



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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October 22, 1996

Mr. Ralph E. Beedle
Senior Vice President
and Chief Nuclear Officer
Nuclear Generation
Nuclear Energy Institute (NEI)
1776 Eye Street, N.W., Suite 300
Washington, D.C. 20006-3706

Dear Mr. Beedle:

I am responding to your letter of September 30, 1996, regarding your concern that the maintenance rule baseline inspections have identified a generic industry issue. Your letter described the NRC's position on the use of reliability as a performance "indicator," discussed the industry's choice of reliability performance indicators, and implied the NRC has established "new interpretations of compliance expectations through inspection and enforcement."

I, too, am concerned that the industry and regulatory guidance developed over the last several years may not be completely understood by the licensees, even though the nine site pilot visits did not reveal such a problem. My concern is based on the fact that, in four out of the five maintenance rule baseline inspections (MRBIs) completed by the NRC through October 4, 1996, potential violations of 10 CFR 50.65 (the Maintenance Rule) have been found in the area of goals and performance criteria that the licensees have established for reliability of systems, structures, trains, and components (SSCs). (A more detailed explanation of my concern is contained in the enclosure.)

Paragraph (a)(1) of the maintenance rule requires that "goals shall be established commensurate with safety" Although not a requirement, quantitative methods -- with individual plant examinations (IPEs) or plant-specific probabilistic risk assessments (PRAs), for example, as the basis -- have been used to establish this required link with safety. Your guidance document, NUMARC 93-01, ties the requirements for goals (10 CFR 50.65 (a)(1)) to similar requirements for performance criteria (10 CFR 50.65 (a)(2)). NUMARC 93-01, Paragraph 9.3.2, "Performance Criteria for Evaluating SSCs," states, "Performance criteria for risk significant SSCs should be established to assure that reliability and availability assumptions used in the plant-specific PRA, IPE, IPEEE, or other risk determining analysis are maintained or adjusted when determined necessary by the utility." It is the lack of a clear link to PRA/IPE/IPEEE or other reliability assumptions that is at the root of the NRC's concerns.

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Maintaining the link between reliability assumptions in the plant-specific risk-determining analysis and the performance standards under the maintenance rule has been a longstanding position of the agency. For example, the meeting summary regarding the April 22, 1992, NRC/NUMARC public meeting for developing maintenance rule implementation guidance noted:

"The Industry Guideline allows but does not recommend or require the use of IPE/PRA results for performance criteria or goal setting. The NRC believes the maintenance (monitoring) results should be used to confirm performance and conditions (including component and train availability and reliability) in available IPE/PRA and other safety analysis results."

As indicated above, this concern was resolved prior to the NRC's endorsement of NUMARC 93-01.

The maintenance rule is a risk-informed, performance based regulation that requires licensees to provide reasonable assurance that SSCs remain capable of performing their intended functions. The NRC does not expect licensees to perform highly sophisticated, rigorous analyses to demonstrate that reliability performance criteria are mathematically equivalent to the values used in PRAs. Rather, our expectation is that licensees provide a reasonable and appropriate technical basis for selecting performance criteria to meet the regulation. However, it is expected that such approaches would incorporate some consideration of demands for standby systems and service time for normally operating systems.

Acceptable approaches exist for linking performance levels to safety (risk). During the nine pilot site visits performed to review early implementation of the maintenance rule, reviews of the licensees' goal- and performance criteria-setting processes were performed. As stated above, the inspectors found that licensees did understand the issues related to developing performance standards for reliability that were linked to safety. Several of those licensee programs described in significant detail the link to safety (risk) and justified the use of functional failures in the measure of SSC reliability. Therefore, the issue was not raised in the trip reports or meetings with NEI, since none existed.

In short, the NRC's position has been, and is, that performance standards -- goals and performance criteria -- must be demonstrably linked to safety, and our enforcement decisions will continue to be made based on licensee compliance with 10 CFR 50.65.

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As requested by your letter, a public meeting between the industry and the NRC was arranged and held on Tuesday, October 15, 1996, to discuss this issue. During that meeting, the staff and NEI agreed that additional guidance to the industry is warranted. On October 16, 1996, at an NEI workshop, discussions took place among industry participants to propose approaches to solution of the issue for further consideration. I anticipate that guidance on this issue will be promulgated by NEI at the earliest possible time so as to give those licensees that may not currently have acceptable reliability performance criteria the basis for making the necessary adjustments in their programs.

Sincerely,
Original signed by
Frank J. Miraglia

Frank J. Miraglia
Acting Director
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc: Thomas E. Tipton
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THE RELIABILITY PERFORMANCE STANDARD

NUMARC 93-01 defines reliability as "(a) measure of the expectation (assuming that the SSC is available) that the SSC will perform its function upon demand at any future instant in time." Numerically, for normally operating SSCs, reliability is the complement of the ratio of the expected number of failures to a given time of required performance. The ratio of functional failures to a specified number of operating hours could be shown to describe a reliability level that could be related to the plant-specific PRA/IPE/IPEEE or other risk-determining analysis.

Likewise, for standby SSCs, reliability is the complement of the ratio of the expected number of failures to a given number of start demands and, once started, run demands. The ratio of functional failures to a specified number of attempted starts and attempted runs could be shown to describe a reliability level that could be related to the plant-specific PRA/IPE/IPEEE or other risk-determining analysis.

In four of the five maintenance rule baseline inspections conducted thus far, the licensees used maintenance preventable functional failures (MPFFs) over time as their reliability performance standard. For normally operating SSCs, that performance standard could be acceptable if it described a satisfactory relationship to plant-specific PRA/IPE/IPEEE or other risk-determining analysis. The onus is upon the licensee to demonstrate the satisfactory nature of that relationship, and those four licensees had not done so.

More of a problem, however, was their use of MPFFs over time as a performance standard for standby SSCs. As described above, the reliability calculation for a standby SSC must incorporate both failures and demands. All four licensees failed to incorporate demands in their calculations and, therefore, used unacceptable performance standards, clearly not demonstrating a relationship to plant-specific PRA/IPE/IPEEE or other risk-determining analysis.

Enclosure