

May 6, 1991

MEMORANDUM FOR: Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

Frank J. Miraglia, Deputy Director
Office of Nuclear Reactor Regulation

James G. Partlow, Associate Director
for Projects

William T. Russell, Associate Director for
Inspection and Technical Assessment

Frank P. Gillespie, Director
Program Management, Policy Development
and Analysis Staff

FROM: Helen Nicolaras Pastis, ACRS Coordinator
Policy Development and Technical Support Branch
Program Management, Policy Development and
Analysis Staff

SUBJECT: SUMMARY OF 372nd ACRS FULL-COMMITTEE MEETING
(APRIL 1991)

I have enclosed a summary of selected topics that were discussed at the 372nd meeting of the Advisory Committee on Reactor Safeguards (ACRS) that was held on April 11-13, 1991. I have also enclosed with the summary the letters that the ACRS issued as a result of the meeting.

Helen Nicolaras Pastis, ACRS Coordinator
Policy Development and Technical Support Branch
Program Management, Policy Development
and Analysis Staff

Enclosures:
As stated

cc w/enclosures:
NRR Directors
NRR Assistant Directors
NRR Project Directors
NRR Branch Chiefs

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SUMMARY OF THE 372nd ACRS FULL-COMMITTEE MEETING
April 11-13, 1991

I. Meeting Agenda

<u>Subject</u>	<u>Presenter's Organization</u>
Proposed Rule For License Renewal	RES, NUMARC
Maintenance Rule	NRR, RES
Vogtle 1 IIT Results	AEOD
Performance Indicator Program	RES
Generic Issue 130, Essential Service Water System Failures at Multi-Unit Sites	RES
Human Factors Site Visits	AEOD
Certification of ELWRs	NRR
Containment Design Criteria	ACRS

II. Letters Issued

The ACRS issued the following letters:

"Draft Final Rule on Nuclear Power Plant License Renewal," from D. Ward to Chairman K. Carr, April 17, 1991 (Enclosure 1).

"Staff Evaluation and Recommendations on Maintenance Rulemaking," from D. Ward to Chairman K. Carr, April 18, 1991 (Enclosure 2).

"Proposed Resolution of Generic Safety Issue 130, "Essential Service Water System Failures at Multi-Unit Sites," from D. Ward to J. Taylor, April 18, 1991 (Enclosure 3).

"Proposed Policy Issues Identified in SECY-91-078, 'Chapter 11 of the Electric Power Research Institute's (EPRI'S) Requirements Document and Additional Evolutionary Light Water Reactor (LWR) Certification Issues,'" from D. Ward to Chairman K. Carr, April 23, 1991 (Enclosure 4).

III. Discussion of Specific Topics of Interest to NRR

A. Proposed Rule For License Renewal

Mr. W. Minners (RES) briefed the ACRS on the proposed final rule for license renewal. Mr. Minners discussed in detail the comments the staff received from the public. Mr. W. Rasin

(NUMARC) stated that industry disagrees with the staff that important documents that formed the licensing basis of plants must be compiled. Mr. Rasin said that industry's main concern is that compilation of these documents may lead to unnecessary hearings on the current licensing basis. Industry considers this effort unnecessary and irrelevant, and it may provide the opportunity for harassment. In its letter (Enclosure 1), the ACRS stated that it concurs with the approach being taken by the staff in the rulemaking; however, there are two areas of disagreement between the staff and NUMARC that ACRS brings to the Commission's attention.

B. Maintenance Rule

Messrs. W. Brach (NRR) and C. Ader (RES) briefed the ACRS on the staff's SECY paper. The staff discussed the three alternatives for plant maintenance. These alternatives include a policy paper on maintenance, program-based rulemaking, and reliability-based rulemaking. The staff recommends to the Commission the policy-paper alternatives based on industry performance thus far. The staff also believes that adequate enforcement exists to ensure that high-quality programs will continue at plants. In its letter (Enclosure 2), the ACRS stated that given the industry initiatives and the improving trend in industry maintenance practices, it agrees with the staff's recommendation that the Commission not proceed with rulemaking but instead issue a final policy statement on maintenance. However, the ACRS offered numerous comments and recommendations on the version of the staff's proposed final policy statement on maintenance that it reviewed.

C. Vogtle 1 IIT Results

Mr. S. Rubin (AEOD) gave a status report on the staff actions resulting from the Vogtle 1 IIT.

D. Generic Issue 130, Essential Service Water System Failures at Multi-Unit Sites

Mr. Demetrios L. Basdekas (RES) gave a presentation on Generic Issue 130, "Essential Service Water System Failures at Multi-Unit Sites." To resolve this issue, RES recommends revising only the Technical Specifications and the procedures.

In its letter (Enclosure 3), the ACRS stated that it disagrees with the staff's conclusion that issuance of the proposed generic letter has been justified on a cost-benefit basis.

E. Containment Design Criteria

The ACRS continues to prepare its report to the Commission regarding containment design criteria for future light-water reactor plants.

F. Certification of ELWRs

Messrs. T. Boyce and J. Lazevnick (NRR) briefed the ACRS on the staff's review of EPRI's Requirements Document Chapter 11 on electrical systems. NRR discussed the potential policy issues that arose from the review and stated the staff's proposed policy positions. In its letter (Enclosure 4), the ACRS disagrees with the staff's positions.

IV. Items of Interest About The ACRS

A. Biography

This month we feature Dr. Ivan Catton. Canadian-born, Dr. Catton received his B.S. in 1959 and his Ph.D. in 1966 from the University of California. He is currently a professor in the Department of Mechanical, Aerospace, and Nuclear Engineering at UCLA. He is a recipient of the 1981 ASME Heat Transfer Memorial Award.

He is the author or coauthor of over 200 technical publications in the fields of heat transfer and fluid mechanics on subjects ranging from space microgravity to engineering thermal hydraulics in support of nuclear power. Dr. Catton is also an editor for the Journal of Heat Transfer. He was appointed to the ACRS in 1989.

B. Future Activities

The following is a preliminary list of future sub- and full-committee meetings:

<u>Date</u>	<u>Subject</u>
June 5	Evaluation of Risk During Shutdown and Low Power Operation
June 6-8	374th Full-Committee Meeting



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

April 17, 1991

The Honorable Kenneth M. Carr
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Carr:

SUBJECT: DRAFT FINAL RULE ON NUCLEAR POWER PLANT LICENSE RENEWAL

During the 372nd meeting of the Advisory Committee on Reactor Safeguards, April 11-13, 1991, we reviewed the draft of the final rule on nuclear power plant license renewal (10 CFR Part 54). Our Subcommittee on Plant License Renewal discussed this matter during its April 8, 1991 meeting. During our consideration of this matter, we had the benefit of discussions with representatives of the NRC staff, NUMARC, and Northern States Power Company. The latter is the licensee for the Monticello Nuclear Generating Plant, which is a lead plant in the license renewal program. We also had the benefit of the document referenced.

The ACRS reported to you on the proposed license renewal rule in its report of April 11, 1990. Since that time, the proposed rule was published for public comment. The staff received 197 comments. It has assimilated information from these comments and information received in a number of interactions with industry and has prepared a draft final rule. The schedule calls for the final rule to be published by June 28, 1991, and for other parts of the rulemaking package, a regulatory guide and a standard review plan, to be published about one year later.

As stated in our April 11, 1990 report, we concur with the approach being taken by the staff in this rulemaking. However, there are two areas of disagreement between the staff and NUMARC that we would like to bring to your attention. The first might require a modification in the draft final rule. The second is related to implementation of the rule.

The first matter is an issue on which we do not have a recommendation except that it should receive your consideration. The draft final rule requires that each applicant for license renewal develop a "compilation" of its Current Licensing Basis. Although it is not precisely clear what this means, it was agreed that it would, at a minimum, include a list of all licensing commitments agreed to by the applicant over the history of its plant. Industry representatives believe this is unnecessary.

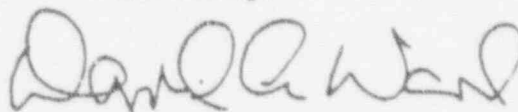
April 17, 1991

The second issue is how implementation of the rule will be limited in scope to concentrate resources for aging management where needed. The rule would require that each applicant develop a list of Systems, Structures, and Components Important to License Renewal (SSCITLR) and then implement an aging management program appropriate for items on that list. The staff's position is that the original SSCITLR list should include all those items in the plant that play a role in meeting any docketed commitment the licensee has made. This would include the original license; commitments related to new rules as they came into being; and commitments made in response to Safety Evaluation Reports, Information Notices, Bulletins, Generic Letters, and Orders.

The industry representatives told us that such a definition of SSCITLR would result in a list that includes 85 to 90 percent of all equipment in the plant. They believe that application of a special aging program to all of these items would be unnecessary and onerous. The process of reducing the initial SSCITLR list to just those items to be covered by a special aging program is critical. Items important to implement other commitments would not thereby be ignored. They would be maintained through the new license period just as they are now.

We believe that selection of those items to be subjected to a special aging program should be based on technical rather than legal argument. Our understanding is that a program of this nature can be developed with the rule as presently drafted. However, implementation will require careful crafting of the regulatory guide and the standard review plan. We would like the opportunity to review these documents before they are issued.

Sincerely,



David A. Ward
Chairman

Reference:

Memorandum dated March 6, 1991 from Warren Minners, Office of Nuclear Regulatory Research, to Raymond F. Fraley, ACRS, Subject: Final Rule on Nuclear Power Plant License Renewal, with enclosures (Predecisional)



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

April 17, 1991

The Honorable Kenneth M. Carr
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Carr:

SUBJECT: STAFF EVALUATION AND RECOMMENDATIONS ON MAINTENANCE
RULEMAKING

During the 372nd meeting of the Advisory Committee on Reactor Safeguards, April 11-13, 1991, we discussed with the NRC staff their current evaluation and recommendations on maintenance rulemaking for nuclear power plants. Our Maintenance Practices and Procedures Subcommittee met with the staff on this matter on April 10, 1991. During these meetings, we had the benefit of comments by a representative of NUMARC and also had the benefit of the documents referenced.

Given the industry initiatives and the improving trend in industry maintenance practices, we agree with the staff's recommendation contained in SECY-91-XXX that the Commission not proceed with rulemaking but, instead, issue a final Policy Statement on maintenance. We do, however, have a number of comments and recommendations on the version of the staff's proposed final Policy Statement on maintenance that we reviewed.

BACKGROUND

We have commented previously on a maintenance rule in our reports of September 13, 1988 and April 11, 1989. While we agreed that a good maintenance program is necessary to ensure safe and reliable nuclear power plant operation, we opposed the promulgation of the various proposed rules and their accompanying regulatory guides. We presented arguments to support our view that this proposed rulemaking was likely to be counterproductive to improved nuclear power plant maintenance practices. It appeared to us that these practices were continuing to improve as the result of substantial industry initiatives that had been in progress since INPO was established in 1980. We also believe that the Commission's emphasis on maintenance over the past several years has served to stimulate this progress.

In our April 11, 1989 report, we commented that the scope of the proposed rule and its accompanying regulatory guide was excessively

broad and suggested a reevaluation of current regulations to determine where overall regulatory emphasis (not just maintenance but all facets of regulation) should be placed on balance-of-plant systems. We also suggested, based on our discussions with the staff, including the Office of the General Counsel, that improvements could be effected for the few plants with "poor" maintenance programs by enforcement of existing regulations.

In our report of October 12, 1989, we commented on a proposed revision to the Commission's March 23, 1988 Policy Statement on nuclear power plant maintenance. We recommended that this revised Policy Statement not be issued, but that the staff obtain additional public and industry comments and continue to monitor industry improvement efforts in order to determine if a rule or Policy Statement was really needed. By doing so, the staff would gain additional information that would be helpful in defining scope and content for a rule or policy statement. We also expressed concern regarding the staff's proposal that an enforcement policy be adopted wherein escalated civil penalties would be imposed for violations where maintenance was the root cause. We pointed out that this might cause licensees to divert resources from other important safety-related activities with a net negative impact on safety.

The Commission issued this revised Policy Statement on December 12, 1989 but requested the staff to inform the Commission of public comments received relative to the escalated enforcement policy that was included in the Policy Statement. The staff, in SECY-90-094 dated March 15, 1990, provided this information and recommended that the escalated enforcement policy be rescinded. The Commission has not yet acted on this recommendation.

THE STAFF'S CURRENT MAINTENANCE RULEMAKING PACKAGE

At this time, the staff is in the process of preparing a SECY document presenting its recommendations. A final position has not been reached, and our review and comments are based on a draft version, marked up to reflect the staff's responses to prior reviews by the CRGR and senior staff management, and further revisions proposed orally by the staff during our meeting.

The staff addresses the need for a maintenance rule and recommends that no rule be promulgated. Instead, the staff recommended that the Commission should issue a revised Policy Statement that emphasizes the need for licensees to complete the ongoing efforts to develop and continue to maintain effective maintenance programs. The proposed SECY also describes the staff's plan for monitoring industry programs. Further, the staff during our meeting proposed its intention to recommend rescission of the present enforcement policy of escalating civil penalties for violations resulting from poor maintenance practices.

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ACRS EVALUATION OF SECY-91-XXX

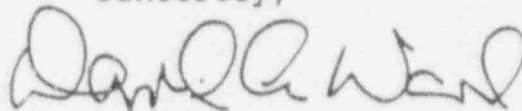
- We are in agreement with the staff's assessment that the industry has made considerable improvement in the quality of nuclear power plant maintenance over the past several years. This is indicated by the results of maintenance team inspections, reinspections, and improving trends in performance indicators and SALP ratings.
- We are impressed by ongoing industry initiatives and commitments to further improve nuclear power plant maintenance. These include the issuance of INPO 90-008, "Maintenance Programs in the Nuclear Power Industry," which is a compilation of INPO's maintenance performance objectives and criteria. The staff has reviewed INPO 90-008 and concluded that it is an acceptable industry maintenance program document delineating necessary program elements. We agree that this document provides appropriate guidance to a utility manager on how to achieve the objectives required for a good maintenance program.
- The draft Policy Statement, under "Maintenance Definition and Process," provides a compilation of "activities and supporting functions that should be considered in a maintenance program." This compilation comes from the staff's draft performance based regulatory guide and the Commission's current Policy Statement. The listing uses language generally similar to but different from that of INPO 90-008. We recommend that this section of the Policy Statement either be deleted or revised to agree with INPO 90-008 in order to avoid confusion as to the Commission's views.
- The draft Policy Statement, in the last paragraph under "Position," describes those structures, systems, and components (SSCs) that licensees should include in their maintenance programs. We have two concerns with the language of the draft SECY document. First, we believe that the scope envisioned for balance-of-plant SSCs is overly broad. The staff told us that it has prepared revised wording to limit the scope for balance-of-plant SSCs to only those SSCs that could directly result in conditions adverse to safety. This revised wording appears to be acceptable. Our second concern is the absence of explicit language to require the inclusion in the scope of licensee's maintenance programs of those non-safety-related SSCs that are important to the mitigation of severe accidents. We recommend that the Policy Statement be revised to include these programs.
- The staff told us that it plans to recommend that the maintenance escalation factor, which was made a part of the enforcement policy in the revised Policy Statement published

April 17, 1991

on December 8, 1989, be rescinded. As discussed above, we disagreed with the original establishment of this escalation factor in our report of October 12, 1989. We agree with the staff that the maintenance escalation factor should be rescinded.

- The staff plans to continue to monitor the effectiveness of licensee maintenance programs, as described under "Future Actions" in the draft Policy Statement. This monitoring activity appears to be appropriate for the purpose.

Sincerely,



David A. Ward
Chairman

References:

1. SECY-91-XXX (Draft), Memorandum for the Commissioners from James M. Taylor, Executive Director for Operations, Subject: Staff Evaluation and Recommendation on Maintenance Rulemaking (Predecisional), transmitted by memorandum dated March 14, 1991 from James H. Sniezek, Nuclear Reactor Regulation, to R. Fraley, ACRS
2. Institute of Nuclear Power Operations, INPO 90-008, Revision 01, "Maintenance Programs in the Nuclear Power Industry," dated March 1990 (Proprietary)
3. SECY-90-094, Memorandum for the Commissioners from James M. Taylor, Executive Director for Operations, Subject: Public Comments Received Concerning the Enforcement Policy Revision Involving Maintenance-Related Root Cause, dated March 15, 1990 (Predecisional)



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

April 18, 1991

Mr. James M. Taylor
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Taylor:

SUBJECT: PROPOSED RESOLUTION OF GENERIC SAFETY ISSUE 130,
"ESSENTIAL SERVICE WATER SYSTEM FAILURES AT MULTI-UNIT
SITES"

During the 372nd meeting of the Advisory Committee on Reactor Safeguards, April 11-13, 1991, we reviewed the NRC staff's proposed resolution of Generic Safety Issue 130, "Essential Service Water System Failures at Multi-Unit Sites." Our Subcommittee on Auxiliary and Secondary Systems also reviewed this matter during its meeting on March 22, 1991. During this review, we had the benefit of discussions with representatives of the NRC staff and of the documents referenced.

We do not agree with the staff's conclusion that issuance of the proposed generic letter has been justified on a cost-benefit basis. A number of assumptions used in the analysis do not appear to provide a fair and balanced comparison of potential costs and benefits. It appears to us that there would be a wide variation in the conclusions if the analysis were done for each individual plant.

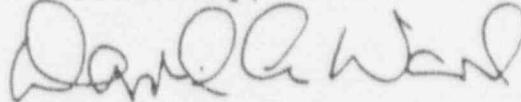
We believe that the emergency service water systems of these seven plants should be analyzed as a part of their Individual Plant Examinations (IPEs). Vulnerabilities should be corrected where necessary. The staff should consider making the analysis it has performed for this proposed resolution available to these licensees for use in performing their IPEs.

In the interim, we believe that the staff can assure itself through its inspection program that the licensees of these plants are applying appropriate risk management to the operation and surveillance of their emergency service water systems.

April 18, 1991

We will consider the advisability of requiring a separate and independent cooling system for reactor coolant pump seals when we review the proposed resolution of Generic Issue 23, "Reactor Coolant Pump Seal Failures."

Sincerely,



David A. Ward
Chairman

References:

1. Memorandum dated March 6, 1991 from Warren Minners, Office of Nuclear Regulatory Research, to Raymond F. Fraley, Advisory Committee on Reactor Safeguards, Subject: Resolution Package of Generic Issue 130, "Essential Service Water System Failures at Multi-Unit Sites," with enclosures (Predecisional)
2. Memorandum dated March 29, 1991 from Warren Minners, Office of Nuclear Regulatory Research, to Raymond F. Fraley, Advisory Committee on Reactor Safeguards, Subject: Resolution Package of Generic Issue 130, "Essential Service Water System Failures at Multi-Unit Sites," with enclosures (Predecisional)



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

Enclosure 4

April 23, 1991

The Honorable Kenneth M. Carr
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Carr:

SUBJECT: PROPOSED POLICY ISSUES IDENTIFIED IN SECY-91-078,
"CHAPTER 11 OF THE ELECTRIC POWER RESEARCH INSTITUTE'S
(EPRI'S) REQUIREMENTS DOCUMENT AND ADDITIONAL EVOLUTION-
ARY LIGHT WATER REACTOR (LWR) CERTIFICATION ISSUES"

During the 372nd meeting of the Advisory Committee on Reactor Safeguards, April 11-13, 1991, we discussed the two Policy Issues identified in SECY-91-078 related to the certification of the Evolutionary Light Water Reactors. Our Subcommittee on Improved Light Water Reactors also discussed these issues on April 9-10, 1991 in its continuing review of the EPRI Advanced Light Water Reactors (ALWR) Requirements Document. During these meetings, we had the benefit of discussions with representatives of the NRC staff and EPRI. We also had the benefit of the documents referenced.

The staff's position regarding the first Policy Issue is that "an evolutionary ALWR design should include an alternate power source to the non-safety loads unless the design can demonstrate that the design margins in the evolutionary ALWR will result in transients for a loss of non-safety power event that are no more severe than those associated with the turbine-trip-only event in current existing plant designs." The staff's major concern is that the ALWR designs are departures from past practice and may result in an increased frequency of shutdowns that require cooling by natural circulation. Presently licensed plants have electrical systems that provide an alternate power source to non-safety loads on shutdown. However, the staff did not substantiate its concerns with respect to the proposed EPRI design requirements.

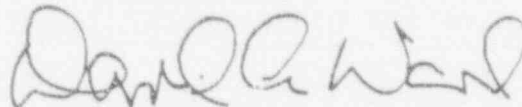
EPRI claims that the ALWR is designed to safely accommodate shutdown with natural circulation and that the increased frequency of such events is small with this design. The EPRI requirements for the ALWR electrical system design fully meet General Design Criterion (GDC) 17, "Electric Power Systems," and the staff guidance contained in Regulatory Guide 1.32, Revision 2, "Criteria for Safety-Related Electric Power Systems for Nuclear Power Plants." The ALWR electrical power system design is arranged to

April 23, 1991

supply electric power to the plant's safety loads from the main generator, the plant switchyard, an independent transmission line, a gas turbine generator, and the diesel generators. The design uses a generator circuit breaker between the main generator and the step-up transformer and has an improved full turbine load rejection capability. EPRI claims high reliability of electric power to the unit auxiliary transformers and has provided data to support its claim that the benefits derived from adding an alternate power source to the non-safety loads are small and not cost effective. We concur with the EPRI position.

The staff's position regarding the second Policy Issue is based on a misunderstanding of the text of the EPRI requirements. As a result, the staff proposes an additional requirement that "at least one offsite circuit to each redundant safety division should be supplied directly from one of the offsite power sources with no intervening non-safety buses, in such a manner that the offsite source can power the safety buses upon a failure of any non-safety bus." The staff's concern is that routing offsite power to the safety buses through non-safety buses may subject safety equipment to undesirable disturbances on the non-safety buses. Therefore, the staff's position would require the capability to supply safety buses directly from offsite power. The staff did not substantiate its concern. However, the EPRI requirements for ALWR electrical power system design already provide one alternate circuit to each of the redundant safety divisions directly from offsite power. This meets the staff's position. EPRI agreed to clarify the text to document this requirement. EPRI's position is that the direct circuit from offsite to each of the redundant safety divisions should be the backup power supply and the normal supply should be from the plant's auxiliary electric system. We concur with EPRI's position, but do not believe that this should become a regulatory requirement.

Sincerely,



David A. Ward
Chairman

1. SECY-91-078, Memorandum dated March 25, 1991 for the Commissioners from James M. Taylor, Executive Director for Operations, Subject: Chapter 11 of the Electric Power Research Institute's (EPRI's) Requirements Document and Additional Evolutionary Light Water Reactor (LWR) Certification Issues (Predecisional)
2. U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Draft Safety Evaluation Report on Chapter 11 of

- the Advanced Light Water Reactor Requirements Document for Evolutionary Plant Designs, March 1991
3. Electric Power Research Institute, "Advanced Light Water Reactor Requirements Document, Chapter 11 - Electric Power Systems," Issued April 11, 1989