

# MAINE STATE LEGISLATURE

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# STATE NUCLEAR SAFETY REPORT

submitted to the

114th MAINE LEGISLATURE

March 1, 1989

State Nuclear Safety Advisor  
Executive Department  
Maine State Planning Office



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STATE OF MAINE  
EXECUTIVE DEPARTMENT  
STATE PLANNING OFFICE

JOHN R. McKERNAN, JR.  
GOVERNOR

RICHARD H. SILKMAN  
DIRECTOR

March 1, 1989

TO: Members of the 114th Legislature  
FROM: Richard H. Silkman  
SUBJ: Nuclear Safety Report

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This is the initial annual report of the State Nuclear Safety Advisor to the Maine Legislature. In subsequent years, the report will offer more detailed reporting on nuclear issues.

The responsibilities of the State Nuclear Safety Advisor are broad. The Advisor monitors the operations of the Maine Yankee Atomic Power Station, but also considers the larger issues of low and high-level radioactive waste disposal, transportation of nuclear wastes or nuclear issues from a State policy perspective.

The initial report will acquaint you with the duties of the Advisor and the working relationships that have already been established to ensure that the Legislature has the most reliable information on nuclear issues.

I am sure that the work of the State Nuclear Safety Advisor will contribute to informed decision-making.



# NUCLEAR SAFETY REPORT

## INTRODUCTION

This report complies with the reporting requirements (25 MRSA, sec. 10) directing the State Nuclear Safety Advisor to submit an annual report on issues pertaining to the safe operation of nuclear facilities, and the safe transportation and storage of nuclear waste.

The State Nuclear Safety Advisor (NSA) position was established in legislation which established a State Nuclear Safety Inspection and Monitoring Program for Commercial Nuclear Power Facilities in the State of Maine. Signed by Governor John R. McKernan, Jr. on June 29, 1987, the statute addressed the concerns of the potential impact nuclear facilities can have to public health and safety, and the environment. The duties and the responsibilities of the NSA as defined in the statute are quite broad. Housed within the Natural Resources Policy Division of the State Planning Office (SPO), the NSA is to advise the Governor and Legislature on all matters relating to nuclear safety. The NSA is directed to consult with the pertinent agencies of State and Federal Government on nuclear safety issues. Overall, the NSA performs an oversight function for all nuclear safety related activities affecting the State of Maine.

The NSA's initial activities, beginning October 11, 1988, were to integrate the NSA position with the pertinent state and federal organizations which have duties and responsibilities relating to nuclear safety. A working relationship has been established with the Division of Health Engineering (DHE) in the Department of Human Services, where all nuclear issues, activities, and concerns are brought to the attention of the NSA. Working relationships have also been established with the Advisory Commission on Radioactive Waste, the Low Level Radioactive Waste Authority, the Public Utilities Commission, the Maine Emergency Management Agency and the Public Advocate. The NSA has developed a liaison role with the Maine Yankee Atomic Power Company.

The purpose of the State Nuclear Safety Report is to provide information, assessments and recommendations on nuclear safety issues which affect or may affect Maine. The topics of concern which are discussed in this report are:

- Maine Yankee Atomic Power Station
- Seabrook Nuclear Power Station
- Point LePreau Nuclear Station
- Low Level Radioactive Waste
- High Level Radioactive Waste



## MAINE YANKEE ATOMIC POWER STATION

Maine Yankee, Maine's only nuclear power plant located in the town of Wiscasset, began generating electricity in December, 1972. Primarily as a result of the Three Mile Island accident in 1979, public awareness and concern about the safety of nuclear power plants was elevated in Maine, as well as in the entire nation. This eventually led to legislation signed by Governor McKernan on January 29, 1987 establishing the State Nuclear Safety Inspector Program for the on-site monitoring, regulatory review, and oversight of the operations of commercial nuclear power facilities within the State which hold an operating license issued by the United States Nuclear Regulatory Commission. To accomplish the on-site activities to assure the safe operation of a nuclear facility, the same legislation established a State Nuclear Safety Inspector (NSI) position within the Department of Human Services.

The NSI has recently been hired and will serve as an on-site inspector of the Maine Yankee Atomic Power Station beginning February 6, 1989. The NSI will be stationed at the Maine Yankee Atomic Power Plant next door to the office of the two resident Nuclear Regulatory Commission (NRC) inspectors. The duties of the NSI will not be to replace or duplicate that of the NRC inspectors. Maine Yankee, as with all nuclear power plants in the United States, is constantly subject to critical inspection and review by the NRC. It would not be possible or necessary to emulate the NRC's role. The role of the NSI will be to provide the State with information and assurance that activities undertaken by Maine Yankee and the NRC are consistent with the protection of the public health and safety, and in compliance with the environmental protection policies of this State. Specific duties of the NSI have yet to be fully defined, however the NSA will continue to consult with the DHE in the development of an effective work plan to ensure the safe operation of the Maine Yankee facility. Maine Yankee has expressed and demonstrated its willingness to cooperate with the State in the development of this safety program.

### ON-SITE SAFETY AT MAINE YANKEE

Since the NSI has only recently been hired, an independent evaluation of safety at Maine Yankee from the State's perspective is premature. However, the performance of Maine Yankee has recently been reviewed by the NRC Systematic Assessment of Licensee Performance (SALP) Board. The SALP Board assessed the performance of activities at Maine Yankee for the period of February 1, 1987 to July 31, 1988. This is an in-depth critical review of Maine Yankee's operations, maintenance and surveillance, emergency preparedness, security, radiological controls, safety assessment/quality verification, and engineering and technical activities. Each area reviewed is given a ranking of one, two, or three - a one indicating that the utility's management is safety oriented and a three indicating that although the utility meets regulatory standards, its overall performance is marginal. The SALP Board, in their findings, confirmed Maine Yankee's commitment to safe plant operations, and summarized Maine Yankee's performance as generally good to superior. However, performance in the areas of radiology and safety were rated lower than previous years by the Board. The area of radiological controls decreased to a category 3 from the previous rating of category 2, and security previously rated as category 1 decreased to category 2. Maine Yankee has been and is continuing to cooperate with the

NRC to improve on the weaknesses noted by the SALP Board. The On-site NRC inspector has reported that corrective action has been taken to resolve this matter.

A detailed report of on-site safety at Maine Yankee will be given in next year's State Nuclear Safety Report. It is expected that aspects of on-site monitoring by the NSI will be identified and implemented by late Spring 1989.

#### OFF-SITE SAFETY AT MAINE YANKEE

Safety to the public and the environment outside the perimeter of the Maine Yankee facility focuses on radiation exposure and radioactive contamination. Off-site safety concerns are monitored and addressed with the following programs:

##### *Continuous Monitoring Network --*

The Legislation which established the State Nuclear Safety Program set forth the framework for radiation monitoring within the vicinity of Maine Yankee (22 MRSA, subpara.4, J). Maine Yankee, as with all nuclear power plants, produces radioactive gaseous and liquid waste when operating. The NRC allows regulated quantities of these materials to be released to the environment, to the extent that no undue risk to the public health and safety, and the environment occurs. Though the releases are monitored by Maine Yankee, to assure the State that the releases of these gases and liquids are within regulatory limits, a radiation monitoring network, described as the Continuous Monitoring Network (CMN) has been established. The CMN consist of 19 radiation detectors mounted on telephone poles in the proximity of Maine Yankee. Data from the detectors is to be transmitted by radio to a central computer located in the NSI's office. The radiation dose data is to be processed and evaluated to determine if the releases from Maine Yankee pose any risk to the nearby public. It is expected this network will be in operation by March, 1989.

##### *Volunteer Monitoring Program --*

As with the Continuous Monitoring Network, the Volunteer Monitoring Program addresses public concerns of gaseous radioactive releases from Maine Yankee (22 MRSA, subpara.4, K). There is concern among the public residing within the vicinity of Maine Yankee that during certain meteorological conditions gaseous radioactive releases from Maine Yankee may not be dissipating in the atmosphere as predicted. As a result, it is postulated that a radioactive plume could remain fairly concentrated resulting in unacceptable short term radiation exposure to the public. Mathematical models of plume dispersion suggest this is an unlikely occurrence, however since there is a great deal of uncertainty in plume predictability the possibility can not be entirely discounted. To address these concerns with fact, a Volunteer Monitoring Program was established. The program will place up to fifty radiation monitors in the homes of volunteers within the vicinity of Maine Yankee to monitor radiation levels. Volunteers will record and report findings to the DHE. The radiation monitors have been acquired by the DHE, and the first of the training sessions for volunteers will be in February, 1989.

### *Nuclear Emergency Planning --*

The Nuclear Regulatory Commission requires commercial nuclear power facilities and states within a fifty mile radius of a nuclear plant to have an emergency plan in the event of a nuclear accident. The Maine Emergency Management Agency (MEMA), the lead agency for planning and implementing nuclear emergency plans, has a nuclear emergency plan for Maine Yankee which has been used in an exercise and approved by the Federal Emergency Management Agency (FEMA). The role of the NSA in the event of a nuclear emergency was discussed with MEMA and DHE. It was determined the NSA will serve as a consultant to the Governor and Legislature in the event of a nuclear emergency and will be stationed with the Governor in the policy room at the Emergency Operating Center. As emergency plans undergo revision, the role of the NSA is being incorporated.

A two-day nuclear emergency exercise with Maine Yankee will take place in late 1989. Such exercises are monitored and reviewed by FEMA to assure personnel are properly trained and the plans are effective in protecting the public. A detailed discussion of this exercise will be in next year's report.

### *Environmental Sampling Program --*

The State has an environmental sampling program about the vicinity of Maine Yankee to monitor for radioactive contamination. The NRC and Maine Yankee have similar programs. A compilation and analysis of this data will be performed, and results will be discussed in next year's report.

## **SEABROOK NUCLEAR POWER PLANT**

The Seabrook Nuclear Power Plant in New Hampshire has met much opposition from the State of Massachusetts, such that its start up has been delayed for years. However, FEMA has recently approved the Seabrook emergency plan, and the NRC has voted to give its staff the authority to issue a low-power license. The operation of Seabrook does affect Maine in that a southern portion of the state is within a fifty mile radius of the plant, the pathway ingestion emergency planning zone. Specifically, the majority of York County and a small area of Cumberland County are in this zone. As with Maine Yankee, MEMA has an emergency plan for the areas of Maine effected by Seabrook's operation. During June, 1988, a two-day exercise to test Seabrook's emergency plans was held, the participants being New Hampshire Yankee, the State of New Hampshire, and the State of Maine. A report by FEMA evaluating the exercise was issued in September, 1988. It concluded that Maine has successfully met all the requirements of the exercise.

## **POINT LEPREAU NUCLEAR POWER PLANT**

The Point LePreau Nuclear Power Plant is located in New Brunswick, Canada about 27 miles from Eastport, Maine. As with Seabrook, a portion of Maine, in this case

Washington County, is in the pathway ingestion emergency planning zone. MEMA has had for several years an emergency plan which was last used in an exercise in 1986.

A full review of the Point LePreau pathway ingestion emergency plan will be reviewed by the NSA and discussed in next year's report.

## **LOW LEVEL RADIOACTIVE WASTE**

The United States Low Level Radioactive Waste Policy Amendments Act (LLRWPA) of 1985 (Public Law 99-240) transferred the responsibility for disposal of low level radioactive waste (LLRW) from the Federal Government to the states. States have until 1993 to construct and operate a disposal facility or form a compact with other states. To encourage compliance with the LLRWPA, the progress of a state is monitored by the accomplishment of specific milestones which are bound to incentives and penalties. The incentives and penalties are quite severe, ranging from surcharges on waste to denial of access to regional disposal facilities. In taking steps to comply with the LLRWPA, the State of Maine established the Low Level Radioactive Waste Authority (Authority) to site, construct, and operate a LLRW disposal facility in Maine.

The Authority, which was officially formed in November 1987, has been successful in meeting a January 1, 1988 LLRWPA milestone by completing a LLRW disposal siting plan. Among other milestone requirements is a description of the optimum way to attain operation of a disposal facility within the time period specified in the LLRWPA (1993). However, in 1988 the progress of the Authority began to slow. The Authority is now six months behind its original schedule. The State of Maine may not be able to meet an upcoming January 1, 1990 milestone. The milestone requires a complete application be filed for a license to operate a LLRW disposal facility, or that the Governor must provide written certification that Maine will be capable of providing for, and will provide for, the storage, disposal, or management of its LLRW after December 31, 1992. As the situation stands today, the Authority will not be able to meet this milestone. The site selection and characterization study, which is necessary for the license application, has not been initiated and it is inconceivable that a disposal facility could be operating by 1993.

The Authority was given a task which most states in the nation will have difficulty in meeting. Historically, issues of nuclear radiation have produced considerable emotion and concern from the people of the State. Maine has had three referendums concerning the operation of the Maine Yankee Atomic Power Plant, and of most relevance, a referendum on the disposal and storage of LLRW. Maine voters consistently defeated the referendums to decommission Maine Yankee early. Voters approved the LLRW referendum which established a requirement of state-wide voter approval in order to construct and operate a LLRW disposal or storage facility in Maine, or to form a LLRW compact with another state. Acquiring state-wide voter approval for a site is a major undertaking for the Authority. Prior to the state-wide voter approval for the site, the Authority must obtain approval by 60% of the governing body of the municipality where the facility is proposed to be located, approval by the Bureau of Environmental Protection,

and Legislature approval. If these approvals are not obtained in a timely manner, the Authority's objectives will be significantly delayed.

The Authority, in foreseeing its inability to meet the milestone in 1993 (an operating LLRW disposal facility), is submitting legislation which in part will enable it to site, construct, and operate a LLRW storage facility, if necessary. The inclusion of the words "storage" in the statute (38 MRSA, Chapter 14-B) which directs the Authority, is required if Maine is to meet the January 1, 1990 milestone of the LLRW PAA, which requires that the Governor certify that Maine will be capable of providing for, and will provide for, the storage, disposal, or management of its LLRW after December 31, 1992.

Though the amended legislation may enable Maine to meet the 1990 milestone, it may have an adverse impact upon the ultimate purpose of the Authority, which is to construct and operate a LLRW disposal facility. Considering the Authority is already behind in its schedule, the additional undertaking of siting, constructing, and operating a storage facility may further delay disposal efforts. A severe delay in attaining an operating disposal facility may not be tolerable in that licenses granted by the Nuclear Regulatory Commission for storage of LLRW are presently limited to five years.

While the Authority continues with its mission, the Governor's Office is actively pursuing the compacting option. To date, no agreement has been reached. However, a proposal from the Governor has been submitted to Texas for consideration. Although compacting would eliminate the need for the Authority to construct and operate a disposal facility, a storage facility may be necessary in the event Maine compacts with a state which is unable to receive shipments by 1993. However, until Maine does enter into a compact, the progress of the Authority must proceed such that Maine will not have to rely on the Emergency Access provision (sec. 6) of the LLRW PAA to properly dispose of its waste. To avoid this occurrence, a review of the Authority's progress should be periodically evaluated to determine if the completion dates for operating disposal and/or storage facilities are realistically achievable. Obtaining local and state wide voter approval may be the largest detriment to the Authority's mission, and the potential impact should be evaluated and addressed.

## **HIGH LEVEL NUCLEAR WASTE**

The Department of Energy's initial search for a high level radioactive waste repository produced two potential sites in Maine. However, the DOE's search in Maine has been temporarily discontinued as of December, 1987 by the Nuclear Waste Policy Amendments Act (NWPAA). The NWPAA designated the Yucca Mountain site in Nevada for detailed study as the candidate site for the first U.S. geologic repository for spent nuclear fuel and high-level radioactive waste. It also ceased activities in siting a second repository at least until 2007 when the DOE is to report to Congress if a second site is needed.

Whether Maine and other states will be considered in another HLW repository search will depend on the outcome of the site characterization of the Yucca Mountain Site.

Even if it does become the first repository, the DOE may determine a second repository is needed. According to the DOE's draft Mission Plan amendment, the need for a second repository will depend on the quantity of waste requiring disposal and the capacity of the first repository site. Present predictions show the amount of waste (defense and commercial) generated by 2020 exceeds the planned capacity of the Yucca Mountain Site. This prediction does not take into consideration the possible resurgence of the nuclear industry in the U.S. due to the consequences of the greenhouse effect and growing dependence upon foreign oil.

### **PROJECTED CALENDAR 1989 WORK TASKS OF THE NUCLEAR SAFETY ADVISOR**

Overall activities of the NSA for 1989 will be to acquire and consolidate information and data on the nuclear safety issues affecting Maine, and issue a comprehensive report to the Governor and Legislature in January 1990. The projected activities will include:

- Consult with DHE and Maine Yankee in developing and implementing an on-site nuclear safety program.
- Consult with MEMA to review emergency plans for Maine Yankee, Seabrook, and Point LePreau nuclear power facilities.
- Continue to Monitor the LLRWA in their progress towards a LLRW disposal and/or storage facility.
- Consult with DHE on the analysis of data acquired by the Environmental Sampling Program, the Continuous Monitoring Network, and the Volunteer Monitoring Network.
- Continue to monitor the DOE's progress in siting a HLW repository.





STATE OF MAINE  
EXECUTIVE DEPARTMENT  
STATE PLANNING OFFICE

JOHN R. McKERNAN, JR.  
GOVERNOR

RICHARD H. SILKMAN  
DIRECTOR

March 14, 1989

MEMO: To All Interested Parties  
FROM: Richard Silkman  
RE: Addendum to the State Nuclear Safety Report

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There has been some confusion and concern regarding the section dealing with Low Level Radioactive Waste (p.5) of the State Nuclear Safety Report issued on March 1, 1989. As written, the section is subject to misinterpretation. I believe that the following statement should clarify this confusion and relieve some of this concern:

The section of the Report discussing Maine's progress in complying with the milestone requirements of the Low-Level Radioactive Waste Policy Amendments Act of 1985 included, in its second paragraph, the statement that "the Authority will not be able to meet this milestone," referring to the December 1992 deadline for submission of a NRC license application for a disposal facility in Maine or for other measures to manage Maine's waste. On further consideration, there are a number of options available to Maine for the management of its low-level waste after December 1992 which were not sufficiently emphasized in this section of the report. These include several alternatives which have been specifically designated as acceptable by the NRC, the Department of Energy and three states with existing disposal capacity, for the purposes of the Governor's 1990 Certification. Maine can be expected to make use of a combination of the following options in order to manage its low-level waste, for the period prior to the scheduled start-up of any permanent disposal facility in Maine:

1. temporary storage of low-level waste by Maine's generators at currently licensed on-site facilities;
2. construction and operation of a storage facility by the Authority; and
3. short-term contract arrangements with one (or more) of the existing sited states.



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Additionally, the Governor's office will continue its efforts to consummate a compact arrangement with a state or region for which a new disposal facility is expected to commence operation within a reasonable period after January 1, 1993. Success in these efforts will obviate the need for disposal facilities in Maine. In view of these prospects and their probable fulfillment, the Governor can be expected to satisfy the federal requirements for an adequate Certification in 1990 of management of Maine's waste.

RS/jmb