



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

ACRSR-2095

October 14, 2004

The Honorable Nils J. Diaz
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: DRAFT NUREG-XXXX, "THE REPORT ON THE INDEPENDENT
VERIFICATION OF THE MITIGATING SYSTEMS PERFORMANCE INDEX
(MSPI) RESULTS FOR THE PILOT PLANTS"

Dear Chairman Diaz:

During the 516th meeting of the Advisory Committee on Reactor Safeguards (ACRS), October 7-9, 2004, we reviewed draft NUREG-XXXX, "The Report on the Independent Verification of the Mitigating Systems Performance Index (MSPI) Results for the Pilot Plants." During this review, we had the benefit of discussions with the NRC staff. Our Subcommittees on Reliability and Probabilistic Risk Assessment and on Plant Operations reviewed this matter during a meeting held on April 14, 2004. We also had the benefit of the document referenced.

CONCLUSIONS AND RECOMMENDATIONS

The Mitigating System Performance Index is substantially superior to the group of safety system unavailability performance indicators, which it replaces. Draft NUREG-XXXX should be issued, its recommendations should be implemented, and the process for incorporating the MSPI into the Reactor Oversight Process should continue.

DISCUSSION

The Reactor Oversight Process (ROP) was developed to guide the staff in allocating resources to inspection and enforcement activities for power reactor licensees. This allocation of staff resources is based on the use of the ROP Action Matrix, which in turn is developed using risk-informed inspection findings and plant performance indicators (PIs) for the seven cornerstones of licensee performance. Several years ago, the Commission determined that it is desirable to move toward more risk-informed PIs as a way to refine and improve the Action Matrix and the ROP resource allocation process.

Over the last four years, the staff developed a method for calculating a risk-informed system-level MSPI. This MSPI would replace the Safety System Unavailability (SSU) PIs related to the availability of the mitigating and related support systems that were believed to be risk-important in most plants, but not equally so in all plants, depending on the degree of redundancy and other plant design features. The MSPI was based on the concepts of NUREG-1753 and was developed to overcome performance indicator variability caused by plant-specific features and characteristics, thus providing a better measure of mitigating system reliability and availability. The current MSPI formulation is risk-informed and generally plant-specific.

The MSPI addresses known issues with the current indicators by:

- eliminating the use of fault exposure time in the SSU PI
- incorporating an unreliability indicator
- defining unavailability consistently with the Maintenance Rule and the Institute for Nuclear Power Operations/World Association of Nuclear Operators (INPO/WANO) indicators
- incorporating a cooling water support system indicator and eliminating cascading of cooling water support system failures
- incorporating plant-specific thresholds

We commend the staff and industry for developing the MSPIs. These indicators should be implemented promptly.

The industry shared the MSPI development effort with the staff and issued draft NEI 99-02. A pilot program, consisting of data from 20 plants, was conducted in 2002, and evaluated in 2003. During the pilot program, a number of deficiencies were identified and corrected. The subsequent evaluation of the pilot program, described in draft NUREG-XXXX, resulted in six recommendations. These six recommendations address the major technical issues associated with the proposed MSPI formulation and should be implemented. The guidance in the draft Appendix F to NEI 99-02 and the NRC Inspection Manual will need to be modified to incorporate these recommendations.

We have previously provided recommendations on the elements of formulation of the MSPIs. Our recommendations have been incorporated into the current MSPI. The necessary elements required to implement the MSPIs are now fully identified and addressed. We recommend that the necessary documents be revised and issued and the MSPI program be initiated.

Sincerely,

/RA/

Mario V. Bonaca
Chairman

Reference:

Draft Report on the Independent Verification of Mitigating Systems Performance Index Results for the Pilot Plants, NUREG-XXXX, August 2004.

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