

POLICY ISSUE
NOTATION VOTE

SECY-00-0074

March 28, 2000

FOR: The Commissioners
FROM: William D. Travers /RA/
Executive Director for Operations
SUBJECT: REGULATORY GUIDE FOR ASSESSING AND MANAGING RISK BEFORE MAINTENANCE ACTIVITIES AT NUCLEAR POWER PLANTS

- [PURPOSE:](#)
- [BACKGROUND:](#)
- [DISCUSSION:](#)
- [IMPLEMENTATION:](#)
- [COORDINATION:](#)
- [RECOMMENDATIONS:](#)

PURPOSE:

To obtain the Commission's approval to publish Regulatory Guide (RG) 1.XXX, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants" (formerly DG-1082) ([Attachment 1](#)).

BACKGROUND:

On June 18, 1999, the Commission approved a final rule amending 10 CFR 50.65 to require that, before performing maintenance, power reactor licensees assess and manage risk that may result from maintenance activities. The Commission noted that the rule was to become effective 120 days after finalization of the regulatory guide and directed the staff to interact with stakeholders in developing the supplemental guidance in the regulatory guide. On December 2, 1999, the staff forwarded to the Commission the associated draft RG DG-1082. The staff has also conducted a number of meetings with the stakeholders. As a result of these meetings and the public comments on the draft regulatory guide, the Nuclear Energy Institute (NEI) has developed guidance that can be endorsed by the staff.

DISCUSSION:

DG-1082 was issued for a 30-day public comment period, which ended January 10, 2000. Comments were received from seven utilities, one State organization, one law firm, and NEI. The comments were principally on NEI's supplemental guidance, NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Section 11, "Assessment of Risk Resulting From Performance of Maintenance Activities," dated February 22, 2000 ([Attachment 2](#) ). The comments were discussed with NEI at a public meeting on January 20, 2000. The majority of the comments were of an editorial nature or suggested minor technical clarifications of Section 11 of NUMARC 93-01. Where appropriate, NEI incorporated the comments.

Substantive comments addressed (1) the overlapping applicability of [10 CFR 50.59](#) and the new [10 CFR 50.65\(a\)\(4\)](#) to temporary changes performed by licensees to support maintenance activities and (2) the period for implementation. After several exchanges of information and views between the staff and interested stakeholders, and as discussed at the Commission meeting on February 29, 2000, on 10 CFR 50.59, the staff agrees with NEI's guidance on dealing with the apparent overlap of 10 CFR 50.65(a)(4) requirements with those of 10 CFR 50.59. The guidance defines the appropriate regulatory requirements for the circumstances of interest. Paragraph 50.65(a)(4) is to be applicable to temporary alterations associated with maintenance activities. Section 50.59 is to remain applicable to temporary changes that address a degraded or nonconforming condition unrelated to the maintenance to restore the condition, as well as the temporary changes associated with maintenance activity during power operations that are in effect for more than 90 days. The intent of this portion of the guidance is to eliminate overlapping requirements for assessments that could be considered to exist under 10 CFR 50.65(a)(4) and 10 CFR 50.59. This clarification, including the 90-day limitation, only applies to temporary changes directly related to and required to support the specific maintenance activity being assessed. In adopting this provision in the guidance, the staff provided clarification that the 10 CFR 50.65(a)(4) assessment does not relieve the licensee from compliance with its license (including technical specifications) and applicable regulations.

Comments from several utilities included requests for an extension of the 120-day period to implement a program for meeting 10 CFR 50.65(a)(4) requirements after the Commission approves the regulatory guide. The requests for a suitable implementation period varied from 240 days to a year. One utility that wanted a 1-year extension indicated that this extension period was needed to upgrade its program for implementation of 10 CFR 50.65(a)(4) requirements. In fact, this utility provided a very detailed time line of actions for program upgrade, including scoping the structures, systems, and components for 10 CFR 50.65(a)(4) assessments, developing procedures, evaluating the fidelity of the assessment tools, and training its staff for effective implementation of the program. The licensee's proposed program upgrade activities also included

testing of the program and a self-assessment of program implementation. On the basis of industry comments on the effective date of the rule, the staff would not object to extending the implementation period for the revised 10 CFR 50.65 to 180 days.

The staff finds that the guidance of the revised Section 11 of NUMARC 93-01 ([Attachment 2](#) ) provides an acceptable method for complying with 10 CFR 50.65(a)(4). RG 1.XXX (formerly DG-1082) endorses this revision of Section 11 of NUMARC 93-01 without exception. RG 1.XXX is to be a companion guide to [RG 1.160](#), "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and will be incorporated in RG 1.160 at a future date, as appropriate.

IMPLEMENTATION:

As part of its regulatory oversight activities, the staff will monitor licensee implementation of 10 CFR 50.65 (a)(4). On the basis of its activities, the staff will determine whether the guidance for assessing and managing risk before maintenance activities at nuclear power plants needs to be modified.

COORDINATION:

The Office of the General Counsel has no legal objection to this paper or to publication of the regulatory guide. The Office of the Chief Financial Officer has reviewed this Commission paper for resource implications and has no objections to its content. The Committee To Review Generic Requirements has no objections to this regulatory guide. The Advisory Committee on Reactor Safeguards has endorsed the regulatory guide.

RECOMMENDATIONS:

That the Commission:

1. Approve Regulatory Guide 1.XXX as one acceptable method for complying with 10 CFR 50.65(a)(4).
2. Note that:

An announcement of the availability of Regulatory Guide 1.XXX and the effective date of the revised 10 CFR 50.65 (120 days after issuance of the regulatory guide, unless otherwise specified by the Commission) will be published in the Federal Register.

/RA/

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Attachments: 1. [Regulatory Guide 1.XXX](#)
2. [Section 11 of NUMARC 93-01, dated February 22, 2000](#)  (Accession No. ML003704489)

ATTACHMENT 1

March 2000

REGULATORY GUIDE 1.XXX

(Draft was issued as DG-1082)

ASSESSING AND MANAGING RISK BEFORE MAINTENANCE ACTIVITIES AT NUCLEAR POWER PLANTS

- [A. INTRODUCTION](#)
- [B. DISCUSSION](#)
- [C. REGULATORY POSITION](#)
- [D. IMPLEMENTATION](#)

A. INTRODUCTION

The U.S. Nuclear Regulatory Commission (NRC) has amended the Maintenance Rule, 10 CFR 50.65, by adding a new paragraph (a)(4):

Before performing maintenance activities (including but not limited to surveillances, 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.

[64 FR 38551, July 19, 1999, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"]

As of July 1998, Maintenance Rule Baseline Inspections at all U.S. nuclear power plant sites were complete. NRC staff experience during the baseline inspections indicated that all licensees have developed programs to implement the recommended pre-maintenance assessment provision of the original paragraph (a)(3). However, the baseline inspections identified a number of instances in which these assessments were not performed (including some that caused a significant increase in risk) and identified weaknesses in licensees' programs that could result in failures to perform adequate assessments prior to maintenance activities. Partly because of these inspection findings, the Commission approved the amendment to ensure that licensees assess and manage increases in risk associated with maintenance activities.

In a series of public meetings, the NRC staff met with industry representatives to discuss the change in the rule in relation to proposed revisions to Revision 2 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"⁽¹⁾

(May 1993). Revision 2 of NUMARC 93-01 was prepared by the Nuclear Energy Institute (NEI) and is endorsed by Revision 2 of Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants."⁽²⁾ (March 1997) Based in part on these discussions with industry representatives, this Regulatory Guide 1.XXX provides guidance on implementing the provisions of 10 CFR 50.65(a)(4) by endorsing a revised Section 11 to NUMARC 93-01.

Regulatory Guide 1.XXX will be used as a companion guide to Regulatory Guide 1.160 as guidance on methods acceptable to the NRC staff for assessing and managing the increase in risk that may result from maintenance activities and for implementing the optional reduction in scope of SSCs considered in the assessments.

The information collections contained in this regulatory guide are covered by the requirements of 10 CFR Part 50, which were approved by the Office of Management and Budget, approval number 3150-0011. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

B. DISCUSSION

The objective of the Maintenance Rule, 10 CFR 50.65, is to require monitoring of the overall continuing effectiveness of licensee maintenance programs to ensure that (1) safety-related and certain nonsafety-related structures, systems, and components (SSCs) are capable of performing their intended functions, (2) for nonsafety-related equipment, failures will not occur that prevent the fulfillment of safety-related functions, and (3) failures resulting in scrams and unnecessary actuations of safety-related systems are minimized. (Note that, for Maintenance Rule purposes, the term "SSC" may denote a structure, system, or train. Although components may be monitored individually at the licensee's discretion, the Rule and its guidance generally do not require monitoring to that level of detail.)

The benefits of performing maintenance activities during power operations include increased system and plant reliability, reduction of plant equipment and system material condition deficiencies that could adversely impact plant operations, and reduction of work scope during plant refueling outages. However, relevant margins of safety could be inadvertently reduced under certain conditions, for example, if maintenance is performed at power without proper controls and careful consideration of risk. The intent of 10 CFR 50.65(a)(4) is to require that licensees perform assessments before maintenance activities are performed on SSCs covered by the Maintenance Rule and manage the increase in risk that may result from the proposed activities. The results of these assessments are to be used in conjunction with other regulatory requirements and, therefore, cannot be used as justification to perform activities which may not comply with other regulations.

C. REGULATORY POSITION

NUMARC 93-01, Section 11, "Assessment of Risk Resulting from Performance of Maintenance Activities," dated February 11, 2000, provides methods that are acceptable to the NRC staff for complying with the provisions of 10 CFR 50.65(a)(4). NUMARC 93-01, Section 11, references other documents, but NRC's endorsement of NUMARC 93-01, Section 11, should not be considered as endorsement of the referenced documents. Note that, in paragraph 1. of Section 11.3.7.2, the value "10⁻³/year" is suggested by the authors as a ceiling for configuration-specific core damage frequency. The subject of such a ceiling value is currently being studied by the NRC. At some later date, a similar or different value may be promulgated by the agency. At this time, the NRC neither endorses nor disapproves of the 10⁻³/year value.

D. IMPLEMENTATION

The purpose of this section is to provide information to licensees and applicants regarding the NRC staff's plans for using this regulatory guide.

Except in those cases in which a licensee or applicant proposes an acceptable alternative method for complying with specified portions of the NRC's regulations, the method described in this guide will be used with Regulatory Guide 1.160 in the evaluation of assessment processes before maintenance activities, of the management of the increases in risk from maintenance activities, and of implementation of the option to reduce the scope of SSCs considered for the assessments.

Performing the assessment does not relieve the licensee from compliance with its license (including technical specifications) and applicable regulations. The intent of certain phrases in this guide is to eliminate overlapping requirements for assessments that could be considered to exist under 10 CFR 50.65(a)(4) and 10 CFR 50.59. This clarification applies to temporary alterations directly related to and required in support of the specific maintenance activity being assessed. (Note that when a maintenance activity to restore a degraded condition is planned, a compensatory measure already in place addressing that condition would have to be considered in the assessment under 10 CFR 50.65(a)(4) if the measure is to remain in place during the maintenance activity.)

REGULATORY ANALYSIS

The regulatory analysis that was published with the July 19, 1999, revision to the Maintenance Rule, 10 CFR 50.65, is also applicable for this Regulatory Guide 1.XXX. A copy of the regulatory analysis is available for inspection or copying for a fee in the Commission's Public Document Room at 2120 L Street NW., Washington, DC, under task DG-1082.

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1. Copies are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; telephone (202)634-3273; fax (202)634-3343.
 2. Single copies of regulatory guides, both active and draft, and draft NUREG documents may be obtained free of charge by writing the Reproduction and Distribution Services Section, OCIO, USNRC, Washington, DC 20555-0001, or by fax to (301)415-2289, or by email to <DISTRIBUTION@NRC.GOV>. Active guides may also be purchased from the National Technical Information Service on a standing order basis. Details on this service may be obtained by writing NTIS, 5285 Port Royal Road, Springfield, VA 22161. Copies of active and draft guides are available for inspection or copying for a fee from the NRC Public Document Room at 2120 L Street NW., Washington, DC; the PDR's mailing address is Mail Stop LL-6, Washington, DC 20555; telephone (202)634-3273; fax (202)634-3343.