

RISK MANAGEMENT TECHNICAL SPECIFICATIONS INITIATIVE 5b SURVEILLANCE FREQUENCY CONTROL PROGRAM

2515/178-01 OBJECTIVE

The objective of this TI is to support the review of licensees' implementation of the risk management technical specification (RMTS) Initiative 5b, described in the RMTS Guidelines Document NEI 04-10, Risk Informed Method for Control of Surveillance Frequencies. As an ancillary benefit, this TI promotes information gathering to help the Nuclear Regulatory Commission (NRC) staff identify and shape possible future regulatory positions, generic communications, and rulemaking.

2515/178-02 APPLICABILITY

This Temporary Instruction (TI) applies to the Limerick Generating Station.

2515/178-03 BACKGROUND

Consistent with the Commission's policy statements on technical specifications (TS) and the use of probabilistic risk assessment (PRA), the staff and the industry are developing risk-informed improvements to TS. These improvements are intended to maintain and/or improve safety while reducing unnecessary burden, and to bring TS into congruence with the Commission's other risk-informed regulatory requirements, in particular risk management requirements of 10 CFR 50.65(a)(4). The term "risk management technical specifications (RMTS)" is used to emphasize the goal of constructing TS that reinforce the pro-active management of the total risk presented by the plant configuration and actions that may be needed to respond to planned or emergent conditions.

TS have taken advantage of risk evaluation technology as experience and capability have increased. Since the mid-1980's, the NRC has been reviewing and granting improvements to TS that are based, at least in part, on PRA insights. In its final policy statement on TS improvements of July 22, 1993, the Commission stated that it expects that licensees will utilize any plant specific PRA or risk survey in preparing their TS related submittals. The Commission reiterated this point when it issued the revision to 10 CFR 50.36, "Technical Specifications," in July 1995. In August 1995, the NRC adopted a final policy statement on the use of PRA methods in nuclear regulatory

activities that encourage greater use of PRA to improve safety decision making and regulatory efficiency. Since that time, the industry and the NRC have been pursuing increased use of PRA in developing improvements to TS. RMTS Initiative 5b is such an improvement.

Licensee adoption of RMTS Initiative 5b establishes the Surveillance Frequency Control Program (SFCP) which specifies the requirements for relocation of TS Surveillance Frequencies to licensee control and the requirements to change a relocated frequency to the SFCP by reference to NEI 04-10, Rev. 0. These requirements shall be incorporated in the site specific procedures and are applicable to all relocated Surveillance Frequencies as required by the SFCP.

Following the initial establishment of an adequate PRA capability, the adoption of RMTS Initiative 5b permits the licensee to revise Surveillance Frequencies based on risk insights from PRAs, plant operational experience, and other factors without prior NRC authorization. The effect of the surveillance frequency change, aggregate risk impact of the single revised Surveillance Frequency for all PRA events, and the cumulative risk impact for all Surveillance Frequency changes is compared to NRC risk acceptance guidelines.

This TI provides inspection requirements and guidance for the review of the licensee's process and procedures for implementing the SFCP and extending a TS Surveillance Frequency as identified in the LICENSEE TS SFCP by verifying:

- a. that Surveillance Frequencies selected for change were properly evaluated per the SFCP, and
- b. that the appropriate qualitative and quantitative information was evaluated and appropriate risk management consideration was properly applied, and
- c. that all required documentation was properly completed, reviewed, and approved prior to changing a Surveillance Frequency, and
- d. for other than a phased implementation, that previously extended Surveillance Frequencies have not been further extended until the minimum number of surveillance intervals required to establish an adequate database for further extensions have been met in accordance with NEI 04-10.

The inspection should conclude that the "defense-in-depth" philosophy is maintained as identified in the Safety Evaluation Report in the license amendment adopting RMTS Initiative 5b by observing the following:

- A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation.
- Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided.
- System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges

to the system, and uncertainties (e.g., no risk outliers). Because the scope of the proposed methodology is limited to revision of surveillance frequencies, the redundancy, independence, and diversity of plant systems are not impacted.

- Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed.
- Independence of barriers is not degraded.
- Defenses against human errors are preserved.
- The intent of the GDC in 10 CFR Part 50, Appendix A, is maintained.

2515/178-04 INSPECTION REQUIREMENTS

04.01 Surveillance Frequency Changes.

NOTE: If necessary, a review of the initial PRA plant specific audit should be conducted to verify that any deficiencies or follow-up items were properly dispositioned.

- a. Confirm that the surveillance frequency change was evaluated for prohibitive commitments, and either no such commitments existed or they were revised prior to implementation of the STI change.
- b. Confirm that the qualitative evaluation included, as a minimum, the items identified in NEI 04-10, step 7.
- c. If the affected component or system is modeled in the PRA, or was added to the PRA model to support application of the SFCP, then confirm that a full scope evaluation using the licensee's PRA model was completed and satisfied the acceptance criteria of $<1 \text{ E-6 } \Delta\text{CDF}$ and $<1 \text{ E-7 } \Delta\text{LERF}$.
- d. If the affected component or system is not modeled in the PRA, then confirm acceptable qualitative or bounding analyses were completed and satisfied the acceptance criteria of $<1 \text{ E-7 } \Delta\text{CDF}$ and $<1 \text{ E-8 } \Delta\text{LERF}$.
- e. Confirm the cumulative impact of all STI changes meets the acceptance criteria of $<1 \text{ E-5 } \Delta\text{CDF}$ and $<1 \text{ E-6 } \Delta\text{LERF}$.
- f. Confirm appropriate sensitivity studies were completed and acceptable to justify the surveillance frequency change.
- g. Confirm an acceptable procedural implementation and monitoring strategy was completed for the affected systems and components.
- h. Confirm that the application tools and software are being maintained by a quality program. Review Section 4 of NEI 04-10 for the quality program criteria.

04.02 SFCP Process and Oversight

a. SFCP Process:

1. Verify that required training/qualification of the following personnel, as a minimum: licensed operators, work control personnel, PRA personnel, and station management. The required training should cover the areas listed in Section 4 of NEI 04-10 and should be commensurate with their respective responsibilities. Select an instance where a Surveillance Frequency was extended and verify personnel involved with the approval of the condition received appropriate training.
2. If possible, observe an Integrated Decision-making Panel (IDP) meeting.
3. Review IDP meeting minutes and the results of several meetings.
4. Review Surveillance Frequency (STI) Evaluation Forms.

b. SFCP Oversight:

1. Verify plant on-site review committee and leadership engaged and aware of IDP and SFCP results.
2. Review self-assessments of the SFCP results and resolution of issues.
3. Verify issues are properly captured in the Corrective Actions Program.

04.03 Risk Management Program.

- a. Verify procedures accurately reflect the documentation requirements specified in the SFCP.
- b. Review the associated documentation for specific instances where [3] Surveillance Frequencies were extended. This documentation should include, as a minimum, qualitative analysis, (PRA) quantitative analysis, expert panel (IDP) review/approval, condition reports, functionality assessments and work management tools.
- c. Review any risk management actions that were implemented. Review Section NEI 04-10, Appendix A for documentation requirements.

04.04 Review of Licensee Comprehensive Risk Management Program

Review licensee procedures and implementation of NEI 04-10 to verify adequate SFCP implementation:

- a. Adherence to NEI 04-10 process requirements.

- b. Adherence to NEI 04-10 metric requirements.
- c. Risk assessments were properly performed in the implementation of the SFCP.
- d. SFCP training.
- e. SFCP performance tracking and documentation.

2515/178-05 REPORTING REQUIREMENTS

05.01 Inspection Guidance

The results of this Temporary Instruction should be included in Section 4OA5 of an integrated inspection report and should be forwarded to NRR/DIRS/ITSB, Attention: Gerald Waig via e-mail at Gerald.Waig@nrc.gov. Mr. Waig can also be reached by telephone at (301) 415-2260.

Inspectors should briefly describe the areas reviewed (i.e., provide a summary documenting that the inspection was completed) and any findings in Section 4OA5, "Other," of the resident inspector's quarterly integrated inspection report.

Any findings identified during this inspection will be processed and documented in accordance with NRC Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports." Significance of inspection findings should be evaluated in accordance with applicable appendices of IMC 0609, "Significance Determination Process." Any noncompliance resulting from this inspection will be evaluated and documented in accordance with the NRC Enforcement Policy (NUREG-1600) and the NRC Enforcement Manual.

In general, findings of performance deficiencies with respect to 10 CFR 50.65(a)(4) will be handled in accordance with existing guidance (i.e., IP 71111.13, IMC 0612, Appendices B, E, and F, and IMC 0609, Appendix K). However, in those cases in which an inadequate RA is identified (i.e., underestimate of total overall plant risk and/or the increase in risk due to the TS SSC), and the inadequate RA leads the licensee to exceed the conventional Surveillance Frequency and also what would have been the Surveillance Frequency, had it been correctly calculated, then the licensee must declare the TS Surveillance Requirement not met and promptly comply with the TS requirements. The licensee may/should also take additional risk management actions (RMAs) in parallel to limit further risk increases, and also, if practicable, to reduce risk to at least to the point at which the Surveillance Frequency may remain valid. If the licensee is found to have changed a Surveillance Frequency contrary to the SFCP, then the licensee may be found to be in violation of the TS. In those instances, the TS violation will be handled as other TS violations are handled.

Minor performance deficiencies may be documented in Section 4OA5 at the discretion of the inspector in accordance with IMC 0612 requirements. The intent of documenting these minor deficiencies is for the program office to evaluate the Program issues for improvements in the inspection program guidance.

2515/178-06 COMPLETION SCHEDULE

This TI should be completed by June 30, 2010.

2515/178-07 EXPIRATION

This TI will expire 03/31/2011.

2515/178-08 CONTACT

For questions regarding the performance of this TI and emergent issues, contact: Gerald Waig at 301-415-2260 or Gerald.Waig@nrc.gov; or Robert Elliott at 301-415-8585 or Robert.Elliott@nrc.gov; or Andrew Howe at 301-415-3078, or Andrew.Howe@nrc.gov.

2515/178-09 STATISTICAL DATA REPORTING

All direct inspection effort expended on this TI is to be charged to 2515/178 with an IPE code of TI. Indirect inspection effort for preparation and documentation are to be charged to the inspection report number where the results of the inspection are documented, with an IPE code of TIP and TID respectively.

2515/178-10 ORIGINATING ORGANIZATION INFORMATION

9.01 Organizational Responsibility.

This TI was prepared by the Technical Specifications Branch (NRR/DIRS/ITSB), and issued by the Reactor Inspections Branch (NRR/DIRS/IRIB).

10.02 Resource Estimate.

The estimated direct inspection effort to perform this TI is 20 hours per unit. This TI should be lead by, or performed with assistance from, Regional SRA/PRA personnel.

10.03 Training.

No formal training is proposed for the performance of this TI. The inspectors should be familiar with the information provided in Section 10.04, References.

10.04 References.

- IP 71111.13, Maintenance Risk Assessments and Emergent Work Control.
- RG 1.174, An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant Specific Changes to the Licensing Basis.
- RG 1.177, An Approach for Plant-Specific, Risk-Informed Decision-making: Technical Specifications.
- RG 1.200, An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk Informed Activities.
- EPRI 1009474, Dec 2004 RMTS Guidelines.
- Licensee Safety Evaluation Report (SER) for the license amendments adopting RITS 5b.
- NEI 04-10 Revision 0, Risk-Informed Technical Specifications Initiative 5b, Risk-Informed Method for Control of Surveillance Frequencies, Industry Guidance Document (ML062570416).
- NUMARC 93-01, NEI – Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Revision 3.
- Risk Assessment Standardization Project NUREG -1896.
- License Amendment Limerick Generating Station, Units 1 and 2, Re: Relocate Surveillance Test Intervals to Licensee-Controlled Program, dated September 29, 2006 (ML062420049).
- GDC in 10 CFR Part 50, Appendix A.
- NEI 00-04, Revision 0, 10 CFR 50.69 SSC Categorization Guideline (ML052900163).

END

Attachment 1
Revision History Page

| Commitment Tracking Number | Issue Date | Description of Change | Training Needed | Comment Resolution Accession Number |
|----------------------------|-----------------------|---|-----------------|-------------------------------------|
| N/A | 05/15/09 CN 09-013 | Reviewed commitments and none found for 4 years. This TI was created to provide inspection guidance related to Risk-Informed Surveillance Frequency Control Program implementation at licensee who have implemented RMTS Initiative 5b | N/A | N/A |