

May 29, 2002

The Honorable Joseph I. Lieberman
United States Senate
Washington, DC 20510

Dear Senator Lieberman:

I am responding to your letter of April 4, 2002, in which you related concerns expressed by one of your constituents, Ms. Laurel Pierce, regarding two irradiated fuel rods missing from the Millstone Nuclear Power Station, Unit 1 (Millstone 1). Ms. Pierce's specific concerns dealt with the Northeast Utilities' investigation of the missing rods, support for a Federal investigation of the missing rods, and support for a Federal depository to store spent fuel rods.

With respect to your constituent's concern regarding the utility's investigation, the licensee, Northeast Nuclear Energy Company (NNECO), performed a thorough search for the missing fuel. During document reviews conducted in connection with the decommissioning of Millstone 1 in 2000, NNECO found records indicating that during 1979 and 1980, two fuel rods were stored in a fuel storage canister in the spent fuel pool. Because those two rods were not in their documented location and did not appear to be accounted for in current records, NNECO looked for additional information about the disposition of those fuel rods. Since the records review and preliminary investigation did not resolve the issue, NNECO initiated an internal report requiring resolution of the issue, reported the matter to the U.S. Nuclear Regulatory Commission (NRC), and initiated an investigation. NNECO formed a dedicated investigative team, as well as an independent management review team to concurrently review the overall investigation. NNECO expanded the search in January 2001, by forming a dedicated project team including more than 20 individuals with diverse backgrounds and expertise to conduct the investigation. From January through September 2001, the project team conducted an investigation – at a cost of approximately \$9 million – to determine the location of the two fuel rods. The project team reviewed thousands of documents, interviewed almost 200 knowledgeable individuals, and performed many hours of videotaped underwater inspections of the Unit 1 spent fuel pool. However, the investigation did not yield clear and convincing evidence of the precise location of the two fuel rods. The investigation determined that the rods are: (a) in an undetermined location in the Unit 1 spent fuel pool; (b) at General Electric Company's (GE's) Vallecitos nuclear fuel facility in California; or (c) at one or both of the low-level radioactive waste (LLRW) disposal facilities in Barnwell, South Carolina (Barnwell) or the Hanford reservation in Richland, Washington (Hanford).

Regarding your constituent's support for a Federal investigation, onsite NRC inspectors reviewed the licensee's investigation throughout 2001. Additionally, NRC Region I led a special inspection with staff from the Offices of Nuclear Reactor Regulation and Nuclear Material Safety and Safeguards, onsite in October of 2001, and continuing through December 2001. The focus of the special inspection was to perform a thorough and systematic review to assess the adequacy of the licensee's investigation and to determine if the licensee was in compliance with NRC regulations. The NRC special inspection team determined that the licensee's investigation was thorough and complete, and the conclusions were reasonable and

supportable. As a result of the special inspection, the NRC team concurred in the licensee's conclusion that the LLRW facility at Barnwell had the most significant opportunity to receive the rods, with an opportunity also existing to some small degree for the inadvertent shipment of the fuel rods to Hanford. The NRC team also concluded that, while it is highly unlikely that the rods remain in their entirety in the Millstone 1 spent fuel pool, it is possible that fuel pellets or fragments remain on the spent fuel pool floor as a result of the cutting methods used to process waste hardware. Although a layer of sediment exists over portions of the spent fuel pool floor, inspection methods were sufficient to ensure that intact fuel rods or large segments would not remain undetected in the sediment. The inspection team did not concur with the licensee that GE's Vallecitos facility was a plausible location for the fuel rods.

The missing fuel rods pose a negligible current risk to human health. If the rods were and are still in any of the possible locations identified by the licensee, they would have been and still are subject to all of the controls that are in place for handling and safeguarding radioactive material to protect workers and the public. If the rods were mistaken for some other non-fuel waste object, such as a local power range monitor, and were inadvertently shipped offsite, they would have been packaged in shielded shipping containers due to their high radiation levels and, therefore, would have satisfied the shipping requirements for external radiation exposure limits. Although the burial sites at Barnwell and Hanford are not licensed to accept irradiated reactor fuel, the amount of radioactivity in the two spent fuel rods is a small part of the total inventory of several million curies at either disposal site. The long-term risk presented at the burial sites by the presence of the two missing spent fuel rods, as well as whether there is a need for potential remedial actions, is currently being evaluated by the States of South Carolina and Washington, in coordination with the NRC.

With respect to your constituent's concern about a Federal depository for spent fuel, the Nuclear Waste Policy Act of 1982, as amended, governs the Nation's policy for disposal of high-level radioactive waste, including the selection of a repository site for permanent disposal of spent fuel from nuclear power plants such as Millstone 1. This law gives the U.S. Department of Energy (DOE) the responsibility to recommend a repository site and a timetable for the development of the site. On February 14, 2002, the Secretary of Energy recommended to President Bush that development of a repository at the Yucca Mountain, Nevada, site should proceed. The President approved the Secretary's recommendation, and the State of Nevada has formally objected to the President's decision. Congress must now vote on the recommendation. If Congress rejects the President's recommendation, Congress must provide specific direction to DOE for the next step. If Congress approves the President's recommendation, the President's decision would become final and DOE would submit a license application to the NRC. DOE has indicated that if the President's decision becomes final, the agency intends to submit a license application in December of 2004. The NRC would then review the application to determine if all applicable NRC regulations have been met.

The Honorable Joseph I. Lieberman

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I trust that this information is responsive to your constituent's concerns. Please do not hesitate to contact me if I may be of further assistance in this matter.

Sincerely,

/RA/

William D. Travers
Executive Director
for Operations

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Sincerely,
/RA/

William D. Travers
Executive Director
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