

October 28, 2004

MEMORANDUM TO: Carl J. Paperiello, Director  
Office of Nuclear Regulatory Research

FROM: J. E. Dyer, Director /RA/  
Office of Nuclear Reactor Regulation

SUBJECT: USER NEED REQUEST - REACTOR OVERSIGHT PROCESS

The purpose of this memorandum is to request the Office of Nuclear Regulatory Research (RES) continue to support the Performance Indicator Program within the Reactor Oversight Process (ROP). RES efforts include providing technical support for the development and implementation of the Mitigating System Performance Index (MSPI). The Inspection Program Branch of the Office of Nuclear Reactor Regulation (NRR) and Operating Experience and Risk Analysis Branch of RES have discussed the deliverables and associated due dates to prioritize the work and ensure timely support.

#### Background

The ROP is one of the Nuclear Regulatory Commissions (NRC's) primary means of ensuring that the safety of operating power plants is being maintained. NRR is continuing to enhance the ROP using risk and operating experience information. In response to User Need Request NRR-2002-024, dated December 14, 2001, RES assumed the lead role in developing and piloting the MSPI as a possible replacement for the current ROP safety system unavailability performance indicators.

The staff and industry are moving forward with MSPI implementation with a proposed MSPI implementation target date of 2006. The staff and industry have reached consensus on the remaining technical issues involving use of the front stop (risk limiter), eliminating the short term back stop, and addressing the adequacy of PRA for MSPI. A joint NRC-industry MSPI-PRA task force has been created to address the minimum PRA requirements and standards needed before MSPI can be implemented. Major deliverables to be developed over the next six months include: 1) completing the technical guidance for MSPI (NEI 99-02, Section 2.2, Appendix F), 2) developing the PRA minimum requirements and guidance (Appendix G), 3) developing the staff temporary instruction for MSPI initial implementation, and 4) developing a NRC communication plan and regulatory issue summary (RIS) conveying to the public stakeholders the results of the MSPI pilot and implementation details of the MSPI into the ROP.

An NRR Director's letter to Nuclear Energy Institutes (NEI's) Steven Floyd issued September 15, 2004, documented resolution of outstanding technical issues and reiterated the staff's decision to move forward with MSPI.

CONTACT: John Thompson, NRR/DIPM  
301-415-1011

### Intended Use of RES Products

The products resulting from the completion of the tasks detailed below will be incorporated into the ROP performance indicator program. MSPI will replace the existing safety system unavailability (SSU) performance indicators and will be used as an input into the ROP assessment process.

### Scope and Schedule for Requested Tasks

This User Need is a request to RES to perform or conduct the following tasks.

1. Create a significant issues checklist from the experiences gained from the review and comparison of MSPI pilot licensee standardized plant analysis risk (SPAR) models with the licensee's PRA. Use the list to assist the MSPI-PRA Task Force in identifying important issues that have significant impact on MSPI and provide a recommended course of action to resolve the issue. Based on current schedule estimates, this task is expected to be complete by December 8, 2004.
2. Calculate generic common-cause multipliers for all licensees. Based on current schedule estimates, this task is expected to be complete by December 20, 2004.
3. Prepare, support, and participate in three industry-led MSPI workshops to support MSPI implementation. The first workshop is scheduled for February 9-10, 2005, and the NRC will be participating as observers to an industry-led workshop. The second workshop is scheduled for the summer of 2005 and will focus on unanswered questions, and unique design/implementation issues. The third workshop is expected to occur in December, 2005 and will focus on any remaining open implementation issues.
4. Verify the Institute of Nuclear Power Operations (INPO) consolidated data entry (CDE) algorithm. This effort is not expected to start until INPO has completed its 11 month CDE programming, currently scheduled for completion in July 2005.
5. Review the four lead plant MSPI basis documents to verify that appropriate PRA technical guidance has been incorporated, as well as verify that they contain the appropriate scope, level of detail, and technical adequacy that is required for MSPI implementation. Based on current schedule estimates, this task is expected to be completed by January 21, 2004.
6. Spot check (or audit) MSPI inputs and calculations submitted by licensees. The spot check or audit may be a smart sample based on the results of the MSPI pilot. If problems are discovered that may have generic applicability, expand the sample to ascertain the extent of condition. Follow the issue until problem has been adequately addressed by the licensee or industry, as appropriate. Based on current schedule estimates, this task is expected to remain open until completed by the third MSPI workshop, or December 2005.

7. Participate in the MSPI Working Group and MSPI PRA Task Force Public Meetings. Based on current schedules, the MSPI PRA Task Force is expected to meet regularly through the end of 2004. Issues that arise after the Task Force has been dissolved needing PRA expertise may require assistance from RES on a case-by-case basis. The MSPI working group is expected to meet regularly through MSPI implementation, currently targeted for January 2006.
8. Participate or support the staff's review of MSPI Guidance documents, NEI 99-02 and its Appendices F (Methodologies for Computing the Unavailability Index, the Unreliability Index and System Reliability Limits), and G, (Basis Document Development). Based on current schedule estimates, this task is expected to be completed by December 20, 2004.
9. Assist in providing training to the NRC staff for MSPI implementation. Training may involve travel to the regions and is expected to occur during late summer of 2005.
10. Assess the reasonableness of the values in Table 4 of NEI 99-02, Appendix F, in light of additional plant data obtained from EPIX and MSPI data submittals, and revise the industry priors as necessary by November 30, 2005.

7. Participate in the MSPI Working Group and MSPI PRA Task Force Public Meetings. Based on current schedules, the MSPI PRA Task Force is expected to meet regularly through the end of 2004. Issues that arise after the Task Force has been dissolved needing PRA expertise may require assistance from RES on a case-by-case basis. The MSPI working group is expected to meet regularly through MSPI implementation, currently targeted for January 2006.
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