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The Northeast Utilities System

SEP 24 1998

Docket No. 50-336
B17451

Re: 10CFR50.12
10CFR50, Appendix R

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Millstone Nuclear Power Station, Unit No. 2
10CFR50, Appendix R
Response to Request for Additional Information (TAC No. MA2416)

In a letter dated July 31, 1998,[1] Northeast Nuclear Energy Company (NNECO), on behalf of Millstone Unit No. 2, requested three exemptions from the requirements of 10CFR50, Appendix R, Section III.G, and one exemption from the requirements of 10CFR50, Appendix R, Section III.J. In a letter dated September 10, 1998,[2] the NRC Staff requested additional information to support their review of the exemption requests. NNECO hereby submits our response to the information requested by the NRC Staff (Attachment 1).

Should you have any questions regarding this submittal, please contact Mr. Ravi Joshi at (860) 440-2080.

NORTHEAST NUCLEAR ENERGY COMPANY

M L Bowling

Martin L. Bowling, Jr.
Recovery Officer - Technical Services

Attachments (2)
cc: See Page 2

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(1) M.L. Bowling letter to U.S. Nuclear Regulatory Commission, "Millstone Nuclear Power Station, Unit No. 2 10CFR50, Appendix R Request for Exemptions," dated July 31, 1998.

(2) D. G. McDonald letter to M. L. Bowling, "Request for Additional Information Regarding Four 10CFR Part 50, Appendix R, Exemption Requests - Millstone Nuclear Power Station, Unit No. 2 (TAC No. MA2416)," dated September 10, 1998.

cc: H. J. Miller, Region I Administrator
D. G. McDonald, Jr., NRC Senior Project Manager, Millstone Unit No. 2
D. P. Beaulieu, Senior Resident Inspector, Millstone Unit No. 2
E. V. Imbro, Director, Millstone ICAVP Inspections

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Attachment 1

Millstone Nuclear Power Station, Unit No. 2
Response to Request for Additional Information

September 1998

Millstone Unit No. 2
Response to Request for Additional Information

Request 1.

It has recently been revealed that Millstone Unit 1 will be permanently shutdown and decommissioned. The current Appendix R Compliance Review relies on a backfeed from Unit 1 to power Unit 2 for safe shutdown in the event of certain postulated fires in the Intake Structure and East 480 V Switchgear Room. Discuss whether or not the decommissioning of Millstone Unit 1 will affect compliance with Appendix R for Unit 2.

Response 1:

The decommissioning of Millstone Unit 1 will not affect compliance with Appendix R for Unit 2.

Millstone Unit 2 Technical Requirements Manual (TRM) Section 3.0 governs Appendix R safe shutdown-related equipment. TRM Table I, the Appendix R Safe Shutdown-Related Equipment List, identifies the required equipment, Appendix R operability requirements, compensatory measures and surveillance requirements. Item number 62 is the Bus 14H tie to Millstone 1 and requires that Bus 14H must be capable of being powered by Unit 1. The surveillance verifies that Bus 14H can be powered from at least one Unit 1 power supply and can be crosstied to Unit 2.

Although it is anticipated that changes will be necessary as decommissioning progresses, both Millstone 1 and Millstone 2 must maintain the present licensing and design bases requirements unless or until revised by appropriate means.

Request 2.

On page 18 of your submittal, you state: "The charging pumps are spaced approximately 18′ from each other and are separated by reinforced concrete missile shield partial height walls approximately 17′ on center and approximately two feet thick." You do not state how high the partial height walls are. State the height of the partial height walls and the height of the ceiling in the charging pump room.

Response 2:

The partial height walls that separate the charging pumps are 10.5 ft. high. The ceiling height in the charging pump room is approximately 18 feet.

Request 3.

On page 26 of your submittal, you state: "...security lighting shall be credited for access and egress route emergency lighting in lieu of an 8-hour battery supply in the yard area." State if 8-hour battery powered emergency lighting is available to provide proper illumination for actions to be taken at Electrical Bus 14H, the Intake Structure and the RWST pipe enclosure.

Response 3:

Fixed 8-hour rated emergency lighting units will be available to provide illumination in accordance with Appendix R requirements for actions to be taken at Electrical Bus 14H, the Intake Structure and the RWST pipe enclosure. NNECO is in the process of implementing design modifications adding emergency lighting units in the Intake Structure and RWST pipe enclosure. (These modifications will be complete prior to Mode 4.) Emergency lighting units in the Unit 1 Electrical Bus 14H Enclosure have been previously installed to support Appendix R safe shutdown at this location.

Although it is not expected that the normal lighting in the Unit 1 Bus 14H Enclosure will be impacted by a Unit 2 fire event, the Unit 1 emergency lighting units provided in the Bus 14H Enclosure will activate on a loss of normal lighting in this area.

Request 4.

On page 28, you further state: "There are portable lighting units dedicated for operations department use." State the type of portable lighting provided and the frequency of functional checks on this equipment.

Response 4:

The portable lighting units are of the hand held battle lantern type, 7.5V DC, manufactured by Ritelite or equivalent. Functional checks and inventory of these lights are performed monthly in accordance with plant procedures.

Request 5.

On page 10 of your submittal you state: "Cables associated with Appendix R equipment are also located in the area, specifically cables associated with both trains of low pressure safety injection (LPSI A and B), and reactor building component cooling water (RBCCW A and B). State how these cables associated with Appendix R equipment are protected from fire damage.

Response 5:

The strategy for this area is in accordance with 10CFR50 Appendix R Sections III.G.1.b and III.L.5 for the repair of cold shutdown equipment. One train of LPSI and RBCCW are required to achieve and maintain cold shutdown conditions, but are not required to

meet hot shutdown. Both trains may fail in the event of fire in the East 480V Switchgear Room, Fire Area R-11, due to fire damage to pump power cables. The Appendix R compliance strategy for this area specifically relies on the repair of LPSI Pump P42A and RBCCW Pump P11A power cables. The materials and appropriate procedures for these repairs will be available prior to Mode 4.

Request 6.

Discuss how defense-in-depth is provided for in the charging pump room, where there is only fire detection and a fire extinguisher provided. In your response, discuss how, if the fire detection were to fail and there are no other means to detect the fire, it would not spread from one pump to another.

Response 6:

Defense-in-depth against fires at the unit is consistent with the requirements of 10CFR50 Appendix R Section II.A and consists of the following objectives:

a. To prevent fires from starting;

b. To detect rapidly, control, and extinguish promptly those fires that do occur;

c. To provide protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by the fire suppression activities will not prevent the safe shutdown of the plant.

This approach recognizes that while no one barrier is perfect, having multiple barriers ensures that the public is adequately protected from the impact of potential fires at the plant. With respect to the methods which provide defense-in-depth in the charging pump room:

a. Transient combustibles and ignition sources are procedurally controlled. A fire permit is required prior to introduction of transient combustibles or ignition sources into any area of the power block. The permit identifies the requisites to limit fire risk (e.g. limits on the quantity of combustibles, fire blankets, hot work watch).

As described in the July 31, 1998, exemption request, the fixed combustibles in the room are limited. Electrical cable within the room is IEEE-383 qualified and will burn only while it is exposed to an open flame. Given these facts, it is unlikely that a fire would occur in the charging pump room, or if one did occur, that it would result in any significant damage.

b. Fires are rapidly detected in this area by the ionization smoke detection system installed in the area, Fire Area R-4. Once detected, the fire in this

area is rapidly suppressed by the manual fire fighting capability provided by the dedicated site fire brigade using a manual hose station (located in adjacent fire area R-1) and portable extinguishers.

The fire detection system is maintained and surveilled to ensure the availability and operability of this system. A trouble alarm and buzzer annunciate in the control room on either a loss of power or an open circuit in the detector string. It is highly unlikely that the area-wide detection system would fail in the energized state at the start of the fire event. This would require that all five detectors fail energized. If any detector in the circuit failed open (the fire alarm state), this would actuate a trouble alarm in the control room. The alarm response procedure requires the operators to determine the cause of the alarm.

If a fire were to occur in the charging pump room and the fire detectors failed to detect the fire, at some point damage to a charging pump or attendant instrumentation could occur and would most likely generate charging pump trouble alarms in the control room. The annunciator response procedure requires operators to enter the charging pump area to investigate the cause of the alarms. This includes entry into the charging pump room on a low lube oil pressure alarm, seal lube system pressure hi/lo alarm or low charging flow alarm. Also, any fire large enough to damage a charging pump would generate significant amounts of smoke.

Given the above, it is unlikely that a fire in the charging pump room would not be promptly detected and suppressed.

c. In the event that a fire occurred in the charging pump room and was not promptly detected and suppressed, adequate separation is provided between the charging pumps to ensure that at least one pump survives the fire and remains available to support hot shutdown. The following physical features support this conclusion:

- The pumps are separated by 10.5 foot high and 2 foot thick missile walls, as well as by 18 feet of horizontal spatial separation between redundant charging pumps.

- The Z2 Facility power cables for two of the pumps will be rerouted through the floor of the room through another fire area.

- Curbs are provided to prevent spilled lubricating oil from one pump from affecting the other two pumps.

- Intervening combustibles are limited to several lightly loaded cable trays containing cables which self-extinguish in the absence of a flame source.

- The fire loading in the room is low.

- The ceiling height (approximately 18 feet) contributes to heat dissipation in the event of a fire.

Request 7.

On page 21 of your submittal, you state: "To ensure the post fire safe shutdown capability in this area, the Technical Requirements Manual (TRM) will be revised to include operational restrictions on the "B" and "C" charging pumps to limit the duration when one of these pumps is out of service. The TRM will also specify compensatory measures to be implemented to provide additional fire protection capability in the area of concern when one of these pumps is out of service." State, specifically, what operational restriction will be put in place. State, specifically, what compensatory measures will be implemented. State the schedule for these changes to the TRM.

Response 7:

The operational restrictions and compensatory measures to ensure the availability of the "B" and "C" charging pumps for a charging pump room fire will be:

a. Restore both charging pumps "B" and "C" to operability within seven days, or

b. Implement the following compensatory measures:

- Establish a one-hour roving fire watch in the charging pump room, and

- Verify the operability of fire suppression and detection systems and lack of transient combustibles in the charging pump room on a daily basis.

The Charging Pump Room does not have a fixed suppression system. Therefore, the requirement to verify operability of fire suppression refers to the portable extinguisher inside the room and the hose station outside the room.

Implementation of the above compensatory measures will allow continued operation for up to sixty days pending restoration of charging pump "B" and "C" operability.

c. A Justification for Continued Operation (JCO) will be prepared if charging pump "B" and "C" operability cannot be established within sixty days. Time constraints for continued operation will be identified and justified in the JCO.

d. If charging pumps "B" and "C" cannot be restored to operability within sixty days, and a Justification for Continued Operation cannot be prepared, the Unit will be placed in at least hot standby within the next six hours and in cold shutdown within the following twenty four hours.

This TRM change will be implemented after completion of the charging pump "B" and "C" Z2 cable reroutes, and issuance of Revision 3 of the Appendix R Compliance Report. These items are scheduled for completion prior to Mode 4.