

RAS-1631

UNFILED CORRESPONDENCE

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

'00 APR 11 P5:38

OFFICE OF THE
GENERAL COUNSEL
ADMINISTRATIVE SERVICES

**CONNECTICUT COALITION AGAINST MILLSTONE AND
LONG ISLAND COALITION AGAINST MILLSTONE'S
REPLY TO NRC STAFF'S FIRST SET OF INTERROGATORIES**

In accordance with the schedule established in the Atomic Safety and Licensing Board ("Licensing Board") Prehearing Conference Order (Granting Request for Hearing) (LBP-00-02), issued on February 9, 2000, the Connecticut Coalition Against Millstone ("CCAM") and the Long Island Coalition Against Millstone ("CAM") (collectively, "Intervenors") answer this first set of interrogatories fully, in writing and under oath as follows:

III. General Interrogatories

1. Identify all persons whom you expect or intend to provide sworn affidavits and declarations for the written filing for the Subpart K proceeding and each person who would testify in any subsequent evidentiary proceeding. For each such person, identify the subject matter and substance of his anticipated testimony.

David Lochbaum
Nuclear Safety Engineer
Union of Concerned Scientists
1616 P Street NW
Washington DC

It is anticipated that Mr. Lochbaum will address principally

Template = SECY-035

SECY-02

Contentions 4 and 5 and the technical issues regarding each.

Gordon Thompson, Ph.D.
Institute for Resource and Security Studies
27 Ellsworth Avenue
Cambridge MA 02139

It is anticipated that Dr. Thompson will address principally Contention 6 and the technical issues regarding Contention 6.

2. State the name, business address, and job title of each person who supplied information for responding to these interrogatories and requests for production of documents. Specifically note for which interrogatories each such person supplied information. For requests for production, note for which contention each such person supplied information. Provide a statement of qualification, resume or curriculum vitae for each such person.

David Lochbaum and Dr. Gordon Thompson (see response to Interrogatory 1 above). Both have provided information for all interrogatories.

IV. Specific Interrogatories

A. Contention 4: "Undue and Unnecessary Risk to Worker and Public Health and Safety"

1. Define "administrative control." Make specific reference to all documents, records, statements or sources which support your definition.

As defined in 10 CFR Section 50.36(c)(5), "Administrative controls," administrative controls are the provisions relating to organization and management, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner.

Source: <http://www.nrc.gov/NRC/CFR/PART050/part050-0036.html>

As defined in the NRC's Human Factors Interface System:

"P9 Administrative procedures, checklists, etc. related to general activities such as tagging, scaffolding, housekeeping, configuration control."

Source: <http://www.nrc.gov/NRR/HFIS/deflist1.htm>

In addition, while not precisely defined, Section 5.0 of the Standard Technical Specifications for Westinghouse nuclear reactors implicitly describes the types of activities that constitute administrative controls.

Source: <http://www.nrc.gov/NRR/sts/sts.html#1431>

As discussed in the NRC Inspection Manual:

"Procedures should be established to ensure management approval of designs in which safe geometry is not used for criticality control. Use of criticality controls, other than safe geometry, should require documented justification and management approval when NCS is based solely on use of administrative controls."

Source: <http://www.nrc.gov/NRC/IM/88015.html>

2. Define "physical protection." Make specific reference to all documents, records, statements or sources which support your definition.

"Physical protection" can be described, in this context, as a set of measures that prevent criticality through reliance on the physical properties and configuration of a system, and not on administrative controls.

3. Define "configuration." Make specific reference to all documents, records, statements or sources which support your definition.

"Configuration" can be described as the spatial arrangement of various materials.

4. Specify the basis, including all facts and circumstances, for your position that the licensee has a history of not being able to adhere to administrative controls with respect to the spent fuel pool (SFP) configuration. Make specific reference to all relevant incidents, documents, records, statements or other sources which support your position.

The licensee has been subjected to considerable NRC enforcement action in the 1990s because of violations related to the spent fuel storage at the Millstone nuclear power station:

NRC Enforcement Action 96-151, May 25, 1999
Source: <http://www.nrc.gov/OE/>

NRC Enforcement Actions Nos. 96-034; 96-067; 96-086; 96-106; 96-145; 96-183; 96-197; 96-198; 96-331; 96-332; 96-333; 96-350; 96-351; 96-352; 97-141, December 10, 1997
Source: <http://www.nrc.gov/OE/>

James P. O'Reilly, Nuclear Regulatory Commission, to Jack A. Lemke, Decemebr 20, 1976.

Ernst Volgenau, Director - Office of Inspection and Enforcement, Nuclear Regulatory Commission, "Order to Show Cause and Order Suspending License," December 20, 1976.

R.L. McGuinness, Northeast Utilities, to D.B. Miller, Northeast Utilities, "Reportability of Spent Fuel Pool Cooling," September 4, 1987.

Nuclear Regulatory Commission, Daily Event Report No. 30050, "Unanalyzed Heavy Load Path for Moving Gates Outside the [Millstone] Spent Fuel Pool," March 1, 1996.

Dinesh Saxena and George Stramback, General Electric Company, "Independent Assessment of Spent Fuel Pool Cooling at Millstone 1 Nuclear Power Station," GENE 523-A085, August 31, 1995.

Donald B. Miller Jr., Senior Vice President - Millstone Station, to Nuclear Regulatory Commission, "Licensee Event Report 95-009-02," December 14, 1995.

Donald B. Miller, Jr., Station Director, Connecticut

Yankee Atomic Power Company, to Nuclear Regulatory Commission, "Reportable Occurrence LER 50-213/87-015-00," September 11, 1987.

W.J. Riffer, Director - Millstone Unit 1, Northeast Utilities, to Nuclear regulatory Commission, "Licensee Event Report 93-011-02," July 25, 1996.

These violations constitute a history of not being able to adhere to administrative controls with respect to the spent fuel pool (SFP) configuration.

B. Contention 5: "Significant Increase in Probability of Criticality Accident"

1. Specify the basis, including all facts and circumstances, for your statement that the applicant's evaluation demonstrates that a single movement error can result in criticality unless there is soluble boron in the SFP water. (Tr. at 107) Make specific reference to all documents, records, statements or sources which support your position.

From the declaration of David Lochbaum which we submitted:

The evaluation submitted by NNECO clearly stated that a single fuel movement error, which is a credible event within the plant's design and licensing bases, can result in the required criticality margin being violated unless there is soluble boron in the spent fuel water:

The inadvertent misplacement of a fresh fuel assembly has the potential for exceeding the limiting reactivity, should there be a concurrent and independent accident condition resulting in the loss of all soluble poison. Assuring the presence of soluble poison during fuel handling operations will preclude the possibility of simultaneous occurrence of the two independent accident conditions. The largest reactivity increase would occur if a fresh fuel assembly of 5.0 wt % U²³⁵ enrichment were to be inadvertently loaded into an empty cell in Region 3 with the remainder of the rack fully loaded with fuel of the highest permissible reactivity. Under this accident condition, credit for the presence of soluble poison is permitted by the NRC guidelines. Calculations indicate that 800 ppm soluble boron, that is to be required by the Technical

Specifications during fuel handling operations, is more than adequate to assure that the limiting k_{eff} of 0.945 is not exceeded. [Page 4-8 of Attachment 5 to the Application dated March 19, 1999]

and

With the assumption that the Boraflex panels are replaced by water, the moderator temperature coefficient of reactivity in Region 3 is positive. Therefore, an increase in spent fuel pool temperature above the normal operating conditions (i.e., above 160 F), has the potential for exceeding the limiting reactivity in Region 3, should there be a concurrent and independent accident condition resulting in the loss of all soluble poison. . . . Calculations indicate that 100 ppm soluble boron is more than adequate to assure that the limiting k_{eff} of 0.945 is not exceeded for temperatures greater than 160 F and boiling. [Page 4-9 of Attachment 5 to the Application dated March 19, 1999]

If the Technical Specifications for Millstone Unit 3 are changed as requested by NNECO, it is credible that a human error could result in the wrong fuel assembly being loaded into a Region 3 rack. With the soluble boron concentrations required by the "revised" Technical Specifications during fuel movements, this loading error would not cause a criticality.

The licensee, in its license amendment request submittal, reported that a single movement error can result in required criticality limits unless soluble boron concentrations are maintained. Recognizing that the required criticality limits were established to account for uncertainties, we contend that any action (or inaction) which results in the required criticality limits being exceeded or violated could also result in a criticality. That was, and remains, our basis for the statement.

2. Define "misposition." Make specific reference to all documents, records, statements or sources which support your definition.

We consider "misposition" to apply to the placement of any fuel assembly into an unintended or unauthorized location. In

addition, we consider "misposition" to apply in a case where a fuel assembly is placed into an intended and authorized location, but in the wrong orientation when the actual orientation varies from specified or required orientation. The "misposition" duration is not a factor. "Mispositioning" can be described, in this context, as the placement of fuel in a manner that does not conform to the Technical Specifications.

3. Identify any and all actual mispositionings or misplacements of fuel assemblies at SFPs which have gone undetected, and please identify your basis for concluding there is a nexus between any or all actual mispositionings and an increase in the probability of a criticality accident at the Millstone Unit 3 SFP. Make specific reference to all documents, records, statements or sources which support your position.

Please refer to Appendix B of Orange County January 4, 2000 filing in the Matter of Carolina Power & Light, Docket No. 50-400-LA, ASLBP No. 99-762-02-LA. Each of the mispositioning events was undetected for a significant period of time. Thus, we are not aware of mispositionings or misplacements of fuel assemblies at SFPs which have gone undetected. If we knew of mispositionings or misplacements, then they were, in fact, detected.

Unless each and every fuel assembly can be placed in any SFP storage location without regard for burnup, reactivity, etc., and the K_{eff} maintained at or below 0.95, then the mispositioning or misplacement of one or more fuel assemblies in the SFP could

result in criticality. The licensee's submittal clearly detailed various restrictions on which fuel assemblies can be placed where in the SFP and at what time. Thus, the licensee is not proposing to store fuel assemblies in the Millstone Unit 3SFP such that any fuel assembly can be placed in any SFP storage location at any time. Consequently, failure to conform with all of the specified restrictions and conditions could result in criticality. Because the licensee's application imposes additional restrictions and conditions than currently exist, the probability of inadvertent criticality increases.

4. Identify any and all mispositionings or misplacements of fuel assemblies in SFPs which have resulted in criticality. Make specific reference to all documents, records, statements or sources which relate to your answer.

At this time, we are not aware of any such events.

5. Identify any and all boron dilution or boron loss events which have resulted in criticality in SFPs. Make specific reference to all documents, records, statements or sources which relate to your answer.

At this time, we are not aware of any such events.

6. Identify the boron loss event cited on page 100 of the prehearing conference transcript, as to name of plant and date. Specify the cause, the amount of boron lost, the duration of the event, the actions taken and the result. Make specific reference to all documents, records, statements or sources which relate to your answer.

Transcript not available.

**C. Contention 6: "proposed Criticality Control Measures
Would Violate NRC Regulations"**

1. Specify the basis, including all facts and circumstances, for your position that credit for administrative measures is not permitted under General Design Criterion (GDC) 62 for the prevention of criticality. (Tr. at 134) Make specific reference, including pinpoint citations to particular page numbers where applicable, to all documents, records, statements or sources which support your position.

Please refer to the Orange County filing of January 4, 2000, pages 18-37 In the Matter of Carolina Power & Light, Docket No. 50-400-LA, ASLBP No. 99-762-02-LA.

2. Explain, in detail and with reference to specific examples, your position that there are two classes of administrative measures: "those that are made over a finite time and after having been made are no longer necessary"; and "administrative measures that are required on an ongoing basis." (Tr. at 139) Make specific reference, including pinpoint citations to particular page numbers where applicable, to all documents, records, statements or sources which support your position.

Physical protection against criticality may rely on one-time administrative measures to ensure that the physical protection is in place. For example, if physical protection is provided by the geometry of racks, one-time administrative measures will be needed to ensure that the racks are constructed so as to preserve the specified geometry under specified conditions. This situation

contrasts with reliance on ongoing administrative measures, such as taking credit for burnup.

3. Specify the basis, including all facts and circumstances, for your position that only those administrative measures "that are made over a finite time and after having been made are no longer necessary" are permissible under GDC 62 for the prevention of criticality.

Please refer to the Orange County filing of January 4, 2000, pages 18-37, In the Matter of Carolina Power & Light, Docket No. 50-400-LA, ASLBP No. 99-762-02-LA.

V. Experts

1. Identify each and every expert who will provide sworn affidavits or declarations for the written filing for the Subpart K proceeding, including each expert's name, affiliation, business address and telephone number.

David Lochbaum
Nuclear Safety Engineer
Union of Concerned Scientists
1616 P Street NW
Washington DC

Gordon Thompson, Ph.D.
Institute for Resource and Security Studies
27 Ellsworth Avenue
Cambridge MA 02139

2. For each expert named in the answer to General Interrogatory 1, state (a) the subject matter and substance of his/her testimony, (b) the facts and opinions upon which that testimony will be based, (c) the grounds of each opinion, and (d) any authorities and/or treatises upon which the expert relies.

(a) Each will address technical aspects of Contentions 4-6

(b) and (c) Publicly available information and the experts' analytic capabilities

(d) The brief which will be filed by the Intervenors will provide this information.

3. Identify all persons from whom you, or any of your agents, servants or employees, have taken statements. Specify (a) when the statement was taken; (b) where the statement was taken; (c) who took the statement; (d) whether the statement was reduced to writing; (e) who has possession of the statement; and (f) the substance of the statement.

No statements have been taken at this time.

4. Identify all persons you, or any of your agents, servants or employees, have interviewed. Specify (a) the date of the interview; (b) where the interview occurred; (c) who was present during the interview; (d) whether the interview was recorded or reduced to writing, including notes; (e) who is in possession of the recording or writing; and (f) the substance of the interview.

No interviews have been conducted at this time.

Respectfully submitted,
CT COALITION AGAINST MILLSTONE
LI COALITION AGAINST MILLSTONE

By:



Nancy Burton, Esq.
147 Cross Highway
Redding Ridge CT 06876
Tel. 203-938-3952

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Unit No. 3) : ASLBP No. 00-771-01-LA

OFFICE OF THE
GENERAL COUNSEL
ADJUDICATION STAFF

CERTIFICATE OF SERVICE

I hereby certify that copies of "Connecticut Coalition Against Millstone and Long Island Coalition Against Millstone's Reply to NRC Staff's First Set of Interrogatories" in the above-captioned proceeding have been served by deposit in the United States Mail, first class, on April 8, 2000, and by telefax on April 7, 2000 as indicated by asterisk below.

David A. Repka, Esq.*
Winston & Strawn
1400 L Street NW
Washington DC 20005

Charles Bechhoefer*
Chairman
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington DC 20555-0001

Office of the Secretary*
U.S. Nuclear Regulatory Commission
Washington DC 20555
(Attn: Rulemakings and
Adjudications Staff)
(original + two copies)

Dr. Richard F. Cole*
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington DC 20555-0001

Adjudicatory File
Atomic Safety and Licensing
Board Panel
U.S. Nuclear Regulatory Commission
Washington DC 20555

Dr. Charles N. Kelber*
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington DC 20555-0001

Office of Commission
Appellate Adjudication
U.S. Nuclear Regulatory Commission
Washington DC 20555

Brooke D. Poole*
Office of General Counsel
U.S. Nuclear Regulatory Commission
Washington DC 20555



Nancy Burton, Esq.
147 Cross Highway
Redding Ridge CT 06876