1] (CR) during the month of August. The first involved a hole in the intrusion zone with a buried conduit. The second was due to a bad odor in the drinking water, which compelled Maine Yankee to bring in bottled water until a dead leg to the former industrial area was cut and capped, and the lines chlorinated and flushed. The water was retested and found acceptable. The third CR involved the termination of a procedure without prior shift notification of the new procedure. The last one involved the issuance of personal dosimetry to the Nuclear Regulatory Commission's Region I ISFSI Inspector, when his training qualifications had expired. All four were relatively minor issues.

There was one minor trespassing issue. Apparently, a person was parking their vehicle at the entrance of the old east access road by the old Bailey Farm House. Security contacted Lincoln County to notify the person not to park there anymore.

## Environmental

As noted in last month's report, here are the results of the previous quarterly thermoluminescent dosimeters (TLD) readings ending June 30th. Of the 13 TLD locations near the ISFSI eleven did not show any appreciable values above normal background radiation levels, whereas two stations did

[1] A condition report (CR) is a report that promptly alerts management to potential conditions that may be adverse to quality or safety. The report is generally initiated by a worker at the ISFSI facility. The report prompts management to activate a process to identify causal factors and document corrective and preventative measures stemming from the initial report.

exhibit slightly elevated levels due to their proximity to the storage casks. The control TLD values that are stored at the State's Radiation Control Program in Augusta, averaged about 25 milliRoentgens[2] (mR), whereas the two elevated stations had values that ranged from 28 to 29 mR, as compared to the 11 other stations that averaged about 23 mR. In comparison the normal expected quarterly background radiation levels on the coast of Maine would range from 13 to 23 mR.

For informational purposes Figure 1 at the end of the report illustrates the locations of the State's 13 TLD[3] locations in the vicinity of the ISFSI. The State's locations are identified by letters. The two highest locations were stations G and K.

## Maine Yankee Decommissioning

In July the State split 18 samples with Maine Yankee from the Gravel Road for final verification that the samples will meet Maine Yankee's License Termination Plan, and State and Federal decommissioning requirements. The State is looking forward to Maine Yankee's results and is awaiting the results of its samples from the State's Health and Environmental Testing laboratory. Due to the localized nature of the contaminant and the restricted security access to the site, the contamination found does not present a public health hazard.

One other area of concern was identified by the railroad tracks adjacent to the Gravel Road in August as having plant derived radioactivity, (Cobalt-60). The State's soil sample result showed that the value was below the site release limit for Cobalt-60. However, during the investigation of the sample location increased radiation readings were observed and an additional sample was taken. Upon further investigation it was determined that the increased levels were due to two rocks in the sample hole that were reading three to five times above natural background levels. This information was verified by the State's special radiation fingerprinting device, which identified the sources as naturally radioactive Radium and Thorium.

The State will publish its decommissioning findings in a decommissioning summary that is expected in March of 2009. As part of that process the State will condense approximately a dozen confirmatory reports that are being worked on by an outside consultant. In 2000 the State contracted with a nationally recognized decommissioning expert with nearly 35 years of experience to ensure proper reviews of Maine Yankee's License Termination Plan and technical submittals to the U.S. Nuclear Regulatory Commission. The independent consultant has been collecting all the State's findings and summarizing them in confirmatory reports that the SNSI will used to complete the State's decommissioning summary. Currently, there are eight confirmatory reports that are essentially complete, two are in draft form awaiting review and two are outstanding and have yet to be drafted. Since the consultant's contract expired, a renewal contract was written and is awaiting approval to cover the remaining reports.

[2] A Roentgen is a special unit of exposure named after the discoverer of X-Rays, Wilhelm Roentgen. It is a measure of how much ionization is produced in the air when it is bombarded with X-Rays or Gamma Rays. Ionization is described as the removal of an orbital electron from an atom. A milliRoentgen is one thousandth of a Roentgen.

[3] TLDs use very small plastic like phosphors that are placed in a small plastic cage and mounted on trees, posts, etc. to absorb any radiation that impinges on the material. Special readers are then used to heat the plastic to release the energy that was stored when the radiation was absorbed by the plastic. The energy released is in the form of invisible light and that light is counted by the TLD reader.

## Groundwater Monitoring Program

As related in last month's report, the State and Maine Yankee met to resolve the impasse over Maine Yankee's final Radiological Groundwater Monitoring Work Plan. The outstanding quality assurance issues with the validation of the data were resolved and agreed upon by all the parties in attendance, including the Department of Environmental Protection, the Department of Health and Human Services, and Maine Yankee.

## Other Newsworthy Items

1. The State Nuclear Safety Advisor (SNSA) position was terminated on August 29, 2008. Presently, several agencies are contemplating how to best to carry out some of the SNSA duties and how those duties will eventually be apportioned amongst the respective agencies involved, including the Office of the Public Advocate, the Governor's Office and the Department of Health and Human Services.

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State Nuclear Safety Inspector

# Addendum

## Historical Perspective

### Independent Spent Fuel Storage Installation (ISFSI)

Since the licensing and construction of the high level waste repository at Yucca Mountain in Nevada has been delayed until at least the year 2017, further delays are expected unless funding of the program is returned to appropriate levels. However, even with proper funding, delays until 2020 to 2025 would still be expected.

The Department of Energy (DOE) has not taken title and possession of any of the nation's spent fuel as mandated by the Nuclear Waste Policy Act of 1982 and is not expected to do so in the near term. DOE's inaction prompted Maine Yankee to construct an ISFSI during decommissioning to store the more than 1400 spent fuel assemblies that were previously housed in the spent fuel pool in the plant into 60 storage casks on-site. Another four casks contain some of the more radioactive components of the reactor internals that were cut up during decommissioning, since their radioactive concentrations were too high to dispose at a low level radioactive waste facility. These are expected to be shipped along with the spent fuel to the Yucca site should the repository open. However, there was some movement in the last Congress as it required the DOE to report back by the end of this year on the logistics of removing the spent nuclear fuel from the nation's closed plants.

### Environmental

Since 1970 the State has maintained an independent, radiological environmental monitoring program of the environs around Maine Yankee. Over the years there was an extensive quarterly sampling and analysis program that included such media as salt and fresh water, milk, crabs, lobsters, fish, fruits, vegetables, and air. Since the decommissioning the State's program has been reduced twice to accommodate decreased revenues for sample analyses at the State's Health and Environmental Testing Laboratory (HETL). Presently, the State monitors one freshwater location, one saltwater and seaweed location, and one air sample location. The State maintains a quarterly sampling regimen, except for the air sample, which is performed bi-weekly near the old Bailey Farm House. The results of the most recent sampling will be published when the results become available from HETL. Besides the media sampling, over the years the State has maintained a robust thermoluminescent dosimeter (TLD) program to measure the radiation environment. The TLDs were placed within a 10 to 20 mile radius of the plant to measure the background radiation levels and later, when the plant was operating, any potential increases in background levels due to plant operations. Over time the number of TLDs nearly doubled to address public concerns over the clam flats in Bailey Cove and the construction of the ISFSI. After the plant's decommissioning the State reduced the number of TLDs around Bailey Cove, but maintained the same number for the environmental surveillance of the ISFSI.

### Maine Yankee Decommissioning

Maine Yankee's decommissioning was completed in the fall of 2005. At that time the State Nuclear Safety Inspector's (SNSI) also commenced his final walk down survey of the site. Certain areas such as the transportation routes exiting the plant site were surveyed later after the plant industrial area was decommissioned. Due to the length of the egress routes, it took a considerable amount of time to

complete both half-mile east and west access routes and the two thirds of a mile of the railroad track. In addition, seven specific areas, including the gravel road, were also examined as part of the site survey. The State's final survey of the gravel road leading to the old softball field was extended last fall when the State discovered three localized elevated areas on the road that were contaminated. At that time, extensive bounding samples were taken to determine the extent of the contamination.

## Groundwater Monitoring Program

In June of 2004, the State, through the Department of Environmental Protection's (DEP) authority under 38 MRSA §1455, signed an agreement with Maine Yankee for a five year, post decommissioning radiological groundwater monitoring program at the site. Presently, the program is in its third year. The details of how the agreement would be carried out relative to the quality assurance facets of the monitoring, sampling and analyses would be captured in Maine Yankee's Radiological Groundwater Monitoring Work Plan.