From: "PIETRANGELO, Tony" <arp@nei.org>
To: <MTL@nrc.gov>
Date: 6/14/04 3:11PM
Subject: Solicitation of Public Comments on the Report on the IndependentVerification of the Mitigating Systems Performance Index (MSPI) Resultsfor the Pilot Plants

June 11, 2004

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Rules and Directives Branch

Mr. Michael T. Lesar

Chief, Rules and Directives Branch

Office of Administration

Mail Stop: T-6 D59

U.S. Nuclear Regulatory Commission

Washington DC 20555-0001

SUBJECT: Solicitation of Public Comments on the Report on the Independent Verification of the Mitigating Systems Performance Index (MSPI) Results for the Pilot Plants

Dear Mr. Lesar:

On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI) is submitting the enclosed comments on the subject report, as requested by the Nuclear Regulatory Commission in the Federal Register on Monday, April 19, 2004 (69 Fed. Reg. 20953).

Tony Pietrangelo
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NUCLEAR ENERGY INSTITUTE

Anthony R. Pietrangelo
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June 11, 2004

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Chief, Rules and Directives Branch
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On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI) is submitting the enclosed comments on the subject report, as requested by the Nuclear Regulatory Commission in the *Federal Register* on Monday, April 19, 2004 (69 *Fed. Reg.* 20953).

The effort to replace the current Safety System Unavailability (SSU) performance indicator began several years ago. Industry and NRC staff have been meeting on a monthly basis to develop the concepts, guidelines, calculation details, and pilot lessons learned. We believe that the subject report provides an accurate formulation of the analyses, decisions and consensus developed over the past several years and should be used in revising the proposed MSPI guidance. We have provided comments on the report's recommendations in the enclosure.

Please call me (202-739-8081) or Tom Houghton (202-739-8107) if there are any questions regarding our comments.

Sincerely,

Anthony R. Pietrangelo

Anthony R. Pietrangelo

Enclosure

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Enclosure

Comments on the "Report on the Independent Verification of the MSPI Results for the Pilot Plants"

The Federal Register Notice particularly requested comments on:

- Fundamental mathematical formulation of the MSPI
- Recommended improvements to the original formulation
- Overall technical findings and results of the MSPI pilot, including validity of MSPI outcomes

Fundamental mathematical formulation of the MSPI

We believe the fundamental mathematical formulation of the MSPI is an appropriate, simplified indication of the net change in core damage frequency for chosen systems at an individual plant based on system unavailability and component unreliability compared to the industry baseline. With the changes proposed in the report's recommendations, we believe that the MSPI will provide a robust indication of performance far superior to the current SSU indicator. While the MSPI requires some upfront work to develop risk informed constants, in operation it will involve less resource intensive data collection to account for component failures and system unavailability.

Recommended improvements to the original formulation

RECOMMENDATION #1: Table 2 of Appendix F to NEI 99-02 should be revised to use industry failure rates derived for the period 1999-2001 (given in Table C.2 of this report) as surrogate for the period 1995-1997.

Industry accepts this recommendation with the previously stated concern that the values should be revalidated when the entire industry has provided the three years of historical data. Some of the rates provided did not appear to correlate well with the data provided by the pilot plants.

RECOMMENDATION #2: A "frontstop" as described in Appendix D of this report should be used as the means of addressing the Invalid Indicator issue. The frontstop would take the form of a risk cap of 5E-7 on the delta URI associated with the single most risk significant failure, so long as the delta URI is less than 1E-5. The frontstop would only be applied to the GREEN/WHITE threshold.

Industry accepts this recommendation. Without the "frontstop," as the report details, there would be a significant number of false positives which do not reflect licensee performance. Performance of a Significance Determination Process analysis by the NRC staff will provide a different assessment of the single failure.

RECOMMENDATION #3: The variable backstop as described in Appendix E of this report should be employed as the means of addressing the Insensitive Indicator issue.

Industry accepts this recommendation. A high number of component failures, even if less risk significant in total, can signal a decline in performance outside the industry norm.

RECOMMENDATION #4: The Common-Cause Failure contribution to Fussell-Vesely Importance should be included in the MSPI formulation, as described in Appendix F of this report. Substantial guidance on the process for this inclusion should be provided in Appendix F to NEI 99-02.

Industry accepts this recommendation; however, we believe further work is warranted to ensure success in implementation. The generic factors derived and published in the report should be applied to all plants and systems so that there will be no confusion as to which factors apply. Thus, a table similar to Table F.4, Recommended Generic CCF Multipliers by Pilot Plant, should be expanded to cover all plants. Prior to implementation, licensees can individually review and comment if necessary on the appropriateness of the factors applied to their components.

RECOMMENDATION #5: The guidance in Appendix F to NEI 99-02 should be revised to allow the licensee the option of excluding low risk valves with Birnbaum importance measures (adjusted for common-cause effects) less than 1E-6/yr, as described in Appendix G of this report.

Industry accepts this recommendation.

RECOMMENDATION #6: The guidance in Appendix F to NEI 99-02 should be revised to require the inclusion of the contribution of cooling water support system initiators to Fussell- Vesely importance, as described in Appendix H of this report.

Industry accepts this recommendation.

The report's Executive Summary ends with the following statements:

Not all issues identified during the course of the pilot program have been resolved, but the above recommendations address the major technical issues associated with the proposed MSPI formulation. Additional issues mostly related to the implementation of the MSPI, such as the need to apply the Significance Determination Process and the treatment of external events, continue to be addressed. Furthermore, the guidance in the draft Appendix F to NEI 99-02 as well as the NRC Inspection Manual will need to be modified to incorporate findings resulting from this research effort. Finally, prior to MSPI implementation, a process to identify and resolve potentially significant modeling differences between the

licensee PRA models and SPAR models would be necessary. Developing such a process is beyond the scope of this report.

Industry has agreed to the conduct of SDPs in parallel with the MSPI. We agree that the guidance for NEI 99-02 and the NRC Inspection Manual will need to be modified to incorporate findings and lessons learned from the research effort, the pilot plants and the temporary inspection. With regard to the need to identify and resolve potentially significant modeling differences between the licensee PRA and NRC SPAR models, we believe more discussion is necessary. The addition of conducting an SDP following each component failure reduces the need for resolution of longstanding PRA issues prior to implementation of the MSPI. We are ready to work with the NRC on a plan to address both upgrades to SPAR models and resolution of technical PRA issues.

Overall technical findings and results of the MSPI pilot, including validity of MSPI outcomes

Industry supports the overall technical findings of the report. The validity and robustness of MSPI outcomes are accurately and fully described in Appendix I, MSPI/SSU/SDP Benchmark. We concur with the concluding statement, "... the MSPI appears to consistently provide the best overall measure of integrated system performance, while minimizing both *false positive* and *false negative* likelihoods."