STATE OF MAINE

ADVISORY COMMISSION ON RADIOACTIVE WASTE

February, 1997

Rep. Catharine Damren, Chair
Rep. June Meres, Vice-Chair

1996 ANNUAL REPORT

Table of Contents

1996 COMMISSION MEMBERSHIP:

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Senator Peter Mills
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John T. Chen, MD., public member
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ANNUAL REPORT

of the

ADVISORY COMMISSION ON RADIOACTIVE WASTE

for the calendar year 1996

Introduction

The Advisory Commission on Radioactive Waste Remains the only State entity charged by the legislature to collect, analyze and disseminate information on all aspects of radioactive waste management. The Legislature created the Advisory Commission in 1985 as a successor to the Low-Level Waste Siting Commission. The Advisory Commission's purpose is "to advise the Governor and the Legislature on matters relating to radioactive waste management . . .".

Historically, the Advisory Commission has taken leading roles in issues involving high and low level radioactive waste in Maine. Notably, the Commission took a leading role in fighting the siting of a high level radioactive waste repository in Maine. Later, the Commission was instrumental in establishing policy for dealing with low-level waste, leading to the creation of the Low-Level Radioactive Waste Authority. Ultimately, with Commission endorsement, Maine negotiated a compact with the State of Texas for disposal of low-level waste and the Authority was dissolved. Throughout, the Commission has been a key source of information and guidance to the Governor, Legislature, State Government and the public.

More recently, the commission has undergone an internal change, while maintaining its primary purpose. As part of a series of consolidations of the State's radiation related programs, Maine PL 1995 C. 333 transferred administrative support for the Advisory Commission on Radioactive Waste from the Department of Environmental Protection to the Department of Human Services. The Radiation Control Program (RCP), Bureau of Health, Division of Health Engineering, assumed support of the Advisory Commission on July 1, 1995. All records, documents and library materials were moved to the RCP offices over the following two weeks. Historical materials including public documents, technical information etc., are currently being housed within the RCP offices. The Radiation Control Program is commited it continuing the same level of service to the Commission and the public as was provided by the Department of Environmental Protection.

During 1996, follow-up from the preceeding legislation also had an impact on the ACORW; Maine 1995 PL. 642, legislation sponsored by the Department of Environmental Protection, repealed the Department's rules regulating radioactive waste and removed the the Department's commissioner from the ACORW.

The commission held five public meetings during 1996. In accordance with a suggestion approved at the January 1995 meeting, the commission held four quarterly meetings, each occurring on the third Wednesday of each quarter at 9:00 am. (January 17, April 17, July 17, and October 16). An additional meeting was held on December 5. All meetings of the ACORW occurred at various locations within the State Office Building in Augusta. The Commission also produced four quarterly issues of its *Update '96* newsletters during 1996. The newsletter was sent to some 300 addressees.

Meeting Highlights

The Advisory Commission has dealt with a broad range of issues at its meetings. Topics have ranged from discussions of high level waste policy to technical presentations by representatives of the Texas Low-Level Radioactive Waste Disposal Authority on the ongoing work in licensing the proposed disposal facility that is planned to accept Maine's low-level radioactive waste in future. Staff representing Human Services, the Office of the Public Advocate and the State Nuclear Safety Advisor (of the State Planning Office) also kept commission members informed of national developments potentially affecting the disposition of Maine's radioactive waste.

Some examples of specific Issues dealt with during 1996 meetings of the ACORW:

- A Presentation by the
- The ACORW extended its approval to a plan to assist small one time generators in Maine dispose of radioactive waste. The ACORW also voted to resolve to have
- Disscussions of the potential impact of Utility Deregulation in the decommissioning of Nuclear Power Plants
- Updates on the status of federal legislation, particularly the High Level Waste bill and the Texas Compact Consent bill.
- Updates on the Maine Yankee/Entergy management relationship.

On December 5th, the Advisory Commission of Radioactive Waste met to hear a spending request requiring a transfer of moneys from the low-level radioactive waste fund. Stephen Ward, Maine's Public Advocate laid out the terms of the proposal. The request would transfer approximately $15,000 from the Low-Level Waste Fund to the Office of the Public Advocate to contract with a Washington, D.C. based firm for services encouraging congressional consent to the Texas Compact. Mr. Ward indicated

that Afton Associates (the firm named in the proposal) would likely be contracted under a sole-source contract (rather than an open bid process) as unique requirements and expediency are necessary to accomplish the objectives of the proposal. The measure was approved by a unanimous vote of commission members in attendance.

Commission Activities

The State of Maine has changed its approach to low-level radioactive waste management since Maine voters approved the Texas Compact in November, 1993. These changes were legislated through two laws, P.L. c. 664, 1993, " An Act to Consolidate and Streamline the Functions of Maine Government in Conformity with the Provisions of the Texas Low-Level Radioactive Waste Disposal Compact", and P.L. c. 333, 1995, "An Act to Correct Errors and Inconsistencies with Regard to the Restructuring of Maine Government to Conform with the Provisions of the Texas Compact".

P.L. c. 664, 1993, dissolved the Maine Low-Level Radioactive Waste Authority and transferred the non-siting duties of the Authority to the Department of Human Services(DHS), Radiation Control Program. This law also appropriated money through an annual service fee for low-level radioactive waste generation to support the Advisory Commission on Radioactive Waste and to create two new positions (an Assistant Engineer and a Clerk Typist III) to support the newly acquired duties at DHS. Annual Service Fee collections were not to exceed $260,000.

P.L. c. 333, 1995, reinstated Maine's Commissioner to the Texas Low-Level Radioactive Waste Disposal Compact Commission. Statutory provisions for this function were inadvertently struck by P.L. c. 664, 1993. P.L. c. 333, 1995, affected the Advisory Commission on Radioactive Waste by eliminating two staff members within the Department of Environmental Protection whose duties were solely dedicated to Advisory Commission activities, and transferred those duties to DHS. Also, the $260,000 annual assessment fee ceiling established under P.L. c. 644, 1993, was reduced to $135,000.

High-level Waste

Maine currently has two high-level radioactive waste generators, Maine Yankee in Wiscasset, and Portsmouth Naval Shipyard in Kittery. With no available disposal or off site interim storage options, Maine Yankee continues to store its high level waste on site. Spent fuel and other highly radioactive items that constitute Maine Yankee's high level waste stream are stored within the plant's spent fuel pool.

Portsmouth Naval Shipyard shipped spent nuclear fuel off site during 1996. In 1995, the Navy, Department of Energy, and the State of Idaho came to an agreement allowing renewed access to interim storage at Idaho National Environmental Engineering Laboratory in Idaho Falls, ID. The Navy has a chronic shortage of high level waste shipping casks. This shortage is being relieved through the renewed access to interim

storage. If this option had not become available, it could have impeded or stopped the shipyard's ability to service nuclear submarines.

The federal government, Specifically the Department of Energy, is responsible for the management of high-level radioactive waste, which includes spent fuel rods from commercial nuclear power plants as well as waste generated by the Department of Defense and the Department of Energy. During 1996 neither the DOE nor anyone else made significant progress toward providing either a disposal or a storage facility in for high-level waste. In December 1996, the DOE formally announced that it will be unable to meet its legal obligation to begin recieveing commercial spent nuclear fuel from nuclear power plants. Since that time, several utilities and States (including Maine) have joined together to seek a remedy in the courts.

DOE's inability to begin recieving spent nuclear fuel is unlikely to have a detrimental impact on operations at Maine Yankee. Maine Yankee is capable of storing all of the spent nuclear fuel that it generates through the end of its operating license in 2008. Former Department of Energy Secretary Hazel O' Leary stated that the high level radioactive waste repository will not be operational before 2015.

Federal legislative activities involving on high level waste include a bill passed in the Senate (S. 204), which would direct the Department of Energy to develop an interim storage facility to meet its 2008 deadline. The Clinton administration has threatened to veto the bill, stating that the permanent repository should be further researched and that transportation issues have not been adequately addressed.

Yucca Mountain Studies

Yucca Mountain in Nevada continues to be the focus of DOE's high level waste repository siting efforts. Yucca Mountain is currently under scientific investigation. Technical issues being considered include pockets of perched water that have been detected above the water table and below the proposed depth of the repository and the existence of erionite ore.

Erionite ore is being investigated because it is a known lung cancer carcinogen and may prove to be an industrial hygiene issue for any future repository. The erionite was first identified as a potential health hazard in the early 1970's in central Turkey where the local population, whose homes were carved from rock bearing large quantities of erionite, were dying in unusual numbers from mesothelioma. Subsequent study led to the World Health Organization 's International Agency for Research in Cancer to list erionite as a known cancer causing agent in humans. Erionite is similar to asbestos in that both form long, stringy, fibers. All of the erionite detected at Yucca Mountain has been at considerable depths. Air and dust samples taken regularly at the surface of the Yucca mountain facility have revealed no erionite signatures. Scientists do not expect erionite to pose a problem in the construction or operation of a high level nuclear waste repository because the erionite finds have been below the potential repository horizon. Any

excavation of those areas would have to be done carefully and with appropriate safety precautions.

According to Yucca Mountain Project hydrogeologists, the perched water below Yucca Mountain exists because of the changing geological conditions between one layer of rock and another. Such areas sometimes contain pockets of suspended water because the layers have differing permeability. When water is seeping slowly through rock that is relatively permeable reaches a boundary with rock that isn't as permeable, that water may have limited places to go, and builds up. As the perched water is well below the depth of the proposed repository, it will not likely effect the construction of a facility. The significance of these water pockets to the operation of the repository will not be known until it is determined whether the water is moving fast enough to be important over a several thousand year time frame. Also of concern is whether the individual pockets of water are interconnected.

During 1996 the Department of Energy is exploring the use of multi-purpose canisters for storage, transport and disposal of commercial spent nuclear fuel. Westinghouse Electronic Corporation has been awarded a contract to develop a multi purpose canister system.

The Yucca Mountain Site Characterization Project (YMP) has completed 1,609.76 meters (one mile) of tunnel in the excavation of the Exploratory Studies Facility (ESF) at Yucca Mountain. The YMP is using a Tunnel Boring Machine (TBM) to excavate the ESF. The ESF serves as an underground laboratory for engineers and scientists to help determine if Yucca Mountain is suitable for the geologic disposal of commercial spent nuclear fuel and high-level radioactive waste. Tests to be conducted in the ESF include: geomechanical testing to measure rock's response to pressure; radial borehole tests to measure water and vapor movement through rock; thermal testing to measure the effect of heat on rock, and testing of the potential movement of radioactive particles through rock.

These underground tests in the ESF are just part of the testing being conducted for site characterization. Other tests are being conducted in boreholes to understand how water moves through the mountain. The systematic drilling program is progressing as borehole SD-7 is at a depth of 1,897.1 feet, and is used to gather rock quality and stratigraphic data. Work also continues in shallow trenches and through monitoring of extensive instrument networks to understand seismic hazards.

Low-Level Radioactive Waste

The most important national low-level radioactive waste news during 1996 was the continued access to the Barnwell, SC disposal facility and the Envirocare site in Clive, Utah. On July 1, 1995 access to the low-level radioactive waste disposal site at Barnwell, SC was reopened to Maine generators. Access to the Barnwell facility came after the South Carolina legislature voted to leave the Southeast Compact in the spring of 1995. Once departed from the Southeast Compact, South Carolina reopened access to Barnwell to all States and Compact regions, except North Carolina.

Since the State of South Carolina is an NRC agreement State for low-level radioactive waste disposal, it has regulatory authority over the Barnwell disposal facility. This gives South Carolina a much greater depth of control over how waste is disposed of at the facility. A new provision (enacted in 1995) at about the time South Carolina withdrew from the Southeast Compact, imposed a $235 per cubic foot surcharge on all waste diposed of at the facility. Funds collected through this mecahanism are earmarked for the State's Education Fund. Thus far, this source of revenues into the fund have not kept up with projections. South Carolina collected only $93 million of the $140 million for fiscal 1995-1996. To help alleiviate this problem Chem-Nuclear Systems, Inc. intends to revamp its pricing schedule. The new pricing scheme seeks to reduce the impact of the surcharge by shifting other charges to Hazard and Weight rather than basing it on volume as has been tradition.

The other low-level radioactive waste disposal option is Envirocare of Utah. Envirocare is not licensed to accept as broad a range of low-level waste classifications as Barnwell is, but is generally more economical than Barnwell for the waste classifications that they can receive. Envirocare specializes in bulk shipments of low specific activity (LSA) waste. This classification of low-level radioactive waste is often encountered in the decommissioning of facilities that once used loose radioactive material for some industrial purpose. An example of this is the material excavated from the former Loring Air Force base in Limestone.

Thus far, most of Maine's low-level radioactive waste generators continue to store waste on site. This is the case throughout the nation. However, Maine Yankee nuclear power plant in Wiscasset (Maine's largest generator by volume and radioactivity) has disposed most of its low-level radioactive waste inventory at Barnwell and Envirocare.

Low-Level Waste Facility Decommissioning

The only decommissioning activity within Maine during 1996 was at Philips Elmet in Lewiston. Philips Elemet is an operating lighting-filament manufacturing plant. The plant once had a process line which used natural thorium bearing materials. The floors of the process line are constructed of concrete which is now contaminated. The waste generated was generally Class A, LSA, and was disposed with lowest cost at Envirocare of Utah. There were however, certain waste streams resulting from the

project were most economically disposed of at Barnwell, SC. This option was utilized wherever practicable.

Scientific Ecology Group of Oak Ridge, TN, was contracted by Philips Elmet to remediate the process line. The facility completed decommissioning activities in late 1996.

Texas Compact

Under the 1985 Low-Level Waste Policy and Amendments Act (the act), individual states were to take responsibility for the disposal of low-level radioactive waste generated within its borders. The act also gave states the option of entering into Compacts with other states to manage waste. The incentives for forming a with other states include removing a need for each individual state to produce a disposal site, and legal protections from accepting out of compact waste for disposal.

On November 2, 1993, Maine voters elected to join the Texas Low-Level Radioactive Waste Disposal Compact. This action has drastically changed the State's approach to low-level radioactive waste management, eliminating the need for an in-state siting effort. Accordingly, the Maine Low-Level Radioactive Waste Disposal Authority (the State agency charged with siting a disposal facility) was eliminated in 1994. The Compact, which includes the States of Maine, Texas and Vermont has been approved by all three State governments. The final and only remaining step in becoming an official Compact is Congressional approval.

Compact Status

During the 104th session of Congress, media reports erroneously reported that the Texas Compact was *defeated* in the House of Representatives by a September 18, 1995 vote, in fact, this was a vote on whether or not the compact consent legislation (H.R. 558) should be debated prior to a vote. On December 19, 1995, a resolution (H. Res. 313) was passed by the House rules committee, setting aside one hour of debate prior to a vote. Despite the resolution, the bill was not again brought to the floor in either chamber. Although the Texas Compact consent legislation does not specify, or advocate the location of a particular site within Texas, Objections to the compact legislation are generally site related.

Concerns about the proposed site's proximity to Mexico and alleged earthquake potential of the Hudspeth County site are being voiced by Compact opponents. Compact opponents have also addressed concerns over the possibility of accepting out of compact waste.

A magnitude 5.6 earthquake struck in Alpine, Texas (about 100 miles southeast of the proposed site) during 1995. Prior to the recent seismic activity, the site specifications included earthquake resistance, the site is engineered to withstand a magnitude 6.0 earthquake with an epicenter at the waste. Extensive Analyses of the earthquake potential of the Faskin Ranch site (the location of the proposed facility) were performed in preparing the license application submitted by the Texas Low-Level Radioactive Waste Disposal Authority, these analyses support the design basis. Commission member and State Geologist, Dr. Robert Marvinney has reviewed the methodology used to assess the earthquake potential of the faskin ranch site and found it to be appropriate.

The Texas Compact (comprising the States of Maine, Texas and Vermont) has been approved by all three State Governments. Congress has also approved 9 similar

low-level radioactive waste compacts since the 1985 Low-Level Radioactive waste policy amendments act introduced the concept.

Texas Site Licensing Progress

Operating independently of the Compact's status, the State of Texas is making headway in licensing its' proposed low-level radioactive waste disposal facility in Hudspeth County. The 14th revision to the license application was submitted to the Texas Natural Resources Conservation on December 15, 1995. The license review is described as 89% complete. Construction could begin in 1996.

Low-Level Radioactive Waste Generation

The most recently collected data for waste generation within Maine is from 1995. The total volume of low-level radioactive waste generated within Maine during 1994 requiring disposal was 7,950 cubic feet. The radioactivity of this waste was 5.06 Curies. 1994 was somewhat below recent annual averages.

Chart A Volume Distribution

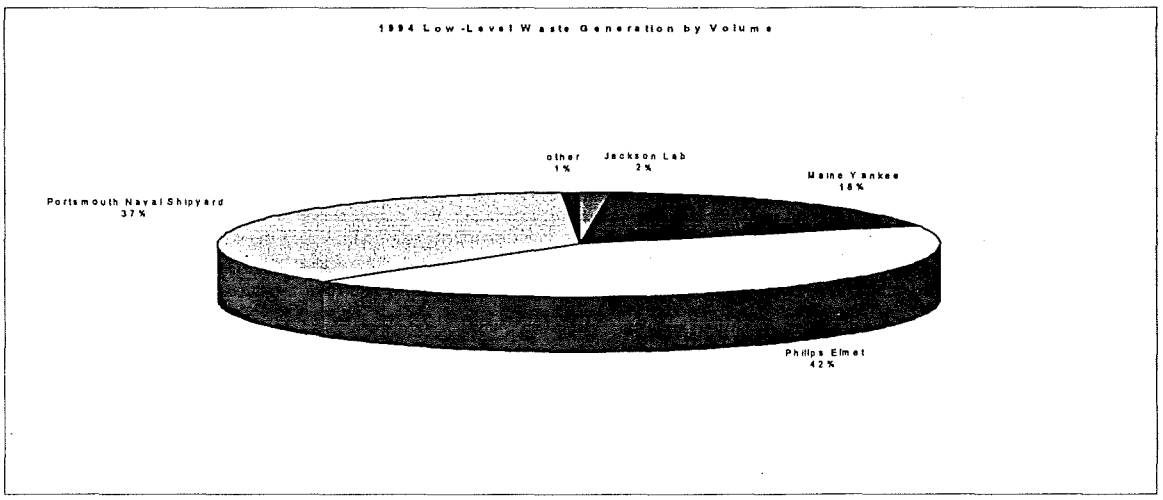
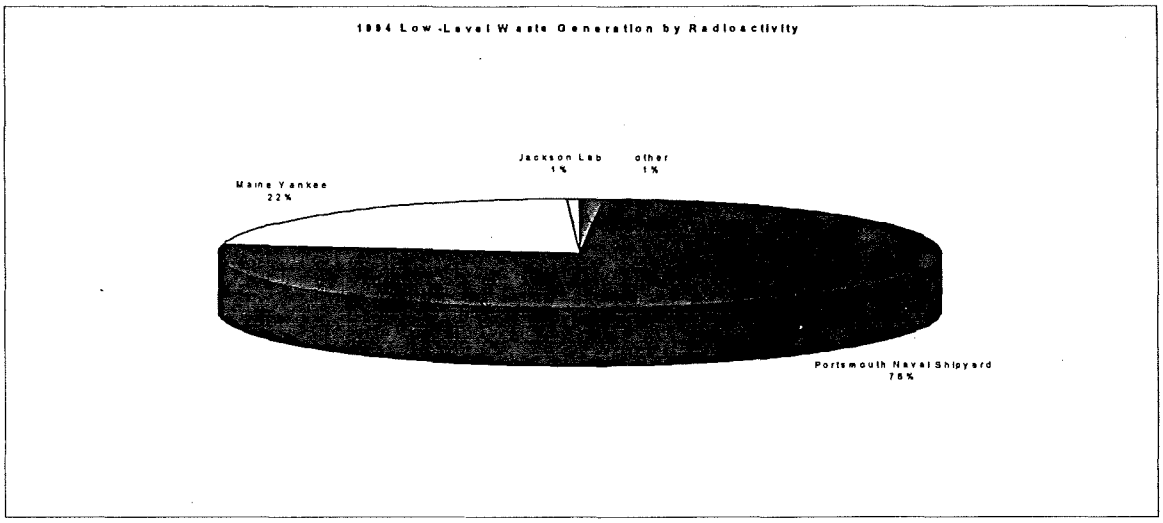


Chart B Radioactivity Distribution


1994 Low-Level Waste Generation by Radioactivity
Jackson Lab
1%
other
1%
Maine Yankee
22%
Portsmouth Naval Shipyard
76%

APPENDIX A

The duties of the Advisory Commission on Radioactive Waste

38 MRSA §XXXXX

A. Provide opportunities for public input and disseminate information to the general public and promote public understanding concerning the management of radioactive waste;

B. Study the management, transportation, treatment, storage and disposal of radioactive waste, including high-level and low-level radioactive waste and mixed waste, generated in this State;

C. Monitor the methods, criteria and federal timetables for siting and constructing high-level radioactive waste repositories or storage facilities;

D. Monitor the Texas siting effort and Texas Low-Level Radioactive Waste Disposal Compact Commission activities and, if events require, propose legislation to reinstate an in-state siting effort for the storage or disposal of low-level radioactive waste in the state.

E. Advise the Governor, the Legislature the department and the Department of Environmental Protection or their successors, the State's member of the Texas Low-Level Radioactive Waste Disposal Compact Commission and other pertinent state agencies and entities, as appropriate, on relevant findings and recommendations of the commission.

F. Receive a written report from the State's member of the Texas Low-Level Radioactive Waste Disposal Commission within 60 days after a meeting of that commission or an oral report from that member at the next scheduled meeting of the Maine Commission on Radioactive Waste, Whichever comes first.

G. Prepare a newsletter recording developments relevant to radioactive waste issues.

Membership; appointment.

The Commission consist of 16 members appointed as follows:

A. The Commissioner of Human Services or the Commissioner's designee;

B. The Commissioner of Environmental Protection or the Commissioner's designee;

C. The State Geologist or a designee;

D. One person from a commercial nuclear power facility situated in the State, appointed by the Governor;

E. Two persons from organizations that hold licenses issued by the State for the use of radioactive material, one appointed by the president of the Senate and one appointed by the speaker of the House of Representatives;

F. Three Senators, appointed by the President of the Senate, 2 belonging to the political party holding the largest number of seats in the Senate and one belonging to the political party holding the second largest number of seats in the Senate;

G. Three members of the House of Representatives, appointed by the Speaker of the House of Representatives, 2 belonging to the political party holding the largest number of seats in the House of Representatives and one belonging to the political party holding the second largest number of seats in the House of Representatives; and

H. Four members of the general public with a knowledge of and interest in the management of radioactive materials and radioactive waste, 2 of whom are appointed by the Governor, one of whom is appointed by the President of the Senate and one of whom is appointed by the Speaker of the House or Representatives.

APPENDIX B

FY' 95 and FY' 96

Financial Reports

for the

LOW-LEVEL RADIOACTIVE WASTE FUND

APPENDIX B

Maine P.L. c. 664, 1993

APPENDIX C

Maine P.L. c. 333, 1995

APPENDIX D

TEXAS LOW-LEVEL RADIOACTIVE WASTE DISPOSAL COMPACT