

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))	
)	

NRC STAFF'S RESPONSE TO CONNECTICUT COALITION AGAINST MILLSTONE AND
LONG ISLAND COALITION AGAINST MILLSTONE'S
SECOND SET OF INTERROGATORIES AND REQUESTS FOR PRODUCTION
DIRECTED TO NUCLEAR REGULATORY COMMISSION STAFF

The Nuclear Regulatory Commission staff (Staff) hereby responds to Connecticut Coalition Against Millstone (CCAM) and Long Island Coalition Against Millstone's (CAM)(collectively, Intervenor) Secind [sic] Set of Interrogatories and Request for Production Directed to Nuclear Regulatory Commission Staff, filed May 19, 2000.

I. GENERAL OBJECTIONS

1. The Staff objects to Intervenor's discovery requests to the extent that they call for disclosure of litigation strategy and other material protected under 10 C.F.R. § 2.740 or other protection provided by law, attorney work product, privileged attorney-client materials, and other privileged materials such as draft agency documents protected by executive privilege.

2. The Staff objects to Intervenor's discovery requests to the extent that they request information or documents relating to licensees and/or entities other than Northeast Nuclear Energy Company's Millstone Nuclear Power Station, Unit 3. Such discovery requests call for information which is irrelevant, immaterial, and not calculated to lead to the discovery of admissible evidence, and is overbroad and unduly burdensome.

3. The Staff objects to Intervenor's discovery requests to the extent that they seek discovery which is beyond the scope of the three contentions admitted by the Board in this proceeding. Intervenor is only permitted to obtain discovery of matters that pertain to the subject matter within the scope of this proceeding.

4. The Staff objects to Intervenor's discovery requests to the extent that they are unreasonably cumulative, and are obtainable from other sources that are more convenient, less burdensome, or less expensive. Pleadings, briefs, orders, and other legal documents available in the public docket are not being produced under this response.

5. The Staff objects to Intervenor's discovery requests to the extent that they call for documents not within the possession, custody, or control of the NRC staff, which reports to the Executive Director for Operations.

II. INTERROGATORIES

INTERROGATORY B1 - BORON DILUTION. Please identify and describe any effort by NRC to determine the potential for dilution of soluble boron in the Millstone 3 pool, or to require such a determination by the applicant.

STAFF RESPONSE: The Staff considers the potential for dilution of soluble boron in the Millstone Unit 3 spent fuel pool to be highly unlikely. Technical Specifications (TS) and plant surveillance procedures are in place to maintain the boron concentration. Instrumentation and alarms are available to alert operators to pool water losses and additions. Moreover, any hypothetical event that could dilute the normal boron concentration by any significant amount would require such large quantities of water (hundreds of thousands of gallons) that it would be readily detectable.

In any event, as mentioned in the deposition of Dr. Laurence Kopp on May 11, 2000, the licensee has performed a boron dilution analysis assuming a complete dilution of all soluble boron, pursuant to NRC guidance in Standard Review Plan 9.1.2, and determined that the Staff's 5

percent subcriticality margin criterion would be maintained even if all of the soluble boron were lost from the pool water, thus meeting the subcriticality requirement of General Design Criterion (GDC) 62 with appreciable margin.

INTERROGATORY B2 - FUEL MISPOSITIONING, Please identify and describe any effort by NRC to determine the potential for mispositioning of fuel assemblies in the Millstone 3 pool, or to require such a determination by the applicant.

STAFF RESPONSE: The Staff considers fuel misplacement in the Millstone 3 spent fuel pool regions 1, 2, and 3 storage racks to be an unlikely event. Proposed TS 3.9.13 will control fuel storage limitations, and plant inspection and tracking procedures will control fuel assembly selection and placement. All fuel assembly movements are controlled as special nuclear material (SNM) under the direct supervision of qualified Reactor Engineering or licensed Operations personnel. Procedural controls and physical equipment constraints limit fuel assembly movements in the pool to only one fuel assembly at a time. Fuel assembly movements into and out of the pool are controlled in accordance with Millstone Unit 3 engineering procedure EN 31001, "Supplemental SNM Inventory and Control," which requires two persons, the SNM Executor and the SNM Checker, for all fuel assembly movements. Therefore, both TS and plant procedures would have to be violated for a fuel assembly misplacement to occur. In addition, fresh fuel assemblies have a bright, metallic color, which renders them visually distinguishable from spent fuel assemblies, which have a darker, reddish color resulting from oxidation of the cladding.

Finally, the burnup limit curves (Figures 3.9-1, 3.9-3, and 3.9-4) proposed for the Millstone Unit 3 TS for safe storage in spent fuel pool regions 1, 2, and 3 are based on a minimum required burnup. These figures represent bounding values that result in just meeting the 5 percent subcriticality margin for storage in regions 1, 2, and 3. In practice, unless an assembly were prematurely removed from the reactor, permanently discharged fuel assemblies would be expected to exceed these burnup requirements, that is, they would have a lower reactivity. Such fuel

assemblies, therefore, would fall into the acceptable burnup domain of these figures, thereby minimizing the number of fuel assemblies available to cause an increase in reactivity if misloaded. Therefore, the Staff considers the placement of a fuel assembly that does not meet the TS burnup requirements in the storage racks of regions 1, 2, and 3 of the Millstone 3 spent fuel pool, and the continued failure to detect such a misplacement, to be a highly unlikely event.

Notwithstanding the above, the licensee has analyzed a fuel assembly misloading event in which a fresh assembly of maximum enrichment (5 weight percent U-235) is placed in a storage rack qualified for storage of irradiated assemblies. The presence of only 425 ppm of soluble boron (compared to 2600 ppm normally present and 800 ppm required by proposed TS 3.9.1.2) is sufficient to ensure that a 5 percent subcriticality margin exists. Even with no credit for soluble boron in the pool water, criticality would not result and GDC 62 would not be violated.

INTERROGATORY B3 - CALCULATIONS OF K-EFF. Please identify and describe any effort by NRC to calculate K-effective, or to require such calculations by the applicant, for various combinations of boron dilution and fuel mispositioning in the Millstone 3 pool.

STAFF RESPONSE: The NRC guidance for implementing criticality control methods endorses the double contingency principle, which basically states that the safety analysis should demonstrate that criticality could not occur without at least two unlikely, independent, and concurrent failures or operating limit violations. See, e.g., ANSI N 16.1-1975; Letter from B.K. Grimes, NRC, to All Power Reactor Licensees, "OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications" (Apr. 14, 1978); Draft Regulatory Guide 1.13, "Proposed Revision 2 to Regulatory Guide 1.13, 'Spent Fuel Storage Facility Design Basis,'" U.S. NRC (Dec. 1981).

This guidance is implemented by evaluating the reactivity in the spent fuel pool for the expected, realistic conditions, plus one unlikely, independent incident or postulated accident. Thus,

if soluble boron is normally present in the pool water, the loss of soluble boron is considered as one accident condition and a second concurrent accident need not be assumed. Likewise, credit for the presence of the soluble boron may be assumed in evaluating other unlikely events. Calculations for various combinations of boron dilution and fuel mispositioning are not required to be analyzed concurrently and are beyond the scope of analyses required to be considered by the double contingency principle.

III. REQUEST FOR PRODUCTION OF DOCUMENTS

The Staff notes that 10 C.F.R. §§ 2.744 and 2.790, which govern the production of NRC records and documents, contemplate that most NRC documents will be available for inspection and copying at the NRC Web site, <http://www.nrc.gov>, and/or at the NRC Public Document Room and, if they have been withheld from the public document room pursuant to § 2.790, § 2.744 requires a request to the Executive Director for Operations for the production of such a document, which must state, among other things, why the requested record or document is relevant to the proceeding.

Notwithstanding these regulations, without waiving any objections or privileges, and except as specified below, the Staff is now voluntarily providing responses to Intervenors' request for production of documents. In doing so, the Staff is not waiving its right to require compliance with the Commission's regulations regarding any future discovery requests made by Intervenors in this matter.

PRODUCTION. Please produce all relevant documents to substantiate your responses to Interrogatories B1, B2, and B3.

STAFF RESPONSE: All documents referenced above have been provided by the licensee, previously identified by the Staff, produced by Intervenor in response to the licensee's discovery request, or are publicly available.

Respectfully submitted,

Ann P. Hodgdon
Counsel for NRC Staff

Susan L. Uttal
Counsel for NRC Staff

Brooke D. Poole
Counsel for NRC Staff

Dated at Rockville, Maryland
this 2nd day of June, 2000.

June 1, 2000

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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In the Matter of)	
)	
Northeast Nuclear Energy Company)	
)	Docket No. 50-423-LA-3
(Millstone Nuclear Power Station,)	
Unit No. 3))	
)	

AFFIDAVIT OF LAURENCE I. KOPP

Laurence I. Kopp, being duly sworn, does hereby state as follows:

1. I am providing this affidavit pursuant to 10 C.F.R. § 2.740b(b).
2. I have been employed by the U.S. Nuclear Regulatory Commission (NRC), and its predecessor, the Atomic Energy Commission (AEC), since 1965. My current position is Senior Reactor Engineer in the Reactor Systems Branch, Division of Systems Safety and Analysis, Office of Nuclear Reactor Regulation (NRR). My responsibilities include review and evaluation of the criticality aspects of on-site fuel storage at commercial nuclear power reactors. I have a Ph.D. degree in Nuclear Engineering from the University of Maryland, a Master of Science degree in Physics from Stevens Institute of Technology, and a Bachelor of Science degree in Physics from Fairleigh Dickinson University. I have 42 years experience in the nuclear power industry, including 5 years at the Martin-Marrietta Nuclear Division and 2 years at the Westinghouse Astronuclear Division.
3. I have supplied information in response to the following interrogatories, as specified in the Connecticut Coalition Against Millstone and the Long Island Coalition Against Millstone's "Secind [sic] Set of Interrogatories and Request for Production," dated May 19, 2000, in the above-captioned proceeding: Interrogatory Nos. B1, B2, B3.

4. I hereby certify that the foregoing is true and correct to the best of my knowledge, information and belief.

Laurence I. Kopp

Subscribed and sworn to before me
this day of

Notary Public

My commission expires: _____

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COMPANY)
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Unit No. 3))

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S RESPONSE TO CONNECTICUT COALITION AGAINST MILLSTONE AND LONG ISLAND COALITION AGAINST MILLSTONE'S SECOND SET OF INTERROGATORIES AND REQUESTS FOR PRODUCTION DIRECTED TO NUCLEAR REGULATORY COMMISSION STAFF" in the above-captioned proceeding have been served on the following through deposit in the Nuclear Regulatory Commission's internal mail system or; by deposit in the Nuclear Regulatory Commission's internal mail system with copies by electronic mail, as indicated by an asterisk; or by E-mail as indicated by a double asterisk, followed by a conforming copy via first-class mail this 2nd day of June 2000.

Charles Bechhoefer, Chairman*
Administrative Judge
Atomic Safety and Licensing Board
Mail Stop: T 3F-23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
(E-mail copy to CXB2@nrc.gov.)

Dr. Charles N. Kelber*
Administrative Judge
Atomic Safety and Licensing Board
Mail Stop: T 3F-23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
(E-mail copy to CNK@nrc.gov.)

Dr. Richard F. Cole*
Administrative Judge
Atomic Safety and Licensing Board
Mail Stop: T 3F-23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
(E-mail copy to RFC1@nrc.gov.)

Office of the Secretary
ATTN: Rulemaking and Adjudications
Staff
Mail Stop: O 16C-1
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
(E-mail copy to
HEARINGDOCKET@nrc.gov.)

Office of the Commission Appellate
Adjudication
Mail Stop: O 16C-1
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Lillian M. Cuoco, Esq. **
Northeast Utilities Service Co.
107 Selden Street
Berlin, CT 06037
(E-mail copy to cuocolm@nu.com.)

Nancy Burton, Esq. **
147 Cross Highway
Redding Ridge, CT 06876
(E-mail copy to
nancyburtonsq@hotmail.com.)

Atomic Safety and Licensing Board
Panel
Mail Stop: T 3F-23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

David A. Repka, Esq. **
Counsel for Northeast Nuclear Energy
Company
Winston & Strawn
1400 L. Street N.W.
Washington, D.C. 20005-3502
(E-mail copy to drepka@winston.com.)

Brooke D. Poole
Counsel for NRC Staff