



**Northeast  
Nuclear Energy**

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The Northeast Utilities System

October 27, 2000

Docket Nos. 50-245

50-336

50-423

B18222

U. S. Nuclear Regulatory Commission  
Director of Nuclear Reactor Regulation  
Washington, D. C. 20555

**Millstone Nuclear Power Station  
Request for Exemption -- Physical Security Requirements**

The purpose of this letter is to modify a previously submitted<sup>(1)</sup> request for exemption which was submitted pursuant to 10CFR73.5.

On July 21, 1998<sup>(2)</sup>, Northeast Nuclear Energy Company (NNECO) informed the U. S. Nuclear Regulatory Commission that Millstone Unit No. 1 had permanently ceased operations and that the fuel had been permanently removed from the reactor vessel. Pursuant to 10CFR50.82(a)(2), the certification in the letter modified the Millstone Unit No. 1 license by permanently withdrawing the authority to operate the unit. Docketing the July 21, 1998, letter prohibited NNECO from placing or retaining fuel in the Millstone Unit No. 1 reactor vessel.

On March 13, 2000,<sup>(1)</sup> NNECO submitted a request for exemption from certain requirements of 10CFR73.55. When this request for exemption was submitted, NNECO was in the process of designing a new security system for Millstone Unit

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- (1) F. C. Rothen letter to U. S. Nuclear Regulatory Commission, "Request for Exemption – Physical Security Requirements", dated March 13, 2000.
  - (2) B. D. Kenyon letter to U. S. Nuclear Regulatory Commission, "Certification of Permanent Cessation of Power Operations and that Fuel Has Been Permanently Removed from the Reactor," dated July 21, 1998.

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No. 1 and planning extensive modifications to the existing security system such that the existing security system would provide control over Millstone Unit Nos. 2 and 3 only.

To support the new Millstone Unit No. 1 security area, certain relief was needed from the requirements of 10CFR73.55. As a result, NNECO transmitted a request for exemption from specific requirements of 10 CFR Part 73, "Physical Protection of Plants and Materials." Since the March 13, 2000, letter, NNECO has decided to not proceed with the establishment of a new security area for Millstone Unit No. 1 at this time.

However, to optimize the safe storage of spent fuel at Millstone Unit No. 1 and to support the continued safe operation of Millstone Unit Nos. 2 and 3, NNECO decided to proceed with certain other design modifications. These design modifications include providing a new closed loop spent fuel pool cooling system as well as a new central monitoring station that will monitor important Millstone Unit No. 1 parameters.

To allow operation of a new central monitoring station, which will replace the Millstone Unit No. 1 control room, NNECO will require a previously requested exemption to 10CFR73.55(c)(6), since the new central monitoring station will not be bullet resisting. This request for exemption was previously requested in NNECO letter of March 13, 2000. The information contained within this letter provides additional justification for the approval of this exemption. The remaining four exemptions requested in NNECO letter of March 13, 2000, are no longer required, and are therefore withdrawn.

NNECO requests approval of the proposed exemption to 10CFR73.55(c)(6) by January 1, 2001, so that appropriate actions can be taken to revise and implement a revision to the Millstone Nuclear Power Station Physical Security Plan. The proposed exemption is requested to be effective upon issuance.

If you should have any questions on the above, please contact Mr. Bryan Ford at (860) 437-5895.

Very truly yours,



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Raymond P. Necci  
Vice President - Nuclear Technical Services

cc: See Page 3

cc: H. J. Miller, Region I Administrator  
J. B. Hickman, NRC Project Manager, Millstone Unit 1  
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Attachment  
Millstone Nuclear Power Station  
Request for Exemption to 10CFR73 -- Physical Security Requirements

October 2000

## A. BACKGROUND

On July 17, 1998, the Northeast Utilities Board of Trustees decided to permanently cease further operation of Millstone Unit No. 1. Certification to the NRC of the permanent cessation of operation and permanent removal of fuel from the reactor vessel, in accordance with 10CFR50.82(a)(1)(i) and (ii), was filed on July 21, 1998, at which time the 10CFR50 license no longer authorized operation of the reactor or placement of fuel in the reactor vessel.

Subsequent to the cessation of power operations, NNECO reevaluated (1) the design basis accident analyses as described in the Safety Analysis Report (SAR) to determine the applicability and potential consequences of design basis events and (2) the causes and potential consequences of a loss of spent fuel pool cooling capability.

An evaluation determined that the resultant offsite dose from a design basis radiological release is well within the EPA Protective Action Guidelines. The NRC in their letter of November 9, 1999,<sup>(1)</sup> found NNECO's determination of design basis accidents applicable to Millstone Unit No. 1 in a permanently shutdown and defueled state appropriate. Further, the NRC also found that the radiological dose analyses performed by NNECO in support of the defueled Technical Specifications acceptable.

On March 13, 2000<sup>(2)</sup>, NNECO submitted a request for exemption from certain requirements of 10CFR73.55. When this request for exemption was submitted, NNECO was in the process of designing a new security system for Millstone Unit No. 1 and planning extensive modifications to the existing security system such that the existing security system would provide control over Millstone Unit Nos. 2 and 3 only. Since the March 13, 2000, letter, NNECO has decided to not proceed with the establishment of a new security area for Millstone Unit No. 1 at this time.

However, to optimize the safe storage of spent fuel at Millstone Unit No. 1 and to support the continued safe operation of Millstone Unit Nos. 2 and 3, NNECO decided to proceed with certain other design modifications. These design modifications will include providing a new closed loop spent fuel pool cooling system as well as a new central monitoring station that will monitor important Millstone Unit No. 1 parameters.

With the installation of a new central monitoring station, which will replace the Millstone Unit No. 1 control room, NNECO will require an exemption to 10CFR73.55(c)(6), since the new central monitoring station will not be bullet resisting.

## B. SECURITY CONFIGURATION

The Millstone Nuclear Power Station is a three unit complex. Two of these units, Millstone Unit Nos. 2 and 3, continue to safely operate. Only Millstone Unit No. 1 is in the process of decommissioning. The Millstone Nuclear Power Station has a site-wide physical security plan entitled, "Millstone Nuclear Power Station Physical Security Plan." Other plant documents and procedures support the general performance objectives of the Physical Security Plan, as well as applicable Part 73 requirements.

The security system has a protected area that encompasses all three units. Within the protected area are vital areas that are provided to protect vital equipment. Millstone Unit No. 1 has no vital equipment and no vital areas with the exception of the Millstone Unit No. 1 control room. The Millstone Unit No. 1 control room shares vital area space with the Millstone Unit No. 2 control room and is therefore, a vital area for Millstone Unit No. 2. After the new Millstone Unit No. 1 central monitoring station is implemented, the Millstone Unit No. 1 control room will no longer be needed, and may become part of the Millstone Unit No. 2 vital area. The new central monitoring station will be located within the protected area of the Millstone Station and will have communication capability with the other control rooms and with the security force.

## C. ANALYSIS RESULTS

In support of the permanently defueled configuration NNECO has reevaluated: (1) the design basis accident analyses as described in the SAR to determine the applicability and potential consequences of design basis events; and (2) the causes and potential consequences of a loss of spent fuel pool cooling capability. These analyses were also used as the basis for revisions to the Technical Specifications. The NRC concluded that NNECO's determination of design basis accidents applicable to Millstone Unit No. 1 in a permanently shutdown and defueled state is appropriate. Further, the NRC also found that the radiological dose analyses performed by NNECO in support of the defueled Technical Specifications acceptable<sup>(1)</sup>.

The following background supports this significantly lower radiological risk associated with postulated acts of radiological sabotage:

- All Millstone Unit No. 1 spent fuel is stored in the spent fuel pool which is located within a protected area. Irradiated spent fuel is inherently self-protecting, requiring underwater storage within robust reinforced concrete structures. Unauthorized retrieval would be extremely difficult.
- Millstone Unit No. 1 has been shutdown for almost five years and as a result radioactive decay has greatly reduced the decay heat produced by the spent

fuel. Therefore, in the event of a loss of cooling, calculations indicate that the spent fuel pool time to boil is currently on the order of 10 days. Diverse means are available to either re-establish cooling or to provide make-up to the spent fuel pool.

- Should sabotage activities take place in the new central monitoring station, those actions would have no immediate effects on the safe storage of the spent fuel pool. That is, draining of the spent fuel pool is not possible from the central monitoring station. Should loss of spent fuel pool cooling occur, NNECO has on the order of ten days prior to the onset of boiling.

#### D. PROPOSED EXEMPTION

With more than 1700 days of radiological decay since the plant was shutdown in 1995, the potential source term of gaseous and volatile radionuclides associated with the remaining design basis accident and radiological threat has decreased substantially.

The following item constitutes NNECO's request for exemption to 10CFR73:

Issue: Exemption from the requirement of 10CFR73.55(c)(6) which states:  
**"The walls, doors, ceiling, floor, and any windows in the walls and in the doors of the reactor control room shall be bullet-resisting."**

The central monitoring station (replacing the Millstone Unit No. 1 control room) will be basically an administrative area and contains no equipment that would enable a rapid change of spent fuel pool inventory. Further the central monitoring station will be located within the Millstone Station protected area. The central monitoring station will have communication capabilities with local law enforcement agencies, and with the Millstone Station security organization.

NNECO requests that an exemption from the requirement to maintain a bullet resisting reactor control room (central monitoring station) be provided. One of the functions of a reactor control room is to ensure safe reactor shutdown. With Millstone Unit No. 1 permanently shutdown and defueled, there are no reactor controls in the central monitoring station that could adversely impact public health and safety. Furthermore, the deliberate, inappropriate manipulation of controls associated with spent fuel cooling will not result in any immediate threat to public health and safety.

Although it can be argued that Millstone Unit No. 1 no longer has a "reactor control room" due to the permanently defueled state of the plant, exemption from this requirement is requested for completeness.

Similar exemptions have been granted by the NRC for Big Rock Point,<sup>(3)</sup> Maine Yankee,<sup>(4)</sup> and the Haddam Neck Plant<sup>(5)</sup>.

#### E. EVALUATION OF EXEMPTION AGAINST 10CFR73.5

The specific requirements for granting exemptions from Part 73 regulations are set forth in 10CFR73.5. Section 73.5 states "The Commission may, upon application of any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security, and are otherwise in the public interest." As discussed below, NNECO's request satisfies the standards for the regulatory exemption.

1. *The proposed exemption is authorized by law.*

The request is authorized by law. The Atomic Energy Act does not specify the exact methods by which a licensee is to provide physical protection of special nuclear material at a commercial nuclear power plant, and thus would not preclude the NRC from granting an exemption to the specific requirements of 10CFR73. While the Act does charge the NRC with protecting the public health and safety from radiological hazards (such as hazards associated with radiological sabotage), the Act does not preclude the NRC from exercising the authority to determine the appropriateness of a requirement contained in 10CFR73. In fact, NRC authority to grant an exemption to Part 73 requirements is similar to the authority of the Commission to grant exemptions from the licensing requirements of 10CFR50. Such exemptions have been granted to licensees whenever the licensees' requests satisfy the exemption criteria.

2. *The proposed exemption will not endanger life or property or the common defense and security, and is otherwise in the public interest.*

The underlying purpose of 10CFR73 [as stated in 10CFR73.1(a)] is to provide reasonable assurance that adequate security measures can be taken in the event of an act of radiological sabotage. In the permanently defueled plant condition, the risk associated with Millstone Unit No. 1 has been significantly reduced.

The exemption request will not endanger the common defense and security. The phrase "common defense and security" as used in 10CFR73.5, and as applied herein refers principally to the safeguarding of special nuclear material. The proposed exemption does not result in a decrease in the ability to effectively safeguard the spent fuel in the spent fuel pool, since the spent fuel pool is still provided protection by armed guards, and the spent fuel pool is located within a protected area. The proposed exemption would allow NNECO to implement a plan that focuses human and monetary resources solely on the monitoring of

spent fuel in one location, in the central monitoring station. Therefore, the granting of the requested exemption will not endanger the common defense and security.

The proposed exemption is otherwise in the public interest because the alternative to granting the exemption is to provide a bullet resisting central monitoring station. This measure of protection is not required since no actions from the central monitoring station could cause an immediate loss of spent fuel inventory, or cause any significant radiological event. Providing a bullet resisting central monitoring station would go far beyond that needed for a permanently shutdown and defueled facility.

Since the offsite radiological risk associated with the plant has been significantly reduced as a result of the significant amount of time that Millstone Unit No. 1 has been shutdown, requiring full compliance with the applicable regulation would result in costs that do not provide any additional benefit. NNECO is responsible for ensuring that adequate funds are available to complete the decommissioning of the facility. Full compliance with certain requirements of 10CFR73 that are clearly meant for operating reactor facilities would result in undue financial and administrative hardship for Millstone Unit No. 1, its owner and the ratepayers.

Over a dozen power reactors have been permanently shut down and entered the decommissioning process. When the NRC promulgated the security requirements of 10CFR73, it was not envisioned that nuclear power plants would be shut down and entering decommissioning, before the end of their operating license.

NRC has acknowledged that the provisions of the current regulations do not provide clear guidance relative to the reduction of security requirements for permanently shut down plants. NUREG-1497, "Interim Licensing Criteria for Physical Protection of Certain Storage of Spent Fuel," issued in November 1994, and Proposed Rule Making 10 CFR Parts 60, 72, 73 and 75 (60FR42079, published 8/15/95), both contain discussion relative to the lack of clear regulatory guidance provided for the security requirements for permanently shut down power reactors.

As explained herein, Millstone Unit No. 1, in its permanently shutdown and defueled condition, poses a significantly reduced risk to the public health and safety. Certain requirements of 10CFR73 are no longer appropriate for which this exemption request is submitted. Eliminating the need to provide a bullet resisting central monitoring station for Millstone Unit No. 1 would result in significant cost savings to NNECO. Since the cost for security planning requirements are ultimately borne by the public rate payers, it would be in the public interest for the NRC to grant the requested exemption.

G. REFERENCES

1. NRC letter to Northeast Nuclear Energy Company, "Millstone Nuclear Power Station, Unit 1 - Issuance of amendment RE: Permanently Defueled Technical Specifications (TAC No. MA5326)," dated November 9, 1999.
2. F. C. Rothen letter to U. S. Nuclear Regulatory Commission, "Request for Exemption – Physical Security Requirements", dated March 13, 2000.
3. NRC letter to Consumers Energy Company, "Exemption from Certain Physical Protection Requirements (10 CFR Part 73) - Big Rock Point Nuclear Plant (TAC NO. MA4240)," dated March 29, 1999.
4. NRC letter to Maine Yankee Atomic Power Company, "Exemption from Certain Requirements of 10 CFR Part 73 at Maine Yankee Atomic Power Station (TAC No. MA0281)," dated June 29, 1998.
5. NRC letter to Connecticut Yankee Atomic Power Company, "Exemption from Certain Requirements of 10 CFR Part 73 at Haddam Neck Plant (TAC No. M98350)," dated July 15, 1998.