

August 20, 1997

SECY-97-190

FOR: The Commissioners

FROM: L. Joseph Callan /s/
Executive Director for Operations

SUBJECT: DRAFT REGULATORY GUIDE AND STANDARD REVIEW PLAN ON RISK-
INFORMED INSERVICE INSPECTION OF PIPING

PURPOSE:

To request Commission approval to publish for comment draft Regulatory Guide DG-1063, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Inservice Inspection of Piping," and draft Standard Review Plan Section 3.9.8, "Standard Review Plan for the Review of Risk-Informed Inservice Inspection Applications," that support implementation of risk-informed regulation for power reactors.

BACKGROUND:

In response to the Commission's August 16, 1995, Policy Statement on the "Use of PRA Methods in Nuclear Regulatory Activities," and the Chairman's November 30, 1995, memorandum, "Follow-up Requests in Probabilistic Risk Assessment and Digital Instrumentation and Control," the staff sent a memorandum to the Chairman, dated January 3, 1996, outlining the plan to develop Regulatory Guides (RG) and Standard Review Plan (SRP) sections to support risk-informed regulation in the following areas:

- general guidance;
- inservice inspection (ISI);
- inservice testing (IST);
- technical specification (TS); and
- graded quality assurance (GQA).

CONTACT:
Jack Guttmann, RES
415-7732

In SECY-97-077, dated April 8, 1997, the staff provided draft versions of all the RGs and SRPs, except for inservice inspection programs for piping, to the Commission for approval to publish for public comment. In a staff requirements memorandum (SRM), dated June 5, 1997, the Commission approved publication of the draft regulatory guides, standard review plans and NUREG documents for a 90-day public comment period.

DISCUSSION:

The purpose of the draft RG and SRP on risk-informed ISI is to provide guidance to power reactor licensees and the NRC staff on an acceptable approach for utilizing risk information to support requests for changes in a plant's current licensing basis (CLB) for inservice inspection programs for piping. In effect, the draft RG describes a process, with examples, for an acceptable alternative means that a licensee can apply to propose plant specific CLB changes under 10 CFR 50.55a(a)(3)(i):

“Proposed alternatives to the requirements...may be used when authorized by the Director of the Office of Nuclear Reactor Regulation. The applicant shall demonstrate that:... [t]he proposed alternatives would provide an acceptable level of quality and safety...”

The draft RG and SRP build upon and supplement the general guidance for risk-informed regulatory programs, as outlined in the general guidance RG (DG-1061) and SRP (Chapter 19), approved by the Commission for public comment in the SRM dated June 5, 1997. As with DG-1061, use of RI-ISI programs is voluntary for licensees and is not considered a backfit. The RG and SRP require the risk-informed approach to be applied to piping in an integrated fashion (i.e., it applies to safety as well as non-safety systems). In doing this, it allows for the use of a qualitative as well as quantitative methods to assess the risk importance of the piping. In addition, it extends and applies the use of quantitative PRA technology to piping integrity through the use of fracture mechanics analytical techniques.

The draft risk-informed inservice inspection (RI-ISI) RG and SRP were developed in close coordination with industry initiatives in this area. Specifically, the nuclear industry submitted, through NEI, two topical reports on the subject. One topical report, WCAP-14572, sponsored by the Westinghouse Owners Group (WOG), demonstrates the application of the quantitative methods developed by the ASME Research Task Force on Risk-Based Inspection and the ASME Code Case Committee to ISI programs across the entire nuclear plant, and has refined it for regulatory application. The second topical report (EPRI TR-106706), sponsored by EPRI, demonstrates a more qualitative approach to RI-ISI programs developed through the ASME Code Case Committee. Each topical report supports an ASME Code Case and has a pilot plant associated with its development, demonstration and implementation. The pilot plant that implements the quantitative Code Case (N-577) is Surry. The pilot plants that implement the qualitative Code Case (N-578) are ANO-2 and Fitzpatrick. Proposed current licensing basis changes associated with the pilot applications are expected to be submitted to the NRC in September 1997.

Although ideally the RG and SRP should build upon final approved topical reports, the staff considered that the development of the RG/SRP in parallel with updating the topical reports

was a reasonable approach since the knowledge gained to date from review of the topical reports and from interacting with the American Society of Mechanical Engineers, WOG, EPRI and Virginia Power was used to help define the guidance contained in the RG and SRP. Additional interactions are expected over the next several months as work on the topical reports and pilots continues and the industry gets an opportunity to review the draft RG and SRP. The staff plans to hold a public workshop on the RI-ISI RG and SRP on October 30-31, 1997, at the Marriott Hotel, Bethesda, Maryland. The results of these additional interactions with the pilot plants and the public will be factored into the final RG and SRP.

Attached to this paper are the proposed Federal Register Notice (FRN) (Attachment 1) announcing the availability of the draft regulatory guide DG-1063 (Attachment 2), the SRP Section 3.9.8 (Attachment 3) and the workshop for risk-informed inservice inspection programs for piping. The FRN contains specific questions on which feedback is sought. A 90-day comment period is proposed.

COORDINATION:

The RG and SRP were reviewed by the ACRS and their views were provided in a letter dated July 14, 1997, (Attachment 4). As referenced in the July 14, 1997, ACRS letter, the staff revised the RG subsequent to the July 10, 1997 ACRS Full Committee meeting to respond to the ACRS recommendations. CRGR reviewed the RG and SRP and has no objection to their publication for public comment. The CRGR recommended that an independent peer review be performed in parallel with the public comment process on the identification of the number of welds to be inspected in a pipe segment. The staff plans to complete that peer review by October 1997.

The Office of the Chief Information Officer has reviewed the draft Regulatory Guide for information technology and information management implications and concurs in it.

The Office of the Chief Financial Officer has no resource objection to this paper.

OGC has no legal objection.

RECOMMENDATION:

That the Commission:

- 1) Approve publication of the attached draft FRN and issuance of, RG (DG-1063) and SRP (Section 3.9.8) for a 90-day public comment period.
- 2) Note:
 - a. Should our analysis conclude that there will be a significant burden reduction on the licensee, OMB approval of the information collections will be obtained before the final Regulatory Guide is published. In addition, before the final Regulatory Guide is published, the Paperwork Reduction Act Statement may require modification to indicate an amendment to existing information collections and OMB's approval of the amendment.

- b. A public announcement will be issued when the FRN is filed with the Office of the Federal Register.
- c. Copies of the FRN will be distributed to all power reactor licensees. The notice will be sent to other interested parties on request.
- d. A Backfit Analysis is not required because the RG and SRP do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1).

L. Joseph Callan
Executive Director
for Operations

Attachments:

- 1. Proposed Federal Register Notice
- 2. Draft Regulatory Guide-DG-1063 - ISI
- 3. Draft Standard Review Plan - ISI
- 4. ACRS Letter, dated July 14, 1997

cc:

SECY
OGC
OCA
OPA
CFO
CIO

ATTACHMENT - 1

FEDERAL REGISTER NOTICE

[7590-01-P]

FEDERAL REGISTER NOTICE

NUCLEAR REGULATORY COMMISSION

Draft Regulatory Guide and Standard Review Plan Section;

Issuance, Availability

SUMMARY: The Nuclear Regulatory Commission has issued for public comment drafts of a regulatory guide and a Standard Review Plan Section that discuss an alternative approach for meeting inservice inspection requirements for piping. These issuances follow the Commission's August 16, 1995 (60 FR 42622) policy statement on the "Use of PRA Methods in Nuclear Regulatory Activities." In June 1997, the NRC published for public comment (62 FR 34321) four draft guides, 3 standard review plans and a NUREG series document on the use of PRA in nuclear power reactor licensing. The NRC is developing guidance for power reactor licensees on acceptable methods for using probabilistic risk assessment (PRA) information and insights in support of plant-specific applications to change the current licensing basis (CLB) for inservice inspection of piping, known as risk-informed inservice inspection (RI-ISI) programs. The use of such PRA information and guidance will be voluntary. To facilitate comment, the Commission will conduct, on October 30 and 31,

1997, a workshop to explain the draft documents and answer questions. Section VI of this notice provides additional information on the scope, purpose and topics for discussion at the workshop.

COMMENTS: Comment period expires (insert date 90 days after date of publication in the Federal Register). Comments received after this date will be considered if it is practical to do so, but the Commission is able to assure consideration only for comments received on or before this date. Mail written comments to: Rules and Directives Branch, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Please (1) attach a diskette containing your comments, in either ASC11 text or Wordperfect format (Version 5.1 or 6.1), (2) or submit your comments electronically via the NRC Electronic Bulletin Board on FedWorld or the NRC's interactive rulemaking Website.

Deliver comments to 11545 Rockville Pike, Rockville, Maryland, between 7:30 a.m. and 4:15 p.m. on Federal workdays.

Requests for free single copies of draft regulatory guide and standard review plan, to the extent of supply, may be made in writing to the Printing, Graphics and Distribution Branch, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, or by fax to (301)415-5272. Copies of draft regulatory guide and the standard review plan section are available for inspection and copying for a fee at the NRC Public Document Room, 2120 L street N.W. (Lower Level), Washington, D.C. 20555-0001. Electronic copies of the draft document are also accessible on the NRC's interactive rulemaking web site through the NRC home page (<http://www.nrc.gov>). This site includes a facility to upload comments as files (any format), if your web browser supports the function.

For more information on the NRC bulletin boards call Mr. Arthur Davis, Systems Integration and Development Branch, NRC, Washington, D.C. 20555-0001, telephone (301) 415-5780; e-mail axd3@nrc.gov. For information about the interactive rulemaking site, contact Ms. Carol Gallagher, (301) 415-5905; e-mail cag@nrc.gov.

FOR FURTHER INFORMATION CONTACT: Jack Guttman, Office of Nuclear Regulatory Research, MS: T10-E50, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, (301) 415-7732, E-mail jxg@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Background

On August 16, 1995, the Commission published in the Federal Register (60 FR 42622) a final policy statement on the use of probabilistic risk assessment methods in nuclear regulatory activities. The policy statement included the following regarding NRC's expanded use of PRA.

1. The use of PRA technology should be increased in all regulatory matters to the extent supported by the state-of-the-art in PRA methods and data and in a manner that complements the NRC's deterministic approach and supports the NRC's traditional defense-in-depth philosophy.
2. PRA and associated analyses (e.g., sensitivity studies, uncertainty analyses, and importance measures) should be used in regulatory matters, where practical within the bounds of the state-of-the-art, to reduce unnecessary conservatism associated with current regulatory requirements, regulatory guides, license commitments, and staff practices. Where appropriate, PRA should be used to support proposals for additional regulatory requirements in accordance with 10 CFR 50.109 (backfit rule). Appropriate procedures for including PRA in the process for changing regulatory requirements should be

developed and followed. It is, of course, understood that the intent of this policy is that existing rules and regulations shall be complied with unless these rules and regulations are revised.

3. PRA evaluations in support of regulatory decisions should be as realistic as practicable and appropriate supporting data should be publicly available for review.
4. The Commission's safety goals for nuclear power plants and subsidiary numerical objectives are to be used with appropriate consideration of uncertainties in making regulatory judgments on the need for proposing and backfitting new generic requirements on nuclear power plant licensees.

It was the Commission's intent that implementation of this policy statement would improve the regulatory process in three areas:

1. Enhancement of safety decisionmaking by the use of PRA insights,
2. More efficient use of agency resources, and
3. Reduction in unnecessary burdens on licensees.

To help implement the Commission's PRA Policy Statement, draft regulatory guides and Standard Review Plans (SRP) were developed in the areas of:

- General guidance,
- Inservice inspection (ISI),
- Inservice testing (IST),
- Technical specification (TS), and
- Graded quality assurance (GQA).

The draft regulatory guides provide a proposed acceptable approach for power reactor licensees to prepare and submit applications for plant-specific changes to the current

licensing basis that utilize risk information. The draft standard review plans provide guidance to the NRC staff on the review of such applications. On June 25, 1997, all but the ISI draft regulatory guide and SRP were published for public comment (62 FR 34321).

This notice specifically seeks public comment on Draft Regulatory Guide DG-1063, "An Approach for Plant-Specific Decisionmaking: Inservice Inspection of Piping," and the accompanying draft Standard Review Plan Section 3.9.8, "Standard Review Plan for the Review of Risk-Informed Inservice Inspection of Piping." These documents are discussed in more detail below.

The draft guide and SRP are being developed to provide guidance to power reactor licensees and NRC staff reviewers on integrating risk information to support requests for changes in a plant's CLB for inservice inspection of piping. The regulatory guide describes a means by which licensees can propose plant-specific CLB changes under 10 CFR 50.55a(a)(3)(i). Adopting the approach in this regulatory guide would be voluntary. Licensees submitting applications for changes to their CLB may use this approach or an equivalent approach. To encourage the use of risk information in inservice inspection programs for piping, the staff intends to give priority to applications for burden reduction that use risk information as a supplement to traditional engineering analyses, consistent with the intent of the Commission's policy. All applications that improve safety will continue to receive high priority.

DG-1061, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Current Licensing Basis," and the draft SRP of Chapter 19 were developed to provide an overall framework and guidance that is applicable to any proposed CLB change when risk insights are used to support the change (62 FR

34321). The application-specific regulatory guide (RG) and SRP for ISI would build upon and supplement the general guidance contained in DG-1061 and provide additional guidance specific to inservice inspection programs for piping.

The guidance provided in these documents is designed to encourage licensees to use risk information by defining an acceptable framework for the use and integration of risk information on a plant-specific basis, while promoting consistency in PRA applications. It is expected that the long-term use of risk information in plant-specific licensing actions will result in improved safety by focusing attention on the more risk-significant aspects of plant design and operation. The draft guidance highlights to licensees acceptable methods and scope of analysis required to support the proposed changes to the plant's CLB.

II. Policy Issues

On May 15, 1996, the Commission requested the staff to recommend resolution of the following four policy issues associated with risk-informed changes to a plant's CLB:

- ! The role of performance-based regulation,
- ! Plant-specific application of safety goals,
- ! Risk neutral vs. increases in risk,
- ! Implementation of changes to risk-informed IST and ISI requirements.

These issues are applicable to RI-ISI programs. Public comments on these issues were requested in the June 25, 1997 FRN (62 FR 34321) under the heading, "Use of PRA in Plant Specific Reactor Regulatory Activities: Proposed Regulatory Guides, Standard Review Plan Sections, and Supporting NUREG." Comments provided on these issues in response to the June 25 FRN on related guides will be used by the staff in finalizing this guide as well. Comments on these issues as they specifically apply to this guide are also requested.

III. Structure, Guidelines and Rationale for RG/SRP

The approach described in the DG-1063 and the draft SRP has four basic steps.

These are:

- Define the proposed change;
- Perform an integrated engineering analysis (which includes both traditional engineering and risk analysis) and use an integrated decision process;
- Perform monitoring and feedback to verify assumptions and analysis; and
- Document and submit proposed change.

Five fundamental safety principles are described that should be met in each application for a change in the CLB. These principles are.

- The proposed change meets the current regulation. This principle applies unless the proposed change is explicitly related to a requested exemption or rule change (i.e., a 10 CFR 50.12 "specific exemption" or a 10 CFR 2.802 "petition for rulemaking");
- Defense-in-depth is maintained;
- Sufficient safety margins are maintained;
- Proposed increases in risk, and their cumulative effect, are small and do not cause the NRC safety goals to be exceeded;
- Performance-based implementation and monitoring strategies are proposed that address uncertainties in analysis models and data and provide for timely feedback and corrective action.

These principles represent fundamental safety practices that the staff believes must be retained in any change to a plant's CLB to maintain reasonable assurance that there is no undue risk to public health and safety. Each of these principles is to be considered in the analysis and integrated decisionmaking process.

The guidelines for assessing risk proposed in the draft guide and draft SRP are derived from the Commission's safety goal quantitative health objectives (QHOs). Specifically, the subsidiary objectives of core damage frequency (CDF) and large early release frequency (LERF) are used as the measures of risk against which changes in the CLB will be assessed, in lieu of the QHOs themselves, which require level 3 PRA information (offsite health effects). These measures were chosen to simplify the scope of PRA analysis needed, to avoid the large uncertainties associated with level 3 PRA analysis, and to be consistent with previous Commission direction to decouple siting from plant design. These values are described in the June 25, 1997 Federal Register Notice (62 FR 34321) on "Use of PRA in Plant Specific Reactor Regulatory Activities: Proposed Regulatory Guides, Standard Review Plan Sections, and Supporting NUREG."

IV. Comments

The staff is soliciting comments related to the guidance described in the draft regulatory guide DG-1063 and SRP Section 3.9.8. Comments submitted by the readers of this FRN will help ensure that these draft documents have appropriate scope, depth, quality, and effectiveness. Alternative views, concerns, clarifications, and corrections expressed in public comments will be considered in developing the final documents.

V. Workshop

The Commission will conduct a workshop on October 30 and 31, 1997, to discuss and explain the material contained in the draft guide and SRP, and to answer questions and receive comments and feedback on the proposed documents. The purpose of the workshop is to facilitate the comment process. In the workshop, the staff will describe each document, its basis, and solicit comment and feedback on its completeness, correctness and usefulness.

Since these documents cover a wide range of technical areas, many topics will be discussed.

Listed below are topics on which discussion and feedback are sought at the workshop:

- A) Is the level of detail in the guidance contained in the proposed regulatory guide and SRP clear and sufficient, or is more detailed guidance necessary? What level of detail is needed.
- B) Is it acceptable to use qualitative information (e.g., not quantifying the change in risk -- ?CDF and ?LERF) to propose changes in ISI programs? If so, does DG-1063 provide adequate guidance in this regard? Can qualitative assessments be used to identify and categorize piping segments as high, medium and low safety significant? How? What are the limitations of such an approach?
- C) Under the risk-informed approach, what is the appropriate size of the sample of welds or piping segment areas that should be inspected? What should the criteria be for selecting the sample size?
- D) How should welds or piping segment areas in the inspection sample be selected for inspection: randomly, those most likely to experience degradation, or some combination of random and possible degradation? What would be the basis for the recommended selection process?
- E) Once selected, should the same welds or piping segment areas be inspected at each inspection interval or should different welds or piping segment areas be included in the sample? What would be the basis?
- F) DG-1063 proposes a method for meeting the criteria for acceptable safety and quality, as addressed in 10 CFR 50.55a(a)(3)(i). That method applies leak frequency target goals to maintain piping performance levels at or improved

over the existing performance observed when implementing ASME Section XI requirements. Are there other acceptable risk-informed means by which to meet the criteria in 10 CFR 50.55a(a)(3)(i)?

- G) Should the scope of DG-1063 permit licensees to propose ISI changes to selected systems, in lieu of assessing the entire piping in the plant? For example, would it be acceptable for a licensee to limit its analysis to Class 1 piping (reactor coolant system piping) and not consider other piping in the plant? Such an analysis would not provide information required for categorizing piping in the plant and thereby grading the inspection based on plant risk. It would also discourage the use of risk-insights (e.g., PRA) to identify risk-significant piping within the plant. How can the concept of assessing risk in an integrated fashion be maintained if the scope were limited to one or a limited number of systems, such as Class 1 piping. What is gained by analyzing all the systems versus only selected systems? What is lost by minimizing the scope?
- H) The decision metrics described in Attachment 2 to DG-1063 identify a 2-by-2 matrix for identifying a graded approach to inspection based on risk and failure potential. Piping segments categorized as high-safety-significant and high-failure-potential receive more inspections than segments categorized as high-safety-significant and low-failure-potential. The number of inspections for the high-safety-significant and low-failure-potential segments is based on meeting target leak frequency goals and incorporates uncertainties in the probability of detection. What other methods are available to provide a comparable level of quality and safety? What are the technical bases for those other methods?

- I) How should the time dependence of degradation mechanisms be accounted for in selecting inspection intervals and categorizing the safety significance of pipe segments?
- J) On what basis could the requirement for ISI be eliminated? For example, if a detailed engineering analysis identifies a Class 1 or 2 piping segment as low-safety-significant and low-failure-potential, is it acceptable to eliminate the requirement for ISI or should a Class 1 or a 2 pipe segment be considered part of the defense-in-depth consideration and be required to have some level of inspection regardless of its categorization as low-safety-significant and low-failure potential? If yes, why? If not, why not?
- K) Are data bases available on degradation mechanisms and consequences of piping failures? Is data available to identify the secondary effects that can result from a pipe break, such as high-energy pipe whip damaging other piping and components in the vicinity of the break? What are the industry's plans for developing and maintaining an up-to-date data base on plant piping performance? Should a commitment to develop and maintain such a data base be required for a RI-ISI program? How could it be ensured that the data base is maintained?
- L) Does the application of the Perdue-Abramson model (DG-1063, Attachment 4), with the use of the decision metrics and leak frequency goals (DG-1063, Attachment 2) provide an alternative acceptable level of quality and safety as required by 10 CFR 50.55a(a)(3)(i)? Alternatively, should there be a leak frequency goal independent of core damage frequency goal, as a measure of defense in depth?

- M) Is the guidance proposed by the staff for finding a fracture mechanics computer model acceptable for use in RI-ISI programs clear and adequate? If not, what is missing?
- N) Is the guidance on risk categorization clear and sufficient, or is additional guidance needed? What additional guidance is needed?
- O) Table A5.1, in DG-1063, identifies a proposed checklist that could assist in identifying potential locations for various degradation mechanisms in a pipe. Is this checklist complete? What additional information could enhance the usefulness of such a check list?

WORKSHOP MEETING INFORMATION:

A 2-day workshop will be held to obtain public comment on the subject draft Regulatory Guide(DG-1063) and the accompanying draft standard review plan (Section 3.9.8), and to respond to questions. Persons other than NRC staff and NRC contractors interested in making a presentation at the workshop should notify Jack Guttman, US Nuclear Regulatory Commission, MS T10E50, phone (301) 415-7732, e-mail jxg@nrc.gov. Comments on the regulatory guidance and standard review plan documents for discussion at the workshop should be submitted in writing and in electronic mail (JXG@nrc.gov) in WordPerfect 5 or 6.1 compatible format.

DATE: October 30-31, 1997

AGENDA: Preliminary agenda is as follows: (A final agenda will be available at the workshop.)

Wednesday, October 29, 1997

Time

3:00 pm to 7:00 pm

Registration

Thursday, October 30, 1997

Time

7:00 am to 4:00 pm Registration

Session 1: (Morning 10/30/97 - 8:00 am - 11:30 am)

Overview by NRC management of the draft regulatory guide and standard review plan, followed by NRC staff presentation on the draft documents (DG-1063 and SRP Section 3.9.8).

Lunch: 11:30 am - 1:00 pm

Session 2: (Afternoon 10/30/97 - 1:00 pm - 5:00 pm)

Public/Industry presentations on issues and recommendations for the general guidance documents, followed by open discussions.

Friday, October 31, 1997

Session 3: (Morning 10/31/97 - 8:00 am -11:30 pm)

Open discussion of issues.

Session 4: (Afternoon 10/31/97 - 1:00 am -3:00 pm)

Overview of comments, issues and resolution options identified in the sessions. Concluding remarks and near-term plans will be covered by the staff.

LOCATION: Bethesda, Maryland

HOTEL: Bethesda Marriott

5151 Pooks Hill Road

Bethesda, Maryland

(301) 897-9400

REGISTRATION: There is no registration fee for this workshop. However, we

request that interested parties register in writing to Kesselman-Jones, 8912 James Ave. NE, Albuquerque, New Mexico 87111 their intent on participating in the workshop. Please include name, organization, address and phone number

with your registration request. *Notification of attendance (e.g., pre-registration) is requested so that adequate space, etc. for the workshop can be arranged.* Questions regarding meeting registration or fees should be directed to Kesselman-Jones, Phone (505) 271-0003, fax (505) 271-0482, e-mail kessjones@aol.com.

VI. Paperwork Reduction Act Statement

This draft regulatory guide contains information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq). This regulatory guide will be submitted to the Office of Management and Budget for review and approval of the information collection requirements before the final guide is published.

VII. Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a currently valid OMB control number.

VIII. Regulatory Analysis

1. Statement of the problem

During the past several years, both the Commission and the nuclear industry have recognized that probabilistic risk assessment (PRA) has evolved to the point that it can be used increasingly as a tool in regulatory decisionmaking. In August 1995 the Commission published a policy statement that articulated the view that increased use of PRA technology would 1) enhance regulatory decisionmaking, 2) allow for a more efficient use of agency

resources, and 3) allow a reduction in unnecessary burdens on licensees. In order for this change in regulatory approach to occur, guidance must be developed describing acceptable means for increasing the use of PRA information in the regulation of nuclear power reactors.

2. Objective

To provide guidance to power reactor licensees and NRC staff reviewers on acceptable approaches for utilizing risk information (PRA) to support requests for changes in a plant's current licensing basis (CLB). It is intended that the changes in regulatory approach addressed by this guidance should allow a focussing of both industry and NRC staff resources on the most important regulatory areas while providing for a reduction in burden on the resources of licensees. Specifically, guidance is to be provided in several areas that have been identified as having potential for this application. This application includes risk-informed inservice inspection programs for piping.

3. Alternatives

The increased use of PRA information as described in the draft regulatory guide being developed for this purpose is voluntary. Licensees can continue to operate their plants under the existing procedures defined in their CLB. It is expected that licensees will choose to make changes in their current licensing bases to use the new approaches described in the draft regulatory guide only if it is perceived to be to their benefit to do so.

4. Consequences

Acceptance guidelines included in the draft regulatory guide state that only small increases in overall risk are to be allowed under the risk-informed program. Reducing the inspection frequency of piping identified to represent low risk and low failure potential as provided for under this program is an example of a potential contributor to a small increase in plant risk. However, the program also requires increased emphasis on piping categorized as high-safety -significant and high-failure-potential that may not be inspected under current

programs. This is an example of a potential contributor to decreases in plant risk. An improved prioritization of industry and NRC staff resources, such that the most important areas associated with plant safety receive increased attention, should result in a corresponding contributor to a reduction in risk. Some of the possible impacts on plant risk cannot be readily quantified using present PRA techniques and must be evaluated qualitatively. The staff believes that the net effect of the risk changes associated with the risk-informed programs, as allowed using the guidelines in the draft regulatory guide, should result in a very small increase in risk, maintain a risk-neutral condition, or result in a net risk reduction in some cases.

5. Decision Rationale

It is believed that the changes in regulatory approach provided for in the draft regulatory guide being developed will result in a significant improvement in the allocation of resources both for the NRC and for the industry. At the same time, it is believed that this program can be implemented while maintaining an adequate level of safety at the plants that choose to implement risk-informed programs.

6. Implementation

It is intended that the risk-informed regulatory guide on inservice inspection of piping (DG-1063) be published by early to mid CY 1998.

Dated at Rockville, Maryland, this _____ day of _____ 1997.

For the Nuclear Regulatory Commission.

John C. Hoyle,

Secretary of the Commission.

ATTACHMENT - 2

DRAFT REG. GUIDE 1063
RISK-INFORMED INSERVICE
INSPECTION OF PIPING

ATTACHMENT - 3

DRAFT SRP SECTION 3.9.8

RISK-INFORMED INSERVICE

INSPECTION OF PIPING

ATTACHMENT - 4

ACRS LETTER ON DRAFT RG 1063

AND DRAFT SRP 3.9.8

RISK-INFORMED INSERVICE

INSPECTION OF PIPING