

September 12, 2008

Representative Peter V. Kocot
Massachusetts House of Representatives
Room 473-F
State House
Boston, MA 02133

Dear Representative Kocot:

I am replying to your correspondence, received on August 12, 2008, providing the Massachusetts House of Representatives Resolution entitled, "Concerning the Health and Safety of the Citizens of Massachusetts and the Operation and Inspection of Nuclear Power Plants." I understand the concerns raised by the Commonwealth regarding the safe operation of nuclear power plants in and near Massachusetts, and across the United States, and appreciate you sharing those concerns with me directly. However, I feel it is necessary to address some of the statements and assumptions conveyed in that document to dispel any misconceptions you may have with our regulatory role, performance, or processes. These responses are provided in Enclosure 1 to this letter.

I welcome you to contact this office if you wish to further discuss this matter. Please contact the NRC Region I State Liaison Officer, Marjorie McLaughlin, at 610-337-5240 if you require any additional information.

Sincerely,

/RA/

Samuel J. Collins
Regional Administrator

Enclosures:
As stated

cc:
John Giarrusso, Massachusetts Emergency Management Agency
David O'Brien, Vermont Department of Public Service
Christopher Pope, New Hampshire Homeland Security and Emergency Management

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Enclosures:
NRC Response

cc:

John Giarrusso, Massachusetts Emergency Management Agency
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Christopher Pope, New Hampshire Homeland Security and Emergency Management

Distribution:

S. Collins, RA
M. Dapas, DRA
S. Williams, RI OEDO
B. Holian, NRR
R. Virgilio, FSME
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NAME	M McLaughlin/ceo	R Barkley	D Jackson	D Roberts	SCollins/MLD for
DATE	09/8/08	09/10/08	09/10/08	09/10/08	09/11/08

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*see previous page for concurrence **concurrence via email

1. Resolution Statement:

Whereas, twenty-nine years ago, the Three Mile Island Nuclear Power Plant experienced a partial meltdown reactor accident, resulting in explosions, the loss of coolant water, radioactive contamination and a mass evacuation in the State of Pennsylvania

NRC Response:

The March 28, 1979, accident at Three Mile Island Unit 2 is indeed the most serious event to have occurred at a U.S. commercial nuclear power plant. It appropriately resulted in profound changes to the industry and to the NRC's oversight process. The accident did result in the partial meltdown of the reactor core and in the buildup of a hydrogen bubble in the pressure vessel. Due to the absence of oxygen in the pressure vessel, the hydrogen bubble could not burn or explode, and the licensee successfully reduced the pressure. Additionally, extensive studies conducted by the NRC and by other State and federal agencies verify that only a very small amount of radioactivity had been released. Enclosed is an NRC Fact Sheet about the accident that provides additional information.

2. Resolution Statement:

Whereas, in 2007, an earthquake severely damaged the world's largest nuclear power plant in Kashiwazaki, Japan, resulting in radioactive waste escaping into the Sea of Japan

NRC Response:

Your resolution makes reference to the July 16, 2007, earthquake that impacted the seven-unit Kashiwazaki Kariwa Nuclear Plant in Japan. In August 2007, a 12-member international team of experts led by the International Atomic Energy Agency (IAEA) conducted an onsite examination of the plant to assess damage. The IAEA issued a preliminary report in August 2007 and a follow up report in February 2008 documenting its conclusions. Although the epicenter of the earthquake was a mere 10 miles from the plant, and was of a magnitude that exceeded the design basis, the plant remained in a safe condition. Although many non-safety structures were impacted by the earthquake, the team concluded that there was "no significant damage to the parts of the plant important to safety." This is largely due to the conservative and robust design of such structures, systems, and components. The four reactors in operation at the time automatically shut down safely per design. After the earthquake, there was a very small discharge of contaminated water (not radioactive waste) to the sea. This water splashed over the sides of a spent fuel pool during the ground motion, and leaked into a reactor building sump through a defective seal in a cable penetration. The activity released was extremely small and did not exceed any of Japan's regulatory limits. You may access both IAEA reports from the following link to that organization's website: <http://www.iaea.org/NewsCenter/News/2008/kashiwazaki260208.html>.

3. Resolution Statement:

Whereas, nuclear power plants emit radiation during operation, produce radioactive waste that is difficult to dispose of, and may become targets of terrorists or elements of international organized crime groups who seek to obtain nuclear materials to undermine democratic governments

NRC Response:

As a consequence of normal operations, nuclear power plants release small amounts of radioactive gases and liquids into the environment under controlled, monitored conditions, ensuring that they pose no danger to the public or the environment. These releases dissipate into the atmosphere or a large water source and, therefore, are diluted to the point where it becomes difficult to measure any radioactivity. If you lived within 50 miles of a nuclear power plant, you would receive an average radiation dose of about 0.01 millirem per year. To put this in perspective, the average person in the United States receives an exposure of 300 millirem per year from natural background sources of radiation. The NRC requires licensees to monitor and report all radioactive plant discharges, and to review them for potential environmental and public health impacts. We routinely inspect the licensees' environmental monitoring programs to verify compliance. Enclosed is an NRC Fact Sheet on Environmental Monitoring that may provide you additional information.

Requiring the security and safeguarding of radioactive materials, including radioactive waste, is part of the NRC's core mission. The agency requires that licensees account for and protect all licensed radioactive material. Spent nuclear fuel stored in spent fuel pools and/or dry storage casks must be similarly controlled. Nuclear facilities and dry casks are designed to be inherently robust structures. Additionally, since the terrorist attack of September 11, 2001, the NRC has conducted substantial analysis of the capabilities of plants and storage casks to withstand various threats. The NRC has issued orders requiring licensees to incorporate numerous enhancements and mitigation strategies to further enhance these security measures. The NRC staff reviews licensees' security programs and plans to verify compliance with these requirements. Security-based drills and exercises are conducted to test the facilities' ability to protect the plants and radioactive materials. Enclosed are NRC Fact Sheets on Safety and Security Improvements and on the Storage of Spent Nuclear Fuel that you may find helpful.

4. Resolution Statement:

Whereas, during a nuclear accident it may be impossible to evacuate and protect all Massachusetts residents from the adverse health effects of exposure to radioactive isotopes

NRC Response:

Radiological Emergency Response planning and implementation is a coordinated effort between federal, state, and local organizations and the licensees. State and local officials have the overall responsibility for developing radiological emergency response plans and implementing emergency response actions. The Federal Emergency Management Agency evaluates these plans to determine adequacy and efficacy. The NRC evaluates emergency response plans developed by the licensees regarding plant emergency actions. State emergency response plans typically incorporate various protective actions that are implemented based on the nature of the event and any potential external impacts, such as severe weather. Protective actions may include area evacuations or sheltering-in-place, or some combination thereof. Under some conditions, sheltering in place provides protection that is equal to or greater than evacuation, considering weather, competing events, fast-breaking or short-term release, or traffic conditions. NUREG-0654/FEMA-REP-1, Rev. 1, Supplement 3, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants - Criteria for Protective Action

Recommendations for Severe Accidents," provides additional information on decisions for protective actions. You may view this document at the following website:

<http://www.nrc.gov/about-nrc/emerg-preparedness/sr0654r1s3.pdf>

The NRC published a study in January 2005 that examined the efficiency and effectiveness of public evacuations of 1,000 or more people in response to natural disasters, technological hazards, and malevolent acts, occurring in the U.S. between January 1, 1990 and January 30, 2003. This study, NUREG/CR-6864, "Identification and Analysis of Factors Affecting Emergency Evacuations," (Volume 1 & Volume 2) identified 230 evacuation incidents, of which 50 incidents were selected for case study analysis. This study revealed that large-scale evacuations in the U.S., whether pre-planned or ad-hoc, are very effective, successfully save lives, and reduce the potential number of injuries associated with the hazards. You may access this study using the following web address:

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr6864/>

Ultimately, the decision on what protective actions are taken is made by the State. You may wish to speak to officials within the Massachusetts Emergency Management Agency for further insight into the Radiological Emergency Response Plan for the Commonwealth.

5. Resolution Statement:

Resolved that the Massachusetts House of Representatives communicates its strong support of efforts by the State of Vermont, members of the Vermont Legislature, the Massachusetts Attorney General, and concerned citizens to initiate and complete an independent safety review of local nuclear power plants in light of their age, operational history, and proximity to population centers, water supplies, and interstate transportation corridors

NRC response:

I am aware of the Vermont Reliability Assessment of Vermont Yankee, which is an effort to inform the State Assembly's votes regarding the plant's continued operation. It is important to note that the State review is focused on assessing reliability, affordability, and availability. In accordance with the Atomic Energy Act of 1954, as amended, the US NRC has the sole authority to regulate the safety and security of commercial nuclear power plants. The NRC frequently communicates with the Vermont Department of Public Service, and has offered to provide any inspection reports or assessments from which it may glean reliability information.

Regarding independent safety reviews, the NRC has received a number of requests to conduct Independent Safety Assessments (ISAs) of various plants, much like the one the agency conducted at Maine Yankee in 1996. That ISA was a unique, one-time inspection in response to a specific set of concerns. The NRC's Reactor Oversight Process (ROP), implemented in 2000, incorporates nearly all of the key inspection elements addressed in the Maine Yankee ISA. The NRC staff recently completed a comparison of the ROP against the Maine Yankee ISA, and verified that this is the case. A copy of that comparison is enclosed for your information. The NRC annually reviews the ROP to identify and incorporate enhancements and continually improve our process. The Commission remains convinced that the ROP is more effective than an ISA because it is a continual assessment process and it provides for increased oversight of plants and programs that exhibit declining performance. Thus, the NRC's resources are appropriately expended based on performance and risk. The Commission believes that

the level of oversight at Vermont Yankee is appropriate based on the plant's performance, and that the scope and depth of the NRC inspections and assessments are sufficient to ensure continued safe operations.

6. Resolution Statement:

Resolved that the Massachusetts House of Representatives joins with its neighboring states to ensure that the Nuclear Regulatory Commission establishes strong procedures and regulations to mandate safe storage and transportation of nuclear waste and begins a transition away from nuclear power to an affordable, clean and sustainable national energy policy

NRC Response:

As discussed above, the NRC requires its licensees to secure and account for radioactive waste, including spent nuclear fuel. The transportation of radioactive materials is jointly regulated by the NRC and the US Department of Transportation. The NRC requires specific safety and security measures, the use of approved, specially designed transport containers for spent fuel and other radioactive material shipments. About three million packages of radioactive material are shipped every year in the United States, and over the past thirty years, there have been thousands of spent fuel shipments. The NRC monitors and inspects these activities to ensure compliance. An NRC Brochure on the Safety of Spent Fuel Transportation is enclosed for your information.

The Atomic Energy Act of 1954 created the Atomic Energy Commission, which was mandated to both develop and regulate the use of nuclear materials in the US. The Energy Reorganization Act of 1974 amended the original AEA by splitting the AEC into two agencies: the Department of Energy, which has the responsibility for promoting nuclear power and conducting other energy and defense -related work, and the NRC, which has the responsibility for licensing and regulating the civilian use of nuclear materials. By mandate, the NRC does not promote nuclear power, and the agency is not involved in the development of US energy policy, which is within the purview of Congress.