

May 17, 1999

FOR: The Commissioners

FROM: William D. Travers /s/
Executive Director for Operations

SUBJECT: FINAL REVISION TO 10 CFR 50.65 TO REQUIRE LICENSEES TO PERFORM ASSESSMENTS BEFORE PERFORMING MAINTENANCE

PURPOSE:

To obtain the Commission's approval to publish a final rule in the Federal Register that amends 10 CFR 50.65 to require that, before performing maintenance, licensees assess, and manage the increase in risk that may result from the maintenance activities. The rule will permit licensees to use a risk-informed scope for the assessments.

BACKGROUND:

On December 17, 1997, the Commission issued a staff requirements memorandum (SRM) directing the staff to make certain changes to 10 CFR 50.65, the maintenance rule. Emphasis was on the paragraph (a)(3) recommendation: "In performing monitoring and preventive maintenance activities, an assessment of the total plant equipment that is out of service should be taken into account to determine the overall effect on performance of safety functions." The principal purpose of the amendment is to require licensees to perform the assessments and manage the increase in plant risk that may result from the maintenance activity. On July 2, 1998, the staff presented its proposed revision to the rule in SECY-98-165; and on September 3, 1998, the Commission issued SRM-98-165 approving publication of the proposed rule in the Federal Register for a 75-day comment period (63 FR NEI 52201; September 30, 1998). That comment period ended December 14, 1998.

DISCUSSION:

The proposed revision to the maintenance rule to require that licensees perform assessments and use the results to manage the increase in risk due to maintenance activities has been modified in response to public comments. Comments were received from 34 sources: 26 utilities with operating units, 3 nuclear industry service companies or consultants, a utility with a single unit in decommissioning status, an individual, a State agency, a law firm representing several utilities, and the Nuclear Energy Institute (NEI), whose comments were supported by 29 respondents. The details of the comments and responses are incorporated in the final Federal Register notice ([Attachment 1](#)).

Nearly all respondents were concerned with the wording of paragraph (a)(4) of the proposed rule. The proposed paragraph (a)(4) read:

"Before performing maintenance activities on structures, systems or components within the scope of this section (including but not limited to, surveillance testing, post-maintenance testing, corrective maintenance, performance/condition monitoring, and preventive maintenance), an assessment of the current plant configuration as well as expected changes to plant configuration that will result from the proposed maintenance activities shall be conducted to determine the overall effect on performance of safety functions. The results of this assessment shall be used to ensure that the plant is not placed in risk significant configurations or configurations that would degrade the performance of safety functions to an unacceptable level."

Paragraph (a)(4) as revised after consideration of public comments now reads:

"Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. The scope of the assessment may be limited to structures, systems, and components that a risk-informed evaluation process has shown to be significant to public health and safety."


In its comments, NEI stated that "this rulemaking represents a significant new requirement," and provided three specific concerns about the rule. The first concern addressed terminology and stated that terms such as "risk-significant configuration" and "configurations that would degrade the performance of safety functions to an unacceptable level" are new and subjective. The staff's position is that the language is not new. It was taken from the statement of considerations (SOC) for the original issuance of 50.65 on July 10, 1991 (56 FR 31306-31323). The staff acknowledges it could be argued that because the original paragraph (a)(3) was silent on the use of the assessment, an explicit requirement to use the assessment constitutes a new requirement. However, the staff believes requiring that the assessment results be used codifies the Commission's original intent as reflected in the original rule's SOC. In any case, because paragraph (a)(4) of the proposed rule could be interpreted as meaning that a risk-significant configuration would not be permitted under any circumstances, regardless of degree of risk and duration of that risk, the term "manage" has been introduced to maintain the Commission's original intent and also to be consistent with the flexibility that 50.65 gives licensees.

The staff's expectations for licensee assessment activities have not changed. Licensees will be expected to review the current plant configuration and the anticipated changes caused by the proposed maintenance activities, although licensees may limit the scope of their assessments through use of an appropriate risk-informed evaluation process. Licensees are expected to consider potential failures and emergent maintenance requirements. The sophistication of the assessments, ranging from deterministic judgments to in-depth analyses, is expected to be commensurate with the complexity of the involved configurations. (More detail on staff expectations is provided in the discussion under Item 4 of Section III, "The Final Rule," in the Federal Register notice, [Attachment 1](#).)

The second NEI concern addressed the apparent overlapping regulatory requirements of technical specifications (TS) and the proposed maintenance rule.

Under certain conditions, a plant's TS may allow a structure, system, or component (SSC) to be out of service, while a pre-maintenance assessment proposing the removal of that same SSC from service may preclude that configuration. Also, it is possible that allowed outage times of TS may not be in complete agreement with out-of-service times resulting from the assessments. The staff recognizes that TS limiting conditions for operation were, in part, developed to address random failures of plant SSCs but have been used by licensees as rationale for the deliberate removal of those SSCs from service to perform on-line maintenance. The maintenance rule is intended to apply to proposed maintenance activities that will directly, or may inadvertently, result in equipment being taken out of service. Normally, TS may serve as the pre-analyzed assessment, used with sound judgement, when the licensee proposes that a single SSC be removed from service for maintenance when no other SSC is out of service. However, as the licensee proposes that additional SSCs undergo concurrent maintenance, the configuration becomes more complex, and more sophisticated assessment processes are necessary and appropriate.

The staff believes that, in general, TS allowed outage times were not developed for and are inappropriate for controlling concurrent removals of SSCs from service during plant operation. In an October 6, 1994, letter to Mr. Zach T. Pate, President of the Institute of Nuclear Power Operations (INPO), NRC's Executive Director for Operations, James M. Taylor, stated: "Doing preventive maintenance on more than one train or system at a time can result in plant configurations that, although not prohibited by technical specifications, are detrimental to plant safety." Mr. Taylor also said: "When performing on-line maintenance, confidence in the operability of the independent equipment that is redundant or diverse to the affected equipment should be high." On the same date, in a letter to Mr. Joe F. Colvin, Executive Vice President of NEI, William T. Russell, Director of NRC's Office of Nuclear Reactor Regulation (NRR), wrote: "It is important for licensees to understand that the allowable outage times specified in plant technical specifications are based upon a random single failure in a system and a judgement of a reasonable time to effect repairs before plant shutdown is required. The technical specifications do not address allowable outage times for multiple equipment being taken out of service at the same time." The staff expects that, while performing on-line or shutdown maintenance, the licensee will remain in conformance with its TS. In addition, the licensee's pre-maintenance planning is expected to include, to the depth necessary for the complexity of the maintenance activities, (1) identification of the equipment to be protected during the maintenance activity and (2) contingency plans that identify equipment to be restored first, if necessary, should a random equipment failure occur, and compensatory actions to be taken should the proposed outage duration be exceeded. The revised wording requiring licensees to assess and manage the increase in risk is intended to cause the licensee to determine its options and follow a prudent course of action, consistent with the staff's expectations outlined above.

The third NEI concern was that the scope of SSCs subject to the proposed assessment requirement was impractical. Paragraph 50.65(b) defines the scope of SSCs that are covered by the rule (with the exception of SSCs for decommissioning plants). Chapter 11.0 of NUMARC 93-01 , "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2, dated April 1996 (which has been endorsed by Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2, dated March 1997), is entitled "Evaluation of Systems to be Removed from Service." Chapter 11.0 guidance describes the assessment as a three-step process: (1) Identify key plant safety functions to be maintained, (2) identify SSCs that support key plant safety functions, and (3) consider the overall effect of removing SSCs from service on key plant safety functions. Requiring, instead of recommending, those assessments does not change the expectation that the assessments need only involve SSCs associated with initiating or mitigating impacts on key plant safety functions. This expectation will be emphasized in Revision 3 to Regulatory Guide 1.160. Further, licensees may limit the scope of their assessments to SSCs that a risk-informed evaluation process has shown to be significant to public health and safety.

The staff recognizes that the coordination between the effective date of the revised rule and the issuance of the revised regulatory guidance is an important consideration. In SRM-97-173, dated December 17, 1997, the Commission indicated that development of the regulatory guidance should not delay issuance of the final maintenance rule. Later, in SRM-98-165, dated September 3, 1998, the Commission requested the staff to strive to present the regulatory guidance no later than the final rule package. The staff has prepared draft guidance, which will be provided to the public for comment. The staff agrees with the public comments that the rule should not be made effective until a reasonable period subsequent to the issuance of the final regulatory guidance. In SECY-98-165, dated July 2, 1998, the staff committed to providing guidance 120 days after the rule is issued. The staff now requests that the effective date of the revised rule be 120 days after issuance of Regulatory Guide 1.160, Revision 3.

CONCLUSION:

The staff believes that the revised wording, when supported by appropriate guidance that will be issued 120 days before the effective date of the rule, will accomplish the Commission's intent for modification of the maintenance rule.

This paper provides the Commission with the rulemaking package for the final rule that amends 10 CFR 50.65 as directed. The regulatory analysis supporting this final rule is included as [Attachment 2](#).

COORDINATION

The Office of the General Counsel has reviewed this final rule and has no legal objection to its content. The Office of the Chief Financial Officer has reviewed this final rule for resource implications and has no objection to its content. The Office of the Chief Information Officer has reviewed this final rule for information technology impacts and has no objections.

The Advisory Committee on Reactor Safeguards (ACRS) reviewed the final rule and draft guidance on April 8, 1999, and the modified final rule on May 5, 1999. In their letter to the Chairman dated April 14, 1999, ACRS supported the version of the rule and the draft regulatory guidance. In their letter to the Chairman dated May 11, 1999, the Committee recommended the addition of "for the proposed configuration" to the end of the second sentence in paragraph (a)(4). The staff will address the May 11, 1999, letter by separate correspondence.

The staff met with the Committee to Review Generic Requirements (CRGR) on April 27, 1999, to discuss this final rule. Pending issuance of the final

meeting minutes, the CRGR Chairman informed the NRC Executive Director for Operations (EDO) of the issues raised by the Committee in a memorandum dated April 29, 1999. The staff addressed those issues and responded to the CRGR Chairman by memorandum from NRR's Director, Division of Inspection Program Management (DIPM), dated May 5, 1999. The latter memo, which includes staff response on a comment-by-comment basis, was forwarded to the Commission by the Assistant for Operations, OEDO, on May 10, 1999.

Finally, from an enforcement perspective, the severity of violations of this rule will be based on the risk significance of the maintenance configuration that was either not evaluated or for which the evaluation was inadequate. Risk significant violations will be considered for escalated action. Failure to evaluate the maintenance configuration which did not result in risk significant configurations will be normally considered as a Severity Level IV violation and, in accordance with Appendix C of the Enforcement Policy, be processed as a non-cited violation. Under the proposed integrated reactor oversight process in SECY 99-007A, violations of the maintenance rule will be evaluated by the Significance Determination Process and not treated under the traditional enforcement process.

RESOURCES:

Resources for possible Maintenance Rule Baseline Inspection follow-up activities are budgeted at a total of 1.0 full-time-equivalent position.

RECOMMENDATIONS:

That the Commission:

1. Approve the notice of final rulemaking ([Attachment 1](#)) for publication in the Federal Register. Note that the rule will become effective 120 days following the issuance of Revision 3 to Regulatory Guide 1.160.
2. Certify that this rule, if issued, would not have a significant economic impact on a substantial number of small entities to satisfy the requirements of the Regulatory Flexibility Act, 5 U.S.C. 605(b).
3. Note that:
 1. This final rule will be published in the Federal Register ([Attachment 1](#));
 2. The appropriate congressional committees will be informed ([Attachment 3](#));
 3. A public announcement ([Attachment 4](#)) will be issued when this final rule is filed with the Office of the Federal Register;
 4. This final rule contains no new or amended information collection requirements;
 5. Forms to be submitted for federal rules under the Congressional Review Act are included as [Attachment 5](#); and
 6. Copies of the Federal Register notice of final rulemaking will be distributed to all affected Commission licensees. The notice will be sent to other interested parties upon request.

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Attachments

1. Federal Register Notice
2. Regulatory Analysis
3. Congressional Letters
4. Public Announcement
5. Congressional Review Act Forms