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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

In the Matter of: : **Docket No. 50-423-LA-3**
:
:
:
ASLBP No. 00-771-01-LA
:
Northeast Nuclear Energy
Company :
:
(Millstone Nuclear Power
Station, Unit No. 3) : **January 29, 2001**

CONNECTICUT COALITION AGAINST MILLSTONE
AND LONG ISLAND COALITION AGAINST MILLSTONE
MOTION FOR RECONSIDERATION

The Connecticut Coalition Against Millstone and Long Island Coalition Against Millstone (collectively, the "Intervenors") respectfully move for reconsideration of the Atomic Safety and Licensing Board Panel's Memorandum and Order (Denying Motion to Reopen Record on Contention 4) dated January 17, 2001.

Introduction

These proceedings involve the motion of the Intervenors, Connecticut Coalition Against Millstone and Long Island Coalition Against Millstone, to reopen these proceedings for further development of the evidentiary record with respect to Contention 4 in light of the licensee's ("NNECO's") post-decision disclosure that it cannot account for two irradiated spent fuel rods.

The Licensing Board denied the motion by Memorandum and Order dated January 17, 2001.

The order permitted the Intervenors to move for reconsideration on or before January 29, 2001. The Intervenors presently so move for reconsideration.

Factual Background

The Intervenors sought in their motion to reopen the record for further development of the evidence regarding Contention 4.

The Licensing Board admitted Contention 4 in LBP-00-02, 51 NRC 25, 32-33 (2000), as follows:

"Undue and Unnecessary Risk to Worker and Public Health and Safety."

Template = SECY-041

SECY-02

"The new set of administrative controls trades reliance on physical protection for administrative controls to the extent that poses an undue and unnecessary risk of a criticality accident, particularly due to the fact that the licensee has a history of not being able to adhere to administrative controls with respect, inter alia, to spent fuel pool configuration."

On October 26, 2000, the Licensing Board dismissed the petition, finding with respect to Contention 4, inter alia, as follows:

"NNECO has demonstrated that it can adhere to administrative controls, with adequate safety margin and defense-in-depth, without posing an undue or unnecessary risk to plant workers or the public."

In its Memorandum and Order dated January 17, 2001, the Licensing Board determined that the Intervenors had failed to meet their burden of demonstrating that "a materially different result would be or would have been likely had the newly proffered evidence been considered initially," citing 10 CFR Section 2.734(a)(3).¹

Issues in Discovery

During discovery, in interrogatories dated March 21, 2000, the Intervenors requested that NNECO disclose all incidents of error without limitation as to date at Millstone Units 1, 2 and 3 in "managing, moving, placing or tracking fresh or spent fuel and all documents pertinent thereto."

In response, NNECO provided eleven (11) discrete instances of such errors going back in time as far as September 18, 1974 at Unit 1.

Further during discovery, NNECO presented Michael C. Jensen as a witness available for deposition with respect to such interrogatory response. Jensen was deposed on May 11, 2000. Jensen testified as to his assignment on or about August 1996 to head a team conducting a Unit 1 fuel pool survey. (Jensen Deposition, page 48)²

Jensen described the discovery in January 1997 that irradiated fuel assembly MS-508 was dropped and damaged in 1974. (Jensen Deposition, page 26)

He explained that the historic condition was discovered during a two-week survey of the spent fuel pool. He testified:

"We were doing a video survey of the spent fuel pool for a couple of reasons. I had just become the reactor engineering supervisor of Millstone Unit 1 at that particular time, and **there were questions about the spent fuel pool configuration control.** [Emphasis added.]

"The special nuclear material within the spent fuel pool was, in fact, inventoried and highly accountable. . . .

"So in order to completely reconcile the inventory of the pool and to check on the cleanliness status of the pool, I had a video inventory done of the whole pool, both of the tops of the racks and down under the racks."

Jensen was asked if the video survey was done after the decision was made to decommission Unit 1. He replied as follows:

"No. We had entered a refueling in 19 -- in late 1995, and in mid 1996, I -- I took over the -- or was it '95. In mid 1996, I took over the reactor engineering department.

¹ The decision notes that no party has contested the safety significance of the issue to which the motion is addressed - i.e., NNECO's ability and willingness to carry out administrative controls relative to the spent fuel pool. Similarly, the Licensing Board did not question the safety significance of the issue. Memorandum and Order, page 5.

² The Intervenors annexed Jensen's Deposition as an Exhibit to their Detailed Summary dated July 3, 2000.

"Now, this was during -- the plant was shut down in order to create our response to NRC-50.54(f) letter requesting that we supply information that would prove that we are in compliance with the requirements to operate the plant; our technical specifications, the safety analysis report and any NRC commitment."

Jensen acknowledged in his deposition testimony that it was possible that there had been more spent fuel errors at Millstone than his interrogatory response disclosed. (Jensen Deposition, page 70)

Jensen also acknowledged that the inventorying of special nuclear material, including spent fuel, is an administrative task governed by the Special Nuclear Material Accountability Procedures.

Jensen provided assurances that "As part of our special nuclear material inventory control, any movement of a fuel bundle is documented." (Jensen Deposition, page 46)

Ultimately, NNECO did not provide a response to the 50.54 order regarding Unit 1, according to the licensee's vice present-nuclear work services. (See Declaration of Joseph H. Besade, attached hereto.)

Post-Decision Developments

While the present proceedings were underway, NNECO was engaging in negotiations to sell the Millstone Nuclear Power Station to Dominion Resources, Inc. ("Dominion"), of Richmond, Virginia. On August 7, 2000, NNECO and Dominion entered into a Purchase and Sale Agreement providing that Dominion would purchase, inter alia, the spent fuel inventory of Millstone Units 1, 2 and 3. The spent fuel inventory was identified in the agreement's Schedule 2.1(b) dated August 1, 2000 at 9:45 P.M. (See attached Declaration of Joseph H. Besade and attachment.) The exhibit identified the spent fuel inventory of Unit 1 - as of August 7, 2000 at 12:19 P.M. - as consisting of the following:

"2884 Fuel Assemblies [and] 1 Storage Container with fuel rods"

This information was disclosed during proceedings before the Connecticut Department of Public Utility Control at a public hearing on the proposed Millstone sale which commenced on November 6, 2000.

The Licensing Board's dismissal of the Intervenors' petition on October 26, 2000 was followed less than one (1) month later by NNECO's report to the NRC that it was unable to account for two irradiated spent fuel rods that belonged in the Unit 1 spent fuel pool.³

The Intervenors attached the "NRC Weekly Information Report For the Week Ending November 24, 2000" reporting this disclosure to their Motion to Reopen. A copy is annexed hereto as well. The excerpt concerning the missing spent fuel rods contains the following statement:

"Early this week, Millstone, Unit 1, informed the NRC that they could not confirm the location of two fuel pins. **The licensee currently believes that they have located the box containing the fuel pins in the spent fuel pool.** However, they will require GE assistance in order to lift the box and verify that it is the correct container. The licensee currently anticipates having GE personnel and equipment on site next week." (Emphasis added.)

³ NNECO's disclosure attracted significant media attention. The NRC's public affairs office acknowledged that Millstone had set another precedent in the nuclear industry. The New York Times called the disclosure the "latest black eye" for Millstone. See attached article.

On January 4, 2000, a public meeting was held in the town of Waterford by the Nuclear Energy Advisory Council at which NNECO representatives appeared to comment on the issue of the missing spent fuel rods.

NNECO's representatives reported that they still were unable to account for the missing spent fuel rods.

The representatives acknowledged that (a) recent mandatory inventories of the spent fuel pool had failed to detect that two irradiated spent fuel rods could not be accounted for and (b) NNECO did not provide NRC with a confirmation that Unit 1 was operating in conformance with its licensing and design basis in response to the 50.54(f) confirmatory order. (See Declaration of Joseph H. Besade.)

On January 15, 2000, a Licensee Event Report (05000245)⁴ was issued by Bryan Ford, identified as "decommissioning director." Mr. Ford is an employee of Entergy, the decommissioning contractor. He is not an employee of NNECO.

The LER states in pertinent part as follows:

"During a reconciliation and verification of the Millstone Unit 1 spent nuclear fuel records, Unit 1 personnel **concluded** that the location of two full-length⁵ irradiated fuel rods could not be determined, and was not properly tracked in the Special Nuclear Material (SNM) records." (Emphasis added.)

Standard for Reopening Proceedings

In this matter, the Intervenors move for reconsideration of the Licensing Board's denial of their motion to reopen the proceedings for further development of the record based on newly-discovered evidence disclosed by the licensee three weeks after the Licensing Board's decision.

The Licensing Board is well within its jurisdiction to permit reconsideration under the facts and circumstances of this extraordinary controversy. While reconsideration may prolong the proceedings, there can be no question but that, under these facts, the public interests compels a reopening of the record for further full evidentiary development.

"Whenever a question concerning administrative, or judicial, reconsideration arises, two opposing policies immediately demand recognition: the desirability of finality, on the one hand, and the public interest in reaching what, ultimately, appears to be the right result on the other." Civil Aeronautics Board v. Delta Air Lines, Inc., 367 U.S. 316, 321.

On an issue as critical to public health and safety as the integrity of spent irradiated nuclear waste consigned to a spent fuel pool for safe isolation from the environment, there can be no rational doubt but that the public interest demands the "right result."

In this proceeding, as others, the Licensing Board is guided by the NRC's Statement of Policy on Conduct of Adjudicatory Proceedings. 48 NRC 18 (July 28, 1998): "Now as then [1981], the Commission's [NRC] objectives are to provide a fair hearing process, to avoid unnecessary delays in the NRC's review and hearing processes, **and to produce an informed adjudicatory record** that supports agency decision making on matters related to the NRC's responsibilities for protecting public health and safety, the common defense and security and the environment. (Emphasis added.)

⁴ A copy of the LER is attached to the Declaration of David A. Lochbaum, which is annexed hereto.

⁵ The LER gives the rods' dimensions as 158 inches in length (13 feet 2 inches) and .57 inches in diameter.

"It is often the case that reconsideration of a prior decision, within a reasonable period of time, is absolutely essential to the even administration of justice. For example, it may be imperative for the tribunal to consider new developments or newly discovered evidence in order to facilitate the orderly and just resolution of conflict. More frequently, reconsideration is often the sole means of correcting errors of procedure or substance. . . . The importance of the right of reconsideration is dependent upon the importance of the challenged decision. That is to say, the public's interest in a "right result" is consonant with the expanding application of the decision either in terms of the number of individuals directly or presently affected or its future precedent value. . . . In those instances where finality is desirable and the decision of the tribunal is to be given final and irrevocable effect, careful account must be taken of the rights of the individual and the class he represents, and the tribunal's procedures must be drawn with the care, precision and procedural safeguards most commonly associated with courts of justice. . . . For these reasons, it is the general rule that every tribunal, judicial or administrative, has some power to correct its own errors or otherwise appropriately to modify its judgment, decree or order. Congressional recognition of this principle has led to the establishment of a number of statutes which specifically grant the administrative agency the power to reconsider its own decisions, on its own initiative, as long as proper notice is given and the right is exercised within a reasonable time period."

Bookman v. United States, 453 F.2d 1263, 1265. (U.S. Court of Claims 1972)

As will be set forth below, the adjudicatory record is incomplete and NNECO's explanations as to the missing rods are flawed with contradictions. Moreover, it is not at all clear that the licensee promptly reported its remarkable anomaly, as the Licensing Board concluded in its Memorandum and Order. There is at least a reasonable likelihood that the licensee was fully aware of the anomaly during the discovery proceedings in this matter, given the plethora of contradictory reports and documents.⁶

At the very least, the present record is absent sworn testimony, made subject to adversarial challenge, by knowledgeable individuals as to these issues.

The Board has proper cause to grant the motion for reconsideration and reopen the proceedings for the limited purpose sought. The motion to reopen must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially. 10 CFR 2.734(3) In the Matter of Public Service Company of New Hampshire v. Nuclear Regulatory Commission, 29 NRC 62 (1989) This standard has been abundantly met by the Intervenor, as set forth below.

The Intervenor Has Demonstrated That a Materially Different Result Would Be Or Would Have Been Likely Had the Newly Proffered Evidence Been Considered Initially

A. NNECO Is Operating Millstone Unit 1 Outside Design Basis Because of a Failure of Adherence To Administrative Controls For a Period of Perhaps Twenty Years And Counting.

⁶ The Intervenor does not put forth this suggestion in a factual vacuum. In September 1999, NNECO pleaded guilty to felony charges involving falsifying of records required to be submitted to the NRC.

On October 26, 2000, the Licensing Board dismissed Contention 4, finding that "NNECO has demonstrated that it can adhere to administrative controls, with adequate safety margin and defense-in-depth, without posing an undue or unnecessary risk to plant workers or the public."

Three weeks later, NNECO acknowledged that it had lost track of two irradiated spent fuel rods. Thereby, NNECO demonstrated that it cannot adhere to administrative controls and it has opened itself to credible charges that its safety margins are inadequate, its defense-in-depth is meaningless, and it continues to expose plant workers and the public to undue and unnecessary risk.

Two months later, NNECO still cannot demonstrate that its egregious failure to adhere to administrative controls at its spent fuel pool is not exposing plant workers and the public to undue and unnecessary risk.

Apparently, according to the unsworn Rothen⁷ statement on January 4, 2001, NNECO has not yet provided the NRC with a confirmation that Unit 1 is operating in conformance with its licensing and design basis in response to the confirmatory order. It is apparent that, if put to such burden, NNECO would be unable to confirm to the NRC that it is operating the Unit 1 spent fuel pool in conformance with its licensing and design basis because it cannot account for two irradiated spent fuel rods. Although Unit 1 is in the process of being decommissioned, it continues licensed operations at the spent fuel pool.

This information was known, or should have been known, to the licensee during the proceedings in this matter before the Licensing Board. This information was not known to the Intervenors until weeks **after** the Board's decision.

The Licensing Board is now presented with a most glaring error involving a failure of administrative controls at the Millstone spent fuel pools - the central basis of Contention 4 - that of a complete failure to account for two irradiated spent fuel rods. Of the eleven mishandling spent fuel pool mishandling errors disclosed by NNECO during discovery, most were not even rated by NNECO to be of great enough safety significance to be necessarily reportable to the NRC. Consequently, the picture NNECO painted of its history of adherence to administrative controls was very, very incomplete and very, very misleading.

B. Material Facts Regarding the Missing Spent Fuel Rods Are In Dispute And Should Be Addressed

In the sequence of events briefly summarized above, it is clear that conflicting information has been presented by NNECO. The only certainty is that two irradiated spent fuel rods have been declared missing and have been declared unaccounted for since at least November 16, 2000.⁸

For example, the January 15, 2001 LER gives the date of discovery of the "missing" rods as November 16, 2000, the date of a condition report. However, the LER also states that Unit 1 personnel "concluded" that the location of the two rods could not be determined "during a reconciliation and verification of the Millstone Unit 1 spent fuel records." Thus it is not clear when the "discovery" was actually made in the "reconciliation and verification" process. The sworn affidavit of Joseph J. Parillo attached to NNECO's January 8, 2001 response to the motion to

⁷ As noted, Rothen holds a station-wide position as vice president for nuclear work services.

⁸ It is important to note that the licensee's own records apparently establish a discrepancy in the Unit 1 spent fuel pool inventory vis-à-vis the company's record keeping. That rods were "unaccounted for" has been a knowable fact.

reopen gives the date of identification as "December 2000." The Parillo affidavit is not illuminating on this point. Perhaps Mr. Parillo was not asked to pinpoint the date of "discovery."

The LER provides a chronology of events regarding the missing rods. However, the chronology omits reference to inventory verification and configuration control performed by the Jensen team in 1996 and 1997. It makes no reference to any verification which may have been undertaken prior to preparation of Schedule 2.1(b) as an attachment to the August 7, 2000 Millstone Purchase and Sale Agreement. (Refer to Besade Declaration.)

Strangely, the November 24 "Weekly Information Report" notification states that "the licensee currently believes that they have located the box containing the fuel pins in the spent fuel pool." The licensee's "current belief" relates back to August 7, 2000, when, in the Millstone-Dominion Purchase and Sale Agreement, "1 storage container with fuel rods" was **already documented in the Unit 1 spent fuel pool**. (As noted, the inventory description contained as Schedule 2.1(b) to the Purchase and Sale Agreement lists Spent Nuclear Fuel at Unit 1 on August 7, 2000 at 12:19 P.M. as consisting of 2884 fuel assemblies and 1 storage container with fuel rods.)

In light of these inconsistencies and contradictions, there is no basis from which the Licensing Board could properly conclude, as it did in its Memorandum and Order dated January 17, 2001, that "NNECO promptly made the December 14 event notification to the NRC." The Licensing Board simply accepted at face value the information submitted by NNECO without subjecting it to the close scrutiny required, given the undoubted safety significance of this matter. As the Licensing Board has noted, neither the licensee nor the NRC staff nor the Licensing Board itself doubts the safety significance of this matter.

Moreover, the licensee's failure to account for the two irradiated rods conflicts with the sworn deposition testimony of Mr. Jensen, who testified as to his confidence that the Unit 1 spent fuel was inventoried and highly accountable as early as January 1997. More recent inventories have failed to detect that two rods are missing. (See Besade Declaration.)

What has become apparent at this stage is that NNECO's Special Nuclear Material Accountability Procedures have not been successfully applied in the most recent history of Millstone. (See Declaration of David A. Lochbaum, January 26, 2001, paragraph 5(a).)

C. NNECO's Agent has Implicitly Conceded That Failure to Adhere to Administrative Controls Over Spent Fuel Storage Can Challenge Criticality Margins.

The LER prepared by Entergy's decommissioning director states that a criticality calculation was made to determine the risk of criticality in the event the missing rods were placed next to the most reactive fuel assembly in the spent fuel pool. The safety hazard addressed in Contention 4 is a criticality accident resulting from failure to adhere to administrative controls. That a criticality calculation was made based on a possible scenario which could endanger health and safety is an admission by the licensee that failure to adhere to administrative controls over spent fuel storage can challenge criticality margins. See Lochbaum Declaration, paragraph 5(b).

D. This Extraordinary Circumstance Illustrates the Folly of Trading Physical Protection for Administrative Controls.

According to the LER, the two rods were removed from fuel assembly

MS 557 and displaced during a re-assembly of assembly MS 557 two years later. Had the fuel rods remained in fuel assembly MS 557 or been re-installed in fuel assembly MS 557, it is doubtful that they would be missing today. The act of separating the fuel rods from the fuel assembly increased the complexity of the associated administrative controls. Apparently, this was a contributing factor in their mislocation. Similarly, installing new storage racks of a different design at the Unit 3 spent fuel pool, requiring new and additional administrative controls, thereby increasing the complexity of the associated administrative controls, can be a contributing factor in future fuel mislocations. See Lochbaum Declaration, Paragraph 5(c).

E. The New Administrative Controls Require Far More Attention to Complexity Than Maintaining Controls to Prevent Spent Fuel Rods From Leaving the Spent Fuel Pool.

These proceedings concern NNECO's proposal to install fuel storage racks at Millstone Unit 3 that require administrative controls on fuel enrichment, decay time, and burnup or proper storage. The new administrative controls require that workers distinguish between fresh fuel assemblies of a given enrichment and fresh fuel assemblies of a higher enrichment. The new administrative controls require that workers distinguish between spent fuel assemblies of a certain burnup and spent fuel assemblies of a higher burnup. The new administrative controls also require that workers distinguish between spent fuel assemblies with a specified decay time and spent fuel assemblies of a longer decay time. It is NNECO's speculation that the two missing spent fuel rods may have been mistaken for other irradiated parts and shipped offsite for disposal. Given NNECO's admission of the possibility of such a mistake, NNECO's argument that it can be trusted to adhere to far more complex administrative controls is simply not entitled to any weight. See Lochbaum Declaration, Paragraph 5(d).

F. The Ability of NNECO To Adhere To Administrative Controls Has Not Been Assessed

The Licensing Board places reliance on the startup record of Millstone as evidence of the company's ethical rehabilitation. Such reliance fails to recognize that the startup was heavily managed, supervised and supported by on and off site NRC staff as well as outside support provided by the nuclear industry. It is too soon to tell if there has been true rehabilitation. Indeed, Millstone may be under new ownership before these proceedings have ended, and it may never be subject to a proper assessment. On the present record, no reliance should be placed on recent rehabilitative efforts at Millstone.

G. The Licensing Board Itself Should Mount An Investigation.

The U.S. Supreme Court has held that administrative tribunals have power to initiate inquiry or, when their authority is invoked, to control the range of investigation to ascertain what is required to satisfy the requirements of the public interest. Interstate Commerce Commission v. City of Jersey City, 322 U.S. 503

Under the Commission's Rules of Practice, a licensing board may consider matters on its motion only where it finds a serious safety, environmental, or common defense and security matter exists. 110 CFR 2.760a.

The Board may order appropriate submissions to serve the purposes of its inquiry. Public Service Company of New Hampshire v. Nuclear Regulatory Commission, 29 NRC 473 (1989)

At the least, the close timing between the release of the Board's decision on October 26, 2000 and NNECO's asserted "discovery" of the missing rods on November 16, three weeks later, invites inquiry.

More to the point, the unquestioned safety significance of this matter compels this Board's closest scrutiny in these proceedings.

Conclusion

For the foregoing reasons, had the Licensing Board been presented with a full record of NNECO's serious ongoing failure to adhere to administrative controls at the Millstone spent fuel pools, it would have been without lawful cause to find that NNECO has demonstrated that it can adhere to administrative controls, with adequate safety margin and defense-in-depth, without posing an undue or unnecessary risk to plant workers or the public. The Licensing Board has been presented with a skeletal outline of an unprecedented failure to adhere to administrative controls in a spent fuel pool. It is imperative that a full and complete record be developed in these proceedings. Therefore, the Intervenor's move that the motion for reconsideration be granted.

THE INTERVENORS

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**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
Before the Atomic Safety and Licensing Board**

In the Matter of)	
)	
NORTHEAST NUCLEAR ENERGY COMPANY)	Docket No. 50-423-LA-3
(Millstone Nuclear Power Station,)	
Unit No. 3;)	
Facility Operating License NPF-49))	ASLBP No. 00-771-01-LA

DECLARATION OF DAVID A. LOCHBAUM

I, David A. Lochbaum, hereby declare the following:

1. I am employed by the Union of Concerned Scientists as the organization's Nuclear Safety Engineer.
2. I have previously testified in the proceeding initiated by the Connecticut Coalition Against Millstone and the Long Island Coalition Against Millstone. My professional qualifications and experience were detailed in prior filings. To summarize, I graduated from The University of Tennessee in 1979 with a Bachelor of Science degree in Nuclear Engineering. I have worked as a reactor engineer at the Edwin I. Hatch Nuclear Plant in Georgia, the Browns Ferry Nuclear Plant in Alabama, the Grand Gulf Nuclear Station in Mississippi, and the Hope Creek Generating Station in New Jersey. At each of these facilities, my responsibilities included developing movement sequences for irradiated fuel in the spent fuel pools, preparing procedures for fuel assembly movement and inspection, and performing post-movement verifications. As Acting Reactor Engineering Supervisor at Grand Gulf, I was the site's Special Nuclear Material (SNM) Custodian. My SNM Custodian responsibilities included accounting for all SNM weighing in excess of one gram at the facility and approving remedial steps taken to close out Corrective Action Reports (CARs) written against equipment, personnel, or procedural deficiencies affecting SNM accountability. As Acting Reactor Engineering Supervisor at Grand Gulf, I also supervised the disassembly of a fuel

assembly manufactured by the Exxon Nuclear Corporation, the removal of two fuel rods, the insertion of two replacement fuel rods, the packaging of the two removed fuel rods, the shipment of the two removed fuel rods back to Exxon Nuclear Corporation, and the re-assembly of the fuel assembly. Finally, I was retained as a consultant by Public Service Electric & Gas Company (PSE&G) in 1996 to perform a vertical slice inspection of the licensing bases for the spent fuel pool at Salem Unit 2. The vertical slice inspection effort including reviewing various plant documents, including a modification package that installed new, high-density fuel storage racks, to verify that the spent fuel pool and spent fuel pool cooling system at the facility remained in conformance with the licensing bases.

3. This declaration supports the motion filed by the Connecticut Coalition Against Millstone and the Long Island Coalition Against Millstone to reopen the proceeding based on the revelation that two irradiated fuel rods were missing from the Millstone Unit 1 spent fuel pool. I received an electronic copy of Licensee Event Report (LER) 2000-002-00 on docket 50-245 on January 16, 2000. The report date on the LER is January 15, 2000. I have had an opportunity to review this LER and make this declaration. The LER is attached to this declaration as Exhibit 1.
4. The information contained in the subject LER is directly relevant to Contention 4 as admitted by the Licensing Board. As restated by the Licensing Board, Contention 4 read as follows:

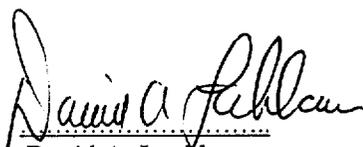
The new set of administrative controls trades reliance on physical protection for administration controls to an extent that poses an undue and unnecessary risk of a criticality accident, particularly due to the fact that the licensee has a history of not being able to adhere to administrative controls with respect, *inter alia*, to spent fuel pool configuration.
5. The information contained in the subject LER is directly relevant to Contention 4 for the following reasons:

- a) Contention 4 relies, in part, on this licensee having a history of not being able to adhere to administrative controls for spent fuel pool configuration. In the subject LER, the licensee informed the Nuclear Regulatory Commission: "During a reconciliation and verification of the Millstone Unit 1 spent nuclear fuel records, it was concluded that the location of two full-length irradiated fuel rods was not properly tracked in the Special Nuclear Material (SNM) records." Thus, the information in the subject LER adds to the previously provided history of this licensee not being able to adhere to administrative controls for spent fuel pool configuration.
- b) The safety hazard addressed in Contention 4 is a criticality accident resulting from failure to adhere to administrative controls. The subject LER stated that the missing rods either remain onsite in the spent fuel pool or are offsite at a facility licensed to accept radioactive material. The subject LER further stated the only—repeat, only—scenario analyzed by the licensee for potential health and safety impacts of the missing fuel rods remaining in the spent fuel pool was inadvertent criticality. Thus, the licensee implicitly conceded that failure to adhere to administrative controls over spent fuel storage can challenge criticality margins.
- c) Whether the missing fuel rods remain in an as-yet undetected location in the spent fuel pool at Millstone or have been inadvertently shipped offsite, this episode reinforces the concerns about trading physical protection for administrative controls. Had the fuel rods remained in fuel assembly MS 557 or been re-installed in fuel assembly MS 557, it is less likely that they would be missing today. Thus, separating the fuel rods from the fuel assembly (i.e., increasing the complexity of the associated administrative controls) was a contributing factor in their mislocation. Likewise, installing new storage racks of a different design which require new and additional administrative controls (i.e., increasing

the complexity of the associated administrative controls) can be a contributing factor in future fuel mislocations.

d) The licensee proposes to install fuel storage racks in the spent fuel pool for Millstone Unit 3 that require administrative controls on fuel enrichment, decay time, and burnup for proper storage. According to the subject LER, the missing fuel rods may have been mistaken for other irradiated components and instruments, such as LPRMs, and shipped offsite for disposal. Fuel rods are much more distinguishable from LPRMs and other irradiated components than fresh fuel assemblies of a given enrichment are from fresh fuel assemblies of a higher enrichment or spent fuel assemblies of a certain burnup are from spent fuel assemblies of a higher burnup or spent fuel assemblies with a specified decay time are from spent fuel assemblies of longer decay time. The license's proposal increases the likelihood that one or more fuel assemblies is/are mislocated with the resulting challenge to criticality margins.

6. In conclusion, the information in the subject LER is directly relevant to Contention 4. The Licensing Board should examine the merits of Contention 4, including the implications from the event described in this LER, in a formal hearing.



David A. Lochbaum
January 26, 2001

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

FACILITY NAME (1) Millstone Nuclear Power Station Unit 1	DOCKET NUMBER (2) 05000245	PAGE (3) 1 OF 6
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TITLE (4)
Fuel Rod Accountability

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	16	2000	2000	-- 002 --	00	01	15	2001	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N/A	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)								
POWER LEVEL (10)	0	<input checked="" type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 20.2203(a)(2)(vii)
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		<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 73.71	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> OTHER
		<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 50.73(a)(2)(viii)	<input type="checkbox"/> 50.73(a)(2)(ix)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> OTHER
		<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 50.73(a)(2)(viii)	<input type="checkbox"/> 50.73(a)(2)(ix)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 50.73(a)(2)(xi)	<input type="checkbox"/> OTHER

LICENSEE CONTACT FOR THIS LER (12)

NAME Bryan Ford, Decommissioning Director	TELEPHONE NUMBER (Include Area Code) (860) 437-5895
---	---

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)		
<input checked="" type="checkbox"/>	YES (If yes, complete EXPECTED SUBMISSION DATE).	<input type="checkbox"/>	NO	MONTH	DAY	YEAR
				4	01	01

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

During a reconciliation and verification of the Millstone Unit 1 spent nuclear fuel records, Unit 1 personnel concluded that the location of two full-length irradiated fuel rods could not be determined, and was not properly tracked in the Special Nuclear Material (SNM) records. The records reconciliation and verification effort is part of ongoing decommissioning activities at Millstone Unit 1.

The two irradiated fuel rods are from fuel assembly MS 557, which was disassembled in 1972 for inspection. The two rods were displaced during the re-assembly of assembly MS 557 in 1974. Records indicate that in 1979 and 1980, the displaced rods were physically verified to be stored in a canister in the Spent Fuel Pool (SFP). The rods and canister are no longer in the SFP location documented in 1979 and 1980. Records retrieved to date do not document their relocation or disposition.

Due to the radiation levels associated with the fuel rods, it is only considered credible that they either remain stored in the SFP or they were shipped in a shielded cask to a facility licensed to accept radioactive material. Due to the controls in place at both Millstone and the facilities licensed to accept radioactive material, there is no undue risk to the health and safety of the public or plant and licensed facility workers.

The investigation into the location of the two fuel rods is ongoing.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Millstone Nuclear Power Station Unit 1	05000245	2000	-- 02 --	00	2 OF 6	

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

I. Description of Event

During a reconciliation and verification of the Millstone Unit 1 spent nuclear fuel records, it was concluded that the location of two full-length irradiated fuel rods was not properly tracked in the Special Nuclear Material (SNM) records. The records reconciliation and verification effort is part of ongoing decommissioning activities at Millstone Unit 1. A condition report (CR) M1-00-0548 was written on November 16, 2000, documenting the issue. Table 1 provides a description of the fuel rods.

The two irradiated fuel rods are from fuel assembly MS 557, which was disassembled in 1972 for inspection. The two rods were displaced during the re-assembly of assembly MS 557 in 1974. Records indicate that in 1979 and 1980, the displaced rods were physically verified to be stored in a canister in the Spent Fuel Pool (SFP). The rods and canister are no longer in the SFP location documented in 1979 and 1980. Records retrieved to date do not document their relocation or disposition.

On December 14, 2000, Northeast Nuclear Energy Company (NNECO) notified the Nuclear Regulatory Commission (NRC) of the fuel rod accountability issue via telephone pursuant to the requirements of 10CFR20.2201(a)(ii) and 10CFR50.72(b)(2)(vi). Concurrently, NNECO notified the State of Connecticut.

II. Chronology

October 1972	Assembly MS 557 was disassembled by the fuel vendor to provide assembly components for analysis and testing.
May 1974	Assembly MS 557 was reassembled by the fuel vendor. Two rods were not replaced into the assembly.
1974 through 1984	The fuel vendor conducted a Segmented Test Rod (STR) Program that included shipping of irradiated, segmented (partial length) test fuel rods in a shielded cask to the vendor for analysis and evaluation. This program also resulted in the construction of a separate assembly (canister), SRP-2D to hold discharged segmented test rods as needed.
1978 through 1985	Work was performed in the SFP to process, consolidate and store miscellaneous irradiated components and instruments in cask liners.
March 1979	A SFP map dated March 13, 1979 identifies two rods in a canister located in the SFP.
May 1979	A reactor engineer requests that the onsite fuel vendor representative visually inspect the canister in the SFP and identify the two fuel rods utilizing the serial numbers. The vendor responds that their visual inspection of the rods and applicable fuel assembly records indicates that the two fuel rods are from assembly MS 557. The reactor engineer begins tracking these two rods on an inventory card in the Fuel Card Index.
April 1980	The fuel rods are noted on the SFP map of April 30, 1980 as located in a storage canister in the SFP.
September 1980	A SFP map dated September 18, 1980 no longer identifies the location of the fuel rods and canister.
1980 through 1990	Numerous shipments of miscellaneous irradiated components from the SFP occurred.
1990	An inventory list was completed in early 1990 and there was no indication of the canister or the two fuel rods.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Millstone Nuclear Power Station Unit 1	05000245	2000	-- 02 --	00	3 OF 6

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

November 16, 2000	The records reconciliation and verification effort identifies that the location of two full-length irradiated fuel rods was not properly reflected in Special Nuclear Material (SNM) records. Condition Report M1-00-0548 was initiated.
December 14, 2000	NNECO notified the Nuclear Regulatory Commission (NRC) of the fuel rod accountability issue via telephone pursuant to 10CFR20.2201(a)(ii) and 10CFR50.72(b)(2)(vi). Concurrently, NNECO notified the State of Connecticut.
December 20, 2000	The licensed facilities in South Carolina and Washington that receive radioactive waste material shipments from Millstone were contacted and informed about the fuel rod accountability issue.

III. Investigation

A response team was established and later augmented to locate the fuel rods. Due to the radiation levels associated with the fuel rods, the investigation focused on locating the rods either in the pool or at a facility licensed to accept radioactive material. Initial reviews of records and visual inspections of the most likely locations in the SFP have been performed. Selected visual inspections of the SFP were conducted assuming four possible scenarios: (1) the rods are still in their original canister, (2) the rods have been removed from the original canister and have been placed in a different canister, (3) the rods have been placed in a fuel assembly, or (4) the rods are stored in other available locations; e.g., empty fuel storage locations, control rod storage tubes, etc.

The following specific actions have been completed:

1. The visual inspection of assembly MS 557 indicates that it contains a dummy spacer capture rod and an empty hole in one tie rod location.
2. Two specific possible locations for the rods were identified and visually inspected: assembly (canister) SRP-2D and the fuel canister containing fuel assembly MS 508.
3. A visual inspection of accessible spent fuel pool locations was made with special camera equipment.
4. A review of selected vendor and licensee fuel records has been performed.
5. A review of selected vendor and licensee fuel shipment records has been performed. The record of shipments of irradiated fuel describe transfer of test rods to the vendor during the 1974-1984 time period. The vendor location noted on the shipping records was not capable of receiving full-length irradiated fuel rods during the 1974-1984 time period. Therefore, it is considered unlikely that the fuel rods were shipped to this vendor location.
6. Personnel interviews have been performed.
7. A radiological and criticality assessment of the two fuel rods was performed.
8. An independent review team has been established to assess completed actions and provide recommendations as the investigation continues.

The investigation is on-going and the investigation team is being augmented as needed.

IV. Health and Safety

An assessment of the contact radiation levels of the two fuel rods has been performed. Contact radiation levels were initially estimated to have been on the order of 8000R/hr in the early 1980's and approximately 1000R/hr today. Results of the detailed calculations revealed that doses were on the order of 1600R/hr in 1980 and 850R/hr in 2000. With these radiation levels, removal from the SFP, other than in a shielded cask would have triggered multiple plant radiation alarms. The possibility of theft or diversion of the two fuel rods is highly improbable due to the estimated radiation levels.

LICENSEE EVENT REPORT (LER)

TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Millstone Nuclear Power Station Unit 1	05000245	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	4 OF 6
		2000	-- 02 --	00	

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Two possible scenarios have been analyzed for health and safety:

1. Fuel rods remain on site.

A criticality calculation has shown that even with the rods inadvertently located next to the most reactive fuel assembly in the spent fuel pool, the geometric configuration is such that the local fuel assembly array, as well as the pool would remain below 0.90 K_{eff} sub-critical. If the rods remain in the SFP, they are stored safely with the other spent fuel and there is no undue threat to the health and safety of the public or plant workers. Further visual inspections of the SFP are planned.

2. Fuel rods were shipped off site.

If a shielded cask shipment occurred, it was shipped to a licensed facility, either as:

(a) Irradiated fuel to the fuel vendor; or

If the fuel rods have been sent to a licensed irradiated fuel vendor, they are being stored in accordance with the vendor's license requirements which are established to ensure that there is no undue risk to the health and safety of the public, environment and the worker. Further records review is ongoing.

(b) Irradiated waste to a licensed facility.

An initial review of shipping records indicates that the only facilities considered credible for receiving these rods as irradiated waste are the licensed radioactive waste disposal sites in the States of Washington and South Carolina.

During shipment of these rods in a shielded cask, the general radiation profiles for the two fuel rods would have been within the limits established for transportation to these licensed facilities under existing DOT, NRC and States of Washington and South Carolina regulations. Therefore, due to the controls in place during the shipping of radioactive material to these licensed facilities, there is no undue threat to the health and safety of the public, resulting from the possible shipment of these fuel rods.

An initial review of these facilities has indicated that although these facilities are not licensed to accept spent nuclear fuel, they are authorized to receive and possess source material and special nuclear material. This review also indicated that the total activity and volume associated with the rods is a small fraction of the total activity and volume accepted at these sites. In addition, a criticality evaluation of the two fuel rods was performed. In the optimum (or worst case scenario) configuration, the criticality evaluation of the two rods with an enrichment of 2.44 w/o % at zero burn-up, with a water reflector, indicates that the fuel would be substantially sub-critical. Therefore, due to the controls in place at these facilities licensed to accept radioactive material, there is no undue threat to the health and safety of the public, or workers at these facilities, resulting from the possible shipment and receipt of these fuel rods.

Further records review is ongoing.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
Millstone Nuclear Power Station Unit 1	05000245	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	5 OF 6
		2000	-- 02 --	00	

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

V. Cause of Event

NNECO can not provide the apparent cause for this event at this time. The investigation is on-going.

VI. Independent Assessment

The Independent Review Team that is augmenting the investigation has performed an initial assessment. They have independently determined that:

- They concur with the information and data reviewed to date that there is no undue risk to the health and safety of the public, plant workers or licensed facility workers.
- Evidence to date does not strongly support one scenario over the other; i.e., that the fuel rods are in the SFP or have been shipped to a licensed facility.

VII. Ongoing Actions

The investigation and the following actions are ongoing:

1. The establishment of an enhanced project team.
2. The performance of additional SFP visual inspections.
3. The continuation of records retrieval and review of relevant documentation (e.g., SFP maps, control room logs, vendor fuel reconstitution records, radiation work permits, waste shipment records, and material transfer forms).
4. The conduct and documentation of additional personnel interviews.
5. Ongoing communications and notifications to the licensed facility located on the Hanford Reservation in the State of Washington and the licensed facility located at Barnwell in the State of South Carolina.

VIII. Future Reports

In accordance with 10CFR20.2201(d), subsequent to this written report, additional substantive information will be reported within 30 days of discovery of such information. A Supplemental Report will address the following additional issues:

1. Circumstances under which the rods were lost.
2. Statement of disposition, or probable disposition of the rods.
3. Actions that have been taken and will be taken to recover the rods.
4. Description of procedures or measures that have been, or will be taken to prevent recurrence.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Millstone Nuclear Power Station Unit 1	05000245	2000	-- 02 --	00	6 OF 6

TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Table I – Fuel Rods Description

Type of Special Nuclear Material:	One GE 7D Tie rod and One GE 7D Spacer Capture Rod
Material:	Uranium dioxide initially enriched to 2.44% in Zircaloy 2 cladding
Length of Fuel Rods:	158 inches
Fuel Rod Diameter:	0.570 inches
Total Uranium in the 2 Fuel Rods:	7732.0 grams (year 2000)
Total Uranium₂₃₅ in the 2 Fuel Rods:	101.4 grams (year 2000)
Total Plutonium in the 2 Fuel Rods:	40.2 grams (year 2000)
Total Fissile Plutonium in the 2 Fuel Rods:	32.8 grams (year 2000)
Activity Level:	2.591 X 10 ² Ci (year 2000)
Average Burnup of Assembly MS 557	9011 MWD/MTU
Effective Full Power Days (EFPD):	508 EFPD

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January 8, 2001

A Sheepish Hunt for Missing Fuel Rods

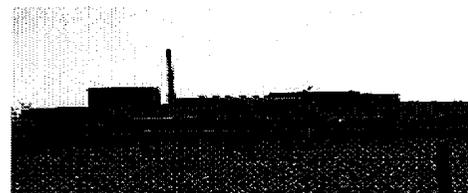
By DAVID M. HERSZENHORN

WARD, C... — If... could enlist the public in their...
...pre... off... the huge Millstone nuclear...
...en... ed to post a sign saying...
...like th... wo spent nuclear fuel rods, 12 feet...
...ender a... e finger. Last seen in April 1980.
Highly radioactive. May have been mistakenly shipped to South Carolina or Washington. Reward."

It may sound like a scene from "The Simpsons," but Millstone's predicament is quite real and, federal regulators say, unprecedented in the nation's highly regulated atomic energy industry. While there is virtually no risk to the public — wherever they are, the rods are almost certainly stored safely, officials say — their misplacement has both alarmed people who live near Millstone and highly embarrassed the plant's operators.

The episode is the latest black eye for Millstone, which is about to be sold and has been trying to rebuild its reputation after garnering one of the worst safety records of any nuclear power plant in the country. In the mid-1990's, all three of the reactors at Millstone were closed for safety violations; units 2 and 3 have since reopened. Officials decided it was not cost effective to reopen Millstone 1. And in 1999, the nuclear subsidiary of Northeast Utilities, which owns Millstone, pleaded guilty to 23 federal felonies and was fined a record \$10 million.

Rather than fear, the general reaction on all sides has been a mixture of frustration, dark humor, disgust and disbelief. "It seems unbelievable to me, with all the experts you have over there, how you could lose something like this," a grandmother and retired correction officer, Billie Staub, told plant officials at a public hearing in Waterford Town Hall on Thursday night. Another person asked if they realized they were the "laughingstock" of the industry.



discovered that two spent nuclear fuel rods, whose location had once been listed as the plant's spent fuel pool, had gone unaccounted for since 1980.

Related Articles

- [Science/Health Home](#)
- [The Natural World: Environment](#)

Chagrined Millstone managers seemed to realize this only too well. At the hearing, they offered two theories, that the rods were still somewhere in the plant's spent fuel pool or that they had mistakenly been shipped to an out-of-state disposal center. "We're not at all pleased that it happened," said the decommissioning officer for Millstone 1, Frank Rothen. "The feeling is that's the only two places it could be."

While a mistaken shipment of spent fuel would constitute a violation of federal regulations, neither scenario would present any danger to the public, regulatory officials said. Still, the explanations were met with anger and derision from local residents who have long been suspicious of Millstone because of its checkered past. "Maybe they're in the town dump," one heckler at the meeting called out. "Or on the Little League field."

For conspiracy theorists, the disappearance of two highly radioactive fuel rods offers a chance for breathless speculation. Reconstituted fuel rods could, theoretically, be used to make plutonium. Perhaps the rods were stolen by international terrorists. Or domestic militia members. Or maybe it was a political plot, an effort to discredit Northeast Utilities just as it is preparing to sell Millstone to Dominion Resources, a Virginia energy company.

But even some of Millstone's staunchest opponents concede that there is virtually no way the rods could have left the plant in anything but a properly protected shipping cask without setting off numerous alarms. "Superman, maybe," said Pete Reynolds, a former Millstone employee who worked on the refueling floor and said he was fired in 1994 after reporting safety violations. "These are not made out of kryptonite. He's the only one I know of that could have walked away with it."

Mr. Reynolds added, "Anybody with any common sense that knows anything at all about nuclear power, they are just laughing."

The federal Nuclear Regulatory Commission, however, did not seem amused. "Obviously we are concerned that they are not able to trace where these rods are," said Diane Screnci, an agency spokeswoman. "We are maintaining close contact to stay up on the status of this investigation."

Officials discovered that the two rods were missing in November during a routine inventory conducted as part of the effort to decommission the plant's original reactor, Millstone 1, permanently. Millstone documents last account for the rods in April 1980, listing their location in a container in the plant's spent fuel pool. But as of September 1980, plant records no longer accounted for them.

Last month, officials carried out an initial search of the pool, more than 900 square feet of borated water, 40 feet deep, where old fuel rods and other radioactive garbage and debris are kept. The pool contains nearly 2,900 bundles of rods called fuel assemblies. But they found no sign of the two missing rods.

One reason they are difficult to locate is that they were not part of a bundle that rods are usually kept in.

The General Electric Company, which manufactured the rods, had removed them from the bundle in 1972 to make some repairs. In the process, one was damaged and the other could not be refitted into the bundle. Instead, they were stored in a container and put into the spent fuel pool, said Peter Hyde, a Millstone spokesman.

A team of experts from G.E.'s nuclear division are now in Waterford to assist Millstone with a more thorough search of the spent fuel pool. Millstone officials, who stressed that whatever mistake that was made occurred two decades ago, said they are also searching through hundreds of thousands of pages of old records to figure out what happened.

If the rods are not in the pool, one possibility is that they were mistaken for long tubelike radioactivity monitors that plant employees use and often dispose of in the spent fuel pool. Discarded monitors are often cut up and shipped off with other radioactive garbage to low-level waste centers. The radioactive waste is wrapped in a liner and shipped in a special cask, both of which are made with lead and concrete. At the dump sites, the waste is buried in accordance with federal regulations.

On the streets of Waterford and neighboring Niantic, those who knew about the missing rods seemed more disappointed than scared. "The fact that there was an error is ridiculous," said Deborah Cohen, a tile artist, standing outside a local supermarket. "This shouldn't happen in a nuclear power plant ever."

At the public hearing, Ellen Lazerow asked if Millstone officials "behind closed doors" had ever looked at each other, uttered an expletive and wondered, "What's the worst-case scenario?" Larry Temple, the general manager of Millstone 1, pondered the question for a couple of seconds before replying, "I would have to say, yes."

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NRC Weekly Information Report
For the Week Ending November 24, 2000

Millstone Unit 1

Early this week, Millstone, Unit 1, informed the NRC that they could not confirm the location of two fuel pins. The licensee currently believes that they have located the box containing the fuel pins in the spent fuel pool. However, they will require GE assistance in order to lift the box and verify that it is the correct container. The licensee currently anticipates having GE personnel and equipment on site next week. The background on this issue is as follows:

In 1972, a once burned fuel assembly that was damaged by chloride intrusion in the reactor vessel was disassembled to allow testing by GE. During the disassembly, two of the fuel rods were bent and could not be put back in the assembly. These two fuel rods were put in a special fuel rod box. Records dated 1979 and 1980 show the box stored in the Northwest corner of the spent fuel pool. Records after 1980 do not show the fuel rod box in the fuel pool. Significant work, including two re-racks, has been performed on the fuel pool since 1980.

Due to the unique nature of the special fuel rod box the licensee does not consider it likely that the fuel pins have been mistakenly shipped out as waste. They currently believe that the fuel rods are still in the pool or were shipped to GE. To Date, GE has not identified any records of receiving the fuel pins. The licensee believes that the fuel rod box/pins were moved in the past to allow work to be performed in the pool and the movement not recorded. The licensee has identified a fuel pin container in the pool that may contain the fuel pins, but they have not been able to look in the container due to the need for a special tool which GE has but the licensee does not.

Currently, the licensee believes that the condition involves a lack of control of special nuclear material not an actual loss. Since the licensee does not believe that the fuel pins are in the public domain, 10 CFR 20.2201 only requires a formal report to the Commission within 30 days.

4. The record of such proceedings includes a document entitled "Millstone Nuclear Power Station: Purchase and Sale Agreement" dated August 7, 2000 with attachments. The document was made available at the public hearing which commenced on November 6, 2000.
5. Said Purchase and Sale Agreement includes "Schedule 2.1(b) - Spent Nuclear Fuel" dated August 1, 2000 at 9:45 P.M. A copy is annexed hereto.
6. Such Schedule 2.1(b) lists the Spent Nuclear Fuel at Unit 1, as of August 7, 2000 at 12:19 P.M. as follows:
"2884 Fuel Assemblies
"1 Storage Container with fuel rods"

Such Schedule lists the Spent Nuclear Fuel at Unit 2 as of the same date and time as:

"The number of fuel assemblies in the spent fuel storage pool: 940*
2 Storage Container [sic] with fuel rods

*Includes: 6 assemblies are consolidated into 3 canisters. Result of Fuel Rod consolidation project, started in mid 1980s, but not completed."

Such Schedule lists the Spent Nuclear Fuel at Unit 3 as of the same date and time as follows:

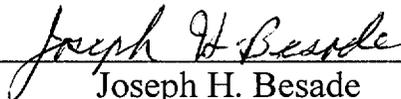
"The number of fuel assemblies in the spent fuel storage pool: 497
1 Storage Container with 1 fuel rod"

7. On or about January 4, 2001, I attended a meeting of the decommissioning subcommittee of the Nuclear Energy Advisory Council convened, in part, for consideration of the issue of missing spent fuel rods from the Millstone Unit 1 spent fuel pool.
8. Representatives of the licensee appeared at such meeting and made comments.
9. One comment made by a representative of the licensee was that mandatory periodic inventories of the Unit 1 spent fuel pool as recently as during the past year failed to take note that two spent fuel rods were missing from Unit 1.

10. I recorded a videotape of the January 4, 2001 meeting. I submit true copies of such videotape on behalf of the Intervenor in support of the Motion for Reconsideration.

11. On August 14, 1996, the U.S. Nuclear Regulatory Commission issued a Confirmatory Order directing the licensee to immediately establish an independent corrective action verification program for Millstone Units 1, 2 and 3. The purpose of the ICAVP was to confirm that each Millstone unit was operating in conformance with its licensing and design basis.

12. At the January 4, 2001 meeting, Frank C. Rothen, the licensee's vice president-nuclear work services, stated that the licensee had not provided the NRC with a confirmation that Unit 1 was operating in conformance with its licensing and design basis in response to the confirmatory order.



Joseph H. Besade

STATE OF CONNECTICUT

ss: Waterford

COUNTY OF NEW LONDON

Sworn to and subscribed before me this 29th day of January, 2001.



Notary Public/Commissioner of the Superior Court

My commission expires: _____

**Millstone Nuclear Power Station: Purchase and Sale
Confidential and Proprietary**

Millstone Purchase and Sale Agreement

Schedule 2.1(b)

Spent Nuclear Fuel

08/01/00
9:45 PM

**Millstone Nuclear Power Station Purchase and Sale
Confidential and Proprietary**

Spent Nuclear Fuel

Unit 1

2884 Fuel Assemblies

1 Storage Container with fuel rods

Unit 2

The number of fuel assemblies in the spent fuel storage pool: 940*

2 Storage Container with fuel rods

Unit 3

The number of fuel assemblies in the spent fuel storage pool: 497

1 Storage Container with 1 fuel rod

* Includes: 6 assemblies are consolidated into 3 canisters. Result of Fuel Rod consolidation project, started in mid 1980s, but not completed.

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of: : **Docket No. 50-423-LA-3**
: **ASLBP No. 00-771-01-LA**
: **Northeast Nuclear Energy Company** :
: **(Millstone Nuclear Power Station,** :
Unit No. 3) : **January 29, 2001**

Certificate of Service

I hereby certify that copies of "Connecticut Coalition Against Millstone and Long Island Coalition Against Millstone Motion for Reconsideration" with attached Declarations of David A. Lochbaum and Joseph H. Besade and attachments the above-captioned proceeding have been served on the following by E-Mail as indicated by asterisk on January 29, 2001, and to all by conforming copy via U.S. Mail, postage pre-paid, on January 29, 2001:

Charles Bechhoefer, Chairman*
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A handwritten signature in black ink, appearing to read "Nancy Burton", written over a horizontal line.