PROPOSED RULE PR-[illegible] (17)
(51 FR 26393)

NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
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Docket Nos. 50-213
50-245
50-336
50-423
B12263

Mr. Samuel J. Chilk, Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
Attn: Docket and Service Branch

Dear Sir:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1, 2 and 3
Comments on the Proposed Revision to General Design Criterion 4

On July 23, 1986, the Commission published for comment a proposed rule modifying the requirements of General Design Criterion (GDC) 4 of Appendix A to 10CFR50 (51 FR 26393). Northeast Utilities Service Company (NUSCO) has reviewed the proposed rule and offers the following comments on behalf of the Connecticut Yankee Atomic Power Company and Northeast Nuclear Energy Company, licensees for the Haddam Neck Plant and Millstone Unit Nos. 1, 2 and 3, respectively.

NUSCO is very supportive of the intent of the proposed rule and commends the NRC Staff for their prompt action in developing the rule changes necessary for extending the application of leak-before-break methodology to piping systems other than primary loop piping at pressurized water reactors.

The Commission specifically requested comments on the following six topics:

1. Value impacts associated with the expanded modification to GDC 4, with particular reference to experience with the use of pipe whip restraints and jet impingement shields near nuclear reactor piping.

   Comment

   With respect to reduction in worker radiation exposure, we concur that the average savings will be in the range of hundreds to thousands of person-rem per plant. The more significant savings will occur at the older stations as the number of required backfits will be minimized.

   Regarding public exposure, some effort should have been made to quantify the potential reduction in expected public exposure due to lower stresses and improved inspections. These reductions may have been

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sufficient to fully offset the stated increases in expected public exposure. This type of analysis should be even-handed in its treatment of risk.

With respect to cost savings resulting from this rule, it is true that the largest cost savings will be realized on future plants, or plants under construction. However, improvements on operating plants for which the effects of double ended pipe breaks can be excluded from the design basis can, most certainly, result in substantial cost savings. For example, we estimate that a savings of $6 million dollars will be realized at the Haddam Neck plant by avoiding major pipe whip backfits.

2. The scope of piping which could or should be affected, supported by technical justifications.

Comment

The scope of the proposed rule is limited to high energy piping systems (i.e., pressure greater than 275 psig and temperature greater than 200°F). Since fracture meachanics analysis accounts for different temperatures and pressures, there is no reason to limit application of leak-before-break methodology to high energy piping systems only. We believe that the rule should allow exclusion of the effects of pipe breaks or through-wall leakage cracks from the plant design basis for any piping system or component based on acceptable results of fracture mechanics analyses and existence of adequate leak detection methods.

3. The decision to limit impacts of this modification of GDC 4 to only dynamic effects associated with pipe rupture.

Comment

The Commission recognizes that this rule will introduce an inconsistency into the design basis by excluding only the dynamic effects of postulated pipe ruptures while still retaining non-mechanistic pipe ruptures in the requirements for emergency core cooling systems, containments and environmental qualification. Follow-on efforts should be undertaken to reconsider the design bases for containment, emergency core cooling systems, and environmental qualification of equipment. Where older plants do not meet current requirements, consideration should be given to exemptions based on satisfactory leak-before-break analyses.

4. The acceptance criteria which the Commission proposes to use to evaluate whether leak-before-break technology is applicable to specific situations.

Comment

The proposed acceptance criteria for applicability of leak-before-break methodology to other piping systems are consistent with those that have

been endorsed by the nuclear industry for application of leak-before-break to PWR primary loop piping and, therefore, should be acceptable. However, the Regulatory Guide and Standard Review Plan section for this rule should allow any alternate leak detection method which provides acceptable results, rather than strict adherance to Regulatory Guide 1.45. For example, scheduled operator walkdowns can provide excellent assurance of leak detection.

5. Acceptable allowables for pipe connected component supports which would provide adequate assurance that component support failure would not be a source of the pipe rupture loads being eliminated from the design basis.

   Comment

   The proposed rule finds that the use of ASME code allowables is sufficient for preventing pipe rupture due to component support failure. While we believe that this is a good general guideline, we feel that older plants (i.e., pre-ASME) should not necessarily be held to this standard. Any increase in safety perceived to result from upgrading existing supports to meet ASME allowables must be weighed against the cost, radiation exposure, and other factors required to perform the backfit as required by 10 CFR 50.109. We feel that a more appropriate allowable in cases where a backfit is not justified would be no failure under accident conditions (i.e., a safety factor of 1.0). The analysis method should be inherently conservative, but no explicit safety factor should be required.

6. The imposition of the 750°F temperature limitation is a way of avoiding concerns with creep damage.

   Comment

   We believe that the 750°F temperature limitation is reasonable for materials of high energy piping systems since it is a conservative method of avoiding creep damage and does not create any operational hardship.

We appreciate the opportunity to provide our comments on the proposed rule. We remain available to discuss our views on this proposed rule with the Staff as necessary.

Very truly yours,

NORTHEAST UTILITIES SERVICE COMPANY

J. F. Opeka
Senior Vice President