

# NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY  
WESTERN MASSACHUSETTS ELECTRIC COMPANY  
HOLYOKE WATER POWER COMPANY  
NORTHEAST UTILITIES SERVICE COMPANY  
NORTHEAST NUCLEAR ENERGY COMPANY

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March 27, 1984

Docket No. 50-423  
B11089

Director of Nuclear Reactor Regulation  
Mr. B. J. Youngblood, Chief  
Licensing Branch No. 1  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Reference: (1) B. J. Youngblood to W. G. Counsil, Draft SER for Millstone  
Nuclear Power Station, Unit 3, dated December 20, 1983.

Dear Mr. Youngblood:

Millstone Nuclear Power Station, Unit 3  
NRC Auxiliary Systems Branch (ASB)  
Review Meeting, March 14, 1984

A meeting was held between the NRC-ASB and Northeast Nuclear Energy Company (NNECO) in Bethesda, Maryland on March 14, 1984 to discuss thirteen (13) Draft SER open items contained in Reference (1). During the meeting each of the thirteen items was discussed. A status of each open item was noted as defined by one of the following three categories:

Closed - No further NNECO input or action is needed to resolve the NRC concern.

Confirmatory - NNECO must provide the requested information on the Millstone 3 docket, either by a letter or FSAR amendment.

Open - No resolution possible at this time, NNECO to address.

Attachment I provides the status of those Draft SER Open Items. It was agreed that NNECO would transmit a letter to the NRC providing a written response on each of those Draft SER open items by April 4, 1984. NNECO also agreed to provide all additional information committed in confirmatory items as the information becomes available. The attached responses to the open items (Attachment II) formalize the above commitment given orally at the meeting. The responses will be incorporated into the FSAR in a future amendment.

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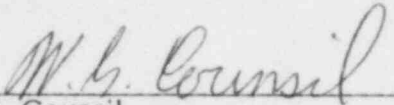


If you have any concerns related to the information contained herein or any questions related to our responses, please contact our Licensing representative directly.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY ET AL

By Northeast Nuclear Energy Company, their Agent

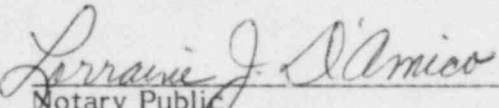
  
\_\_\_\_\_  
W. G. Council  
Senior Vice President

STATE OF CONNECTICUT)

COUNTY OF HARTFORD )

ss. Berlin

Then personally appeared before me W. G. Council, who being duly sworn, did state that he is Senior Vice President of Northeast Nuclear Energy Company, Applicant herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Applicants herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

  
\_\_\_\_\_  
Notary Public

My Commission Expires March 31, 1988



## ATTACHMENT I

### Status of the NRC-ASB Draft SER Open Items Discussed at the Meeting with the NRC-ASB March 14, 1984

| Item No.      | Description  | Status       |
|---------------|--|--------------|
| ASB-1         | Water into Service Water Pumphouse pump shaftways        | Closed       |
| ASB-4         | Auxiliary Feedwater Pump Missiles Analysis               | Closed       |
| ASB-5         | Sump Pump Monitoring Instruments                         | Confirmatory |
| ASB-6         | Common Leakage Equivalent                                | Closed       |
| ASB-7         | Technical Specifications                                 | Confirmatory |
| ASB-8         | Spent fuel pool storage gates                            | Closed       |
| ASB-13        | Plant Floor Drainage Drawings                            | Closed       |
| ASB-14        | Emergency Air Pressurization System                      | Closed       |
| ASB 16 and 20 | Condenser Circulating Water Pit                          | Open         |
| ASB 17        | Spent fuel storage material in Pool and Nuetron Absorber | Confirmatory |
| ASB-18        | AFW Reliability Study                                    | Open         |
| ASB-19        | Technical Specification                                  | Confirmatory |



## ATTACHMENT II

### Responses to the Draft SER Open Items

#### Item No.

ASB-1  
ASB-4  
ASB-5  
ASB-6  
ASB-7  
ASB-8  
ASB-13  
ASB-14  
ASB-16 and 20  
ASB-17  
ASB-18  
ASB-19



## Open Items

### Auxiliary Systems Branch

#### ASB-1 Water into Service Water Pumphouse Pump Shaftways (Draft SER Section 3.4.1, 9.2.1, 9.3.3)

The applicant should address the possibilities of water entering the pumphouse through the pump shaft ways and rendering the pumps inoperable (as in Millstone Unit 2).

#### Response (3/84)

Service water pump cubicles could potentially become flooded due to two pump related sources: the pump support plate and the stuffing box. Water could potentially leak into the service water pump cubicles between the concrete foundation and the pump support plate. The support plates are flanged and bolted to carbon steel curb rings embedded in concrete at elevation 14'6". The joint at the support plate can withstand a continuous pressure of 20 feet of seawater from the underside of the support plate during a tidal storm. The design basis flood level is elevation 23'9½". This is a total of 9'3½" of seawater above the 14'6" grade elevation, and is less than half of the support plate design pressure of 20 feet of seawater. Consequently, leakage of seawater past the pump support plate during a design basis flood is not credible.

The second potential leak path is the service water pump stuffing box. The Millstone 3 service water pumps are vertical, wet pit, closed shaft pumps which require lubricating water for pump column and diffuser bearings during operation. A shaft enclosure tube (cover pipe) is used to carry lubricating water to the bearings. This lubricating water is supplied from each pump discharge line. The water is injected into the stuffing box through the lantern ring. Sealing above the lantern ring is accomplished by four rings of packing and an adjustable gland.

The lubricating water passing through the lantern ring flows through the shaft enclosing tube to the column, diffuser and suction bowl bearings. A continuous flow of 10 gpm of seawater at 20-25 psig is supplied to the 1" lubricating water connection. The lubricating water flow provides a 20-25 psig backpressure, which acts to seal off the leak path from seawater pressure in the shaft enclosure tube during a storm. This backpressure exceeds the pressure due to tide elevation at the design basis flood level and therefore, leakage of seawater through the service water pump stuffing box is not credible.

#### Status (3/84)

Closed.



## Open Items

### Auxiliary Systems Branch

#### ASB-4 Auxiliary Feedwater Pump Missiles Analysis (3.5.1.1, 10.4.9)

The applicant has not provided the results of an analysis stating that missiles from the turbine-driven auxiliary feedwater pump cannot damage the safety-related equipment. (The applicant indicated that this information will be provided at a later date).

#### Response (3/84)

The results of an analysis stating that missiles from the turbine-driven auxiliary feedwater pump will not damage the safety-related equipment will be provided by September 1984. Based on the analysis, the missile barriers will be installed to protect the safety-related equipment from the potential missiles from the turbine-driven auxiliary feedwater pump.

#### Status (3/84)

Closed.



## Open Items

### Auxiliary Systems Branch

#### ASB-5 Sump Pump Monitoring Instruments (Draft SER Section 5.2.5)

Sump pump monitoring instruments must be capable of performing their function following seismic events that do not require plant shutdown.

#### Response (3/84)

The sump pump monitoring system includes a sump level monitor, sump pump, pump discharge pressure, high and low level switches and associated timers. The present design has the capability of detecting a 1 GPM leak in 1 hour by measuring the pump run time over a given period.

The system is not considered a seismic Category I system, however, it is expected to remain operable during all seismic events which do not require a plant shutdown. After a seismic event occurs the sump level monitoring system will be verified operable. If instrumentation is not available to detect a 1 GPM leak in 1 hour the appropriate action per Technical Specifications will be taken.

As a result of concerns raised by the staff at our meeting of March 14, 1984, NNECO will modify the sump level monitoring system to alarm, via the plant computer system, on an increase in level which corresponds to a 1 GPM leak within 1 hour.

#### Status (3.84)

Confirmatory.



Open Items

Auxiliary Systems Branch

ASB-6 Common Leakage Equivalent (Draft SER Section 5.2.5)

Procedures for converting various indicators to a common leakage equivalent should be available to the operator.

Response (3/84)

The procedures for converting various indicators to a common leakage equivalent will be available to the operator.

Status (3/84)

Closed.



Open Items

Auxiliary Systems Branch

ASB-7 Technical Specifications (Draft SER Section 5.2.5)

The Technical Specifications should include the limiting conditions for identified and unidentified leakage and address the availability of various types of instruments to ensure adequate coverage at all times.

Response (3/84)

The Draft Technical Specifications which are scheduled for the NRC submittal in November 1984 will include the limiting conditions for identified and unidentified leakage and address the availability of various types of instruments to ensure adequate coverage at all times.

Status (3/84)

Confirmatory.



Open Items

Auxiliary Systems Branch

ASB-8 Spent Fuel Pool Storage Gates (Draft SER Section 9.1.2)

The applicant has not indicated the seismic classification of the fuel pool gates.

Response (3/84)

The spent fuel pool gates are designed and classified as Seismic Category I.

Status (3/84)

Closed.



## Open Items

### Auxiliary Systems Branch

#### ASB-13 Plant Floor Drainage Drawings (Draft SER Section 9.3.3)

To complete its evaluation, the staff requires plant floor drainage drawings for review. Pending this review, the staff cannot conclude that the system design meets the pertinent requirements of GDC 6C. This is an open item.

#### Response (3/84)

A discussion of the drainage system for the turbine building was provided using marked up P&IDs and floor drainage drawings during the NRC-ASB meeting.

#### Status (3/84)

Closed.



## Open Items

### Auxiliary Systems Branch

#### ASB-14 Emergency Air Pressurization System (Draft SER Section 9.4.1)

The control room pressurization system, which is used during the first hour after an accident, is not designed to seismic Category I requirements. The air bottles are designed to ASME Code, Section VIII criteria, and the piping and valves are designed to ANSI B-31.1 criteria. This system should be designed to seismic Category I requirements per control room habitability analysis. This is an open item. The staff will report resolution of this open item in its final SER. Thus, the staff cannot conclude that the control room ventilation system meets the requirements of GDC 2 and the guidelines of Regulatory Guide 1.29, Positions C.1 and C.2.

#### Response (3/84)

The control room air pressurization system will be designed to Seismic Category I requirements. The system will meet the guidelines of Regulatory Guide 1.29, Positions C.1 and C.2.

#### Status (3/84)

Closed.



## Open Items

### Auxiliary Systems Branch

#### ASB-16 and 20 Condenser Circulating Water Pit (Draft SER Sections 9.3.3, 10.4.5)

The applicant has not provided adequate information on whether the sump alarm system is safety related or the consequences if the circulating pumps are not stopped within 15 min. If the sump and alarm system is not safety related, the applicant should confirm that continued operation of these pumps could cause the water to flow out of the turbine building through scuppers and doors to the yard and no damage to the safety-related equipment would occur. Shutdown of the pumps would eventually stop the flow. This is an open item.

#### Response (3/84)

FSAR Section 10.4.5.3 which addresses a circulating water expansion joint rupture states that the water level within the turbine building could reach elevation 21 feet - 6 inches if an operator were to delay responding to the sump alarm for a period of 15 minutes. No damage to safety-related equipment would occur at this water level. Although the circulating water discharge pit level alarm is not safety related, numerous other alarms would be generated in addition to a turbine trip signal, prior to the water level reaching this elevation.

#### Status (3/84)

Open.



## Open Items

### Auxiliary Systems Branch

#### ASB-17 Spent Fuel Storage Materials in Pool and Neutron Absorber Information (Draft SER Section 9.1.2)

Nuclear reactor plants include storage facilities for the wet storage of spent fuel assemblies. The safety function of the spent fuel pool and storage racks is to maintain the spent fuel assemblies in a subcritical array during all credible storage conditions. The staff has reviewed the compatibility and chemical stability of the materials (except the fuel assemblies) wetted by the pool water.

The information provided in the FSAR was not sufficient for the staff to complete its evaluation. The applicant provided additional information by letters dated July 1 and August 1, 1983. The information provided in the applicant's responses is insufficient for the completion of the staff's evaluation. The staff still needs the following information:

- (1) Identify and list by either brand name, generic name (e.g., S. S. type 304, 316), or industry specification all materials in the spent fuel storage pool, including the neutron poison material, rack leveling feet, and rack frame.
- (2) Provide test or operating data that afford assurance that the neutron poison material will not degrade during the lifetime of the spent fuel storage pool.

#### Response (3/84)

- (1) The spent fuel liner, gates, and all spent fuel appurtenances exposed to boric water, are fabricated from Type 304 stainless steel. The spent fuel racks, including the rack frame and leveling feet, but excluding the neutron poison material, are fabricated from Type 304 stainless steel. The neutron poison material is Boraflex, which consists of fine particles of boron carbide encapsulated in polydimethyl siloxane. Boraflex is manufactured by Brand Industrial Services, Inc. (BISCO).
- (2) The test program followed to demonstrate the acceptability of Boraflex performance in a spent fuel environment, is described in BISCO report 748-10-L "Irradiation Study of Boraflex Neutron Shielding Materials," dated July 25, 1979. Additional assurance against the degradation of Boraflex over the lifetime of the spent fuel pool, will be provided by an in-use surveillance program. This program is discussed in Section 9.1.2.3 of the FSAR.

#### Status (3/84)

Confirmatory.



## Open Items

### Auxiliary Systems Branch

#### ASB-18 AFW Reliability Study (Draft SER Section 10.4.9)

The applicant has not submitted the AFW reliability analysis for staff review; the staff, therefore, cannot confirm the applicant's results.

#### Response (3/84)

The Section 2.3.3.5 of Probabilistic Safety Study (PSS) for the AFW reliability analysis was provided to the NRC Staff for their review prior to the ASB meeting. The NRC Staff indicated that the methodology used in the PSS study differs from the Standard Review Plan (SRP) guidelines. The NRC Staff stated that NNECO provide the justification for the deviation from the SRP guidelines or submit a separate reliability study for the AFW system.

#### Status (3/84)

Open.



## Open Items

### Auxiliary Systems Branch

#### ASB-19 Technical Specifications (Draft SER Section 10.4.9)

In its evaluation, the staff concludes that the AFWS meets the recommendations of NUREG-0611 pending satisfactory review of plant Technical Specifications for outage time limits and the 48-hour endurance test and plant emergency procedures for initiation of backup alternate water supply and verification of valve alignment after testing and maintenance.

#### Response (3/84)

The AFWS Technical Specification Outage Time Limits will be available for review upon the submittal of the Draft Technical Specifications in November 1984. The Plant Emergency Procedures (EOP) are expected to be completed and available for review by October, 1984. The AFWS 48 hour endurance test will be available for review upon completion.

#### Status (3/84)

Confirmatory.