

NORTHEAST UTILITIES



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

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December 31, 1990

Docket No. 50-245

B13614

Re: 10CFR50.90

Generic Letter 88-01

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

Gentlemen:

Millstone Nuclear Power Station, Unit No. 1
Proposed Revision to Technical Specifications
Reactor Coolant Leakage

Pursuant to 10CFR50.90, Northeast Nuclear Energy Company (NNECO), hereby proposes to amend Operating License DPR-21 by incorporating the changes identified in Attachment 1 into the Technical Specifications of Millstone Unit No. 1.

Section 3.6.D of the current Millstone Unit No. 1 Technical Specifications requires that any time irradiated fuel is in the reactor vessel, reactor coolant leakage into the primary containment from unidentified sources shall not exceed 2.5 gpm. In addition, the total reactor coolant system (RCS) leakage into the primary containment shall not exceed 25 gpm. If these conditions cannot be met, or if the leak rate cannot be determined, an orderly shutdown must be initiated and the reactor must be placed in the Cold Shutdown condition within 24 hours. The corresponding surveillance requirement, 4.6.D, specifies that reactor coolant leakage into the primary containment be checked and recorded at least once per day. These requirements are implemented using Station Procedure SP635.1 via draining the drywell sumps and calculating the total leakage rate. This station procedure is more stringent than Surveillance Requirement 4.6.D, in that it requires the surveillance be performed every four hours. It meets the intent of the original Staff position on leak detection provided in Generic Letter (GL) 88-01.

Description of Proposed Changes

The proposed change to Section 3.6.D allows the reactor to be in the Refuel condition if the leakage rate into the primary containment cannot be determined or met. The proposed change to Surveillance Requirement 4.6.D limits the applicability for monitoring leakage to conditions requiring primary containment integrity. This change is being proposed to alleviate the requirement to drain the drywell sumps and calculate leakage during refueling outages. This would allow the sumps to remain filled during shutdown, thus providing radiation shielding for workers in the drywell. Moreover, the wording contained in Section 3.6.D implies that the RCS leakage rate surveillance is not required to be performed as long as the reactor is in the

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Cold Shutdown condition, yet the surveillance requirement does not reflect this allowance. The proposed change will make the two sections more compatible. It should be noted that this proposed change completes the actions relating to Unresolved Item 50-245/89-08-03,⁽¹⁾ "Primary System Boundary Leakage Technical Specification Limits."

Also, in response to the Staff's Safety Evaluation⁽²⁾ relating to NNECO's response to 88-01, NNECO is proposing to change the RCS leakage surveillance requirement from once per day to once every 8 hours. While the Generic Letter originally required RCS leakage measurements to be taken every 4 hours (which NNECO performs using Station Procedure 635.1), subsequent discussions with BWR operators convinced the Staff that monitoring every 4 hours creates an unnecessary administrative hardship on plant operators. Accordingly, in the above mentioned Safety Evaluation, the Staff stated that leakage measurements may be taken every 8 hours.

NNECO continues to believe that a change to the Millstone Unit No. 1 Technical Specifications to include a statement regarding the Intergranular Stress Corrosion Cracking (IGSCC) requirements of GL 88-01 is not warranted. As stated in previous correspondence,⁽³⁾ the IGSCC inspection program is controlled in accordance with Nuclear Engineering and Operating procedures and implemented in accordance with the same. In addition, the IGSCC inspection requirements are part of the Millstone Unit No. 1 Inservice Inspection Program, which is referenced in the Technical Specifications. Therefore, inclusion of these requirements in the Technical Specifications would be redundant. It is our understanding that several other BWR utilities have also taken exception to this particular position of GL 88-01.

The Bases of the Millstone Unit No. 1 Technical Specifications are also being revised to reflect the changes to Sections 3.6.D and 4.6.D described above.

Discussion

NNECO believes reactor coolant leak rate monitoring is not necessary during Cold Shutdown or Refueling conditions because with reactor coolant temperature less than 212°F, crack initiation and/or propagation is not likely.

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- (1) E. C. Wenzinger letter to E. J. Mroczka, "NRC Region I Inspection No. 50-245/90-12," dated September 12, 1990.
 - (2) M. L. Boyle letter to E. J. Mroczka, "Review of Licensee Response to Generic Letter 88-10, Millstone Nuclear Power Station, Unit No. 1," dated December 1, 1989.
 - (3) E. J. Mroczka letter to U.S. Nuclear Regulatory Commission, "Response to Generic Letter 88-01--IGSCC in Austenitic Stainless Steel Piping," dated July 27, 1988.

The proposed Technical Specification change (relating to applicability) affects only Cold Shutdown and Refuel conditions and has no impact on the capability to check for leakage during power operation. Nor does this change alter the leak rate sensitivity or leakage limit. Therefore, this change has no negative impact on operating conditions as defined in the Technical Specifications, nor does it affect the design basis accidents associated with the subject leak detection requirements. Moreover, it does not decrease the available core cooling capability for a potential draining of the reactor vessel at any time. As stated above, the purpose of the proposed change is to provide radiation shielding for personnel working in the drywell by allowing the drywell sumps to remain filled during shutdown.

In addition, the leak rate Technical Specification surveillance frequency is being conservatively changed from once per day to once every 8 hours per the Staff's request.

Significant Hazards Consideration

NNECO has reviewed the proposed changes in accordance with 10CFR50.92 and has concluded that the changes do not involve a significant hazards consideration because the changes would not:

- 1.* Involve a significant increase in the probability or consequences of an accident previously analyzed.

The proposed change requires the reactor to be in the Cold Shutdown or Refuel condition within 24 hours if the reactor coolant leakage rate cannot be determined or met, and limits the applicability for monitoring leakage to conditions when primary containment integrity is required. Therefore, the requirement to drain the sumps to calculate leakage would not apply during Cold Shutdown and Refueling conditions. This will allow for the sumps to remain filled during shutdown in order to provide radiation shielding for workers in the drywell.

One of the purposes of the reactor coolant leakage detection system is to detect leaks that could be an indication of imminent pipe crack propagation/failure. During Cold Shutdown or Refueling conditions, this precursor detection system can be made insensitive by flooding the sumps. However, during Cold Shutdown with reactor coolant temperature less than 212°F, crack initiation and/or propagation is not likely. Thus, a LOCA leading to significant loss-of-coolant due to crack propagation is not a credible scenario during Cold Shutdown or Refueling conditions.

During power operation, drywell and equipment drain sump leak detection operability and monitoring requirements are not changed except that the RCS leakage into primary containment shall be checked and recorded once every 8 hours instead of once per day, which is more conservative. Thus plant response during power operation is unaffected.

Hence, there is no impact on the probability or consequences of an accident previously analyzed.

2. Create the possibility of a new or different kind of accident from any previously analyzed.

As stated above, during power operation, drywell and equipment drain sump leak detection operability and monitoring requirements are not changed except that the RCS leakage into primary containment shall be checked and recorded once every 8 hours instead of once per day, which is more conservative. Thus plant response during power operation is unaffected.

During shutdown, with the sumps flooded, sensitivity to small leaks is not available. In the event that a small leak were to occur, there is no safety concern (and plant response is not modified to the point where it could be considered a new accident) for the following reasons:

- o The reactor is shutdown; therefore, initial fuel temperatures (decay heat) are low.
- o The reactor is at low pressure (<212°F, vented) and there are many makeup systems available.
- o There is ample operator time available and any substantial loss would be indicated in the control room.
- o Any crack leaking a small amount of coolant would not be expected to grow.

In addition, relatively large (noncrack) loss-of-coolant events (valve misoperation, operator error, etc.) could be detected while the sumps are flooded via:

- o Vessel level indication in the control room.
- o Personnel working in the drywell noticing water/sump overflow.
- o Loss of water level in the spent fuel pool (if in the refuel condition).

All of these indications allow the operator approximately the same time to respond as would exist if the sumps were not flooded, given the relatively large flow rates expected. Thus, plant response is not modified to the point where it can be considered a new accident.

3. Involve a significant reduction in a margin of safety.

The current Technical Specification 3.6.D requires that the reactor be placed in the Cold Shutdown condition if reactor coolant leak rate limits

are exceeded or cannot be determined. However, Surveillance Requirement 4.6.D states that coolant leakage be checked and recorded daily. Thus, the current Technical Specifications allow for the inability to measure primary containment leakage as long as the reactor is in a Cold Shutdown condition; even though requiring leakage to be recorded daily. The proposed change alleviates this contradiction by removing the requirement to check and record containment leakage daily when in the Cold Shutdown or Refuel conditions.

The Cold Shutdown and Refueling modes are similar except for refueling provisions such as cavity flooding, head removal, etc. During Cold Shutdown the reactor coolant temperature is less than 212°F with only static head pressure, since the reactor vessel is vented. Accordingly, crack initiation and/or propagation during Cold Shutdown is not likely. Low reactor water level instrumentation remains operable during Cold Shutdown, and is set to trip when reactor water level is 127 inches above the top of the active fuel. For this trip setting, the primary containment isolation valves will close before core uncover occurs even for the maximum break in the line. In addition, during refueling outages the available low pressure core cooling systems are lined up to the condensate storage tank which supplements the reactor cavity water with an additional 450,000 gallons of water. In conclusion, provisions for precluding core uncover are in place during Cold Shutdown and Refueling Conditions, and the inability to monitor leakage via the sumps has minimal safety significance.

Thus, the margin of safety is not significantly reduced.

The Commission has provided guidance concerning the application of standards in 10CFR50.92 by providing certain examples (March 6, 1986, 51FR7751) of amendments that are considered not likely to involve a significant hazards consideration. Although the proposed change is not enveloped by a specific example, the change would not involve a significant increase in the probability or consequences of an accident previously analyzed. Currently, the Technical Specifications require that any time irradiated fuel is in the reactor vessel, reactor coolant leakage into the primary containment from unidentified sources shall not exceed 2.5 gpm. In addition, the total RCS leakage into the primary containment shall not exceed 25 gpm. If these conditions cannot be met, or if the leak rate cannot be determined, an orderly shutdown must be initiated and the reactor must be placed in the Cold Shutdown condition within 24 hours. The proposed change would allow the reactor to also be in the Refuel condition if the leakage rate cannot be determined or met. A change to the surveillance requirement for primary system boundary coolant leakage is being proposed which would limit the applicability for monitoring unidentified leakage to conditions requiring primary containment integrity. The proposed change eliminates the requirement to drain the floor sumps and calculate leakage during shutdown and refueling outages. The Cold Shutdown and Refueling modes are much the same except for refueling provisions, such as cavity flooding, head removal, etc. During Cold Shutdown

the reactor coolant temperature is less than 212°F with only static head pressure, since the reactor vessel is vented. Accordingly, crack initiation and/or propagation during Cold Shutdown or Refueling conditions is not likely. Furthermore, the low reactor water level instrumentation remains operable during Cold Shutdown. In conclusion, provisions for precluding core uncover are in place during Cold Shutdown and Refueling, and determining sump volume to monitor for leakage provides minimal benefit. Also, the RCS leakage surveillance requirement is being changed from once per day to once every 8 hours in response to the Staff's request contained in the GL 88-01 Safety Evaluation for Millstone Unit No. 1.

Based upon the information contained in this submittal and the environmental assessment for Millstone Unit No. 1, there are no significant radiological or nonradiological impacts associated with the proposed action, and that the proposed license amendment will not have a significant affect on the quality of the human environment.

The Millstone Unit No. 1 Nuclear Review Board has reviewed and approved the proposed change and has concurred with the above determinations.

In accordance with 10CFR50.91(b), NNECO is providing the State of Connecticut with a copy of this proposed amendment.

As this change affects refueling activities, NNECO respectfully requests that this license amendment be approved prior to the next refueling outage, which is currently scheduled to begin on March 30, 1991. We request that this proposed change become effective immediately upon issuance.

Should you have any questions regarding this submittal, please contact us.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

FOR: E. J. Mroczka
E. J. Mroczka
Senior Vice President

BY: W. D. Romberg
W. D. Romberg
Vice President

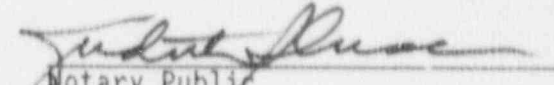
cc: Mr. Kevin McCarthy, Director
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U.S. Nuclear Regulatory Commission
B13614/Page 7
December 31, 1990

T. T. Martin, Region I Administrator
M. L. Boyle, NRC Project Manager, Millstone Unit No. 1
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3

STATE OF CONNECTICUT)
) ss. Berlin
COUNTY OF HARTFORD)

Then personally appeared before me, W. D. Romberg, who being duly sworn, did state that he is Vice President of Northeast Nuclear Energy Company, a Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensee 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: 3/31/93