

PDR



October 19, 1989

POLICY ISSUE
(Affirmation)

SECY-89-325

For: The Commissioners
From: James M. Taylor, Acting Executive Director for Operations
Subject: REVISED POLICY STATEMENT AND ENFORCEMENT CRITERIA RELATED TO THE MAINTENANCE OF NUCLEAR POWER PLANTS

Purpose: To obtain Commission approval to publish a Revised Policy Statement on Maintenance of Nuclear Power Plants and to describe the criteria to be used to determine when plant specific orders or other enforcement action should be taken under the revised policy statement, including a proposal to change the Commission's Enforcement Policy.

Background: The Commission originally published a Final Policy Statement on the Maintenance of Nuclear Power Plants on March 23, 1988 (53 FR 9430). That policy statement provided the Commission's expectations for maintenance at nuclear power plants and stated the Commission's intention to proceed with rulemaking on maintenance. In response to the staff's proposed final rule on maintenance (SECY-89-143), the Commission, in a memorandum from Chilk to Stello, dated June 26, 1989, requested, among other things, that the staff prepare a revised Policy Statement on the Maintenance of Nuclear Power Plants describing the Commission's actions and expectations for improving maintenance while the need for additional regulatory action is evaluated over the next 18 months, and establish criteria to be used to determine when a plant specific order or other enforcement action should be taken under the revised policy statement.

Discussion: A revised policy statement (enclosure 1) has been developed consistent with Commission guidance in the June 26, 1989 Chilk to Stello memorandum. This revised policy statement restates the major elements of the Commission's March 23, 1988 policy statement on maintenance and includes additional elements related to the Commission's actions and expectations for maintenance. As such, this revised policy statement is a

CONTACT: Moni Dey, RES
49-23730
James Lieberman, OE
49-20741

891024 0067 XA
3/89

DF62
o/i

stand alone document and is intended to replace the existing policy statement. Note that the revised policy statement:

1. Acknowledges the industry's improvement in maintenance;
2. Emphasizes the need for establishment of an industry-wide program which will ensure that additional improvement in maintenance is achieved, where necessary, and maintained over the life of each plant;
3. Indicates that the Commission intends to hold rulemaking in abeyance while closely monitoring industry and individual licensee commitments, performance and improvement in maintenance over the next 18 months;
4. Indicates that the Commission intends to modify its enforcement policy to allow for higher civil penalties in those instances where a violation has a maintenance-related root cause and may issue plant specific orders where poor or declining maintenance performance raises safety issues;
5. Indicates the importance of and the Commission's intent to continue to develop a maintenance standard and encourages the assistance of the industry and the public in this task, including voluntary industry adoption of the maintenance standard;
6. Encourages improved industry use of and participation in the Nuclear Plant Reliability Data System (NPRDS);
7. Encourages the further development and use of maintenance performance indicators by the nuclear industry such that the Commission and the industry may monitor the effectiveness of maintenance programs; and
8. Restates the Commission's views on the elements and scope of a maintenance program, including key activities and supporting functions.

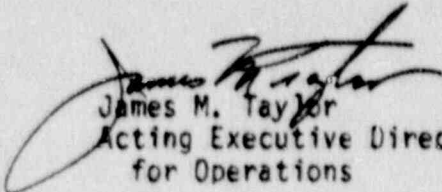
Also enclosed is a proposed modification to the Commission's Policy and Procedure for Enforcement Action (enclosure 2), consistent with the proposed revised maintenance policy

statement (See item 4 above). Enclosure 3 provides a discussion of the enforcement issues requested in Item 5 of the June 26, 1989 memorandum. The proposed modification to the Enforcement Policy is not a rule change and is, therefore, proposed to be effective upon issuance consistent with past changes to the Enforcement Policy. However, it does provide for the opportunity for the public and industry to comment within 30 days and states that it will only be applied to violations which occur 60 days or more after the date of publication. Recognizing that the industry in the past has not favored changes to the policy that provide for significant civil penalties and that the use of the Commission's enforcement authority is discretionary, the staff does not propose the policy be issued for notice and comment before it becomes final. However, the 60-day implementation period will provide an opportunity for comments to be made and considered before applying the policy. In addition, the 60 day notice will allow licensees the opportunity to further emphasize the Commission's concern in the maintenance area. The Commission could, if it desires, deviate from past practice and seek comments on the Enforcement Policy modification prior to making it effective. In such a case, the language in the proposed revised policy statement would have to be appropriately modified.

Coordination:

The Revised Policy Statement on the Maintenance of Nuclear Power Plants and the Proposed Modifications to the Commission's Policy and Procedure for Enforcement Action have been prepared on an integrated basis by the technical staff and the Office of General Counsel. In addition, ACRS has reviewed a draft of the revised policy statement on maintenance and has commented in a letter dated October 12, 1989. Enclosure 4 provides the staff response to the ACRS letter.

Recommendation: The Commission approve publication in the Federal Register of the notice of a Revised Policy Statement on Maintenance of Nuclear Power Plants (enclosure 1) and the notice of modification to the Commission's Policy and Procedure for Enforcement Action (enclosure 2).


James M. Taylor
Acting Executive Director
for Operations

Enclosures:

1. Revised Policy Statement on the Maintenance of Nuclear Power Plants
2. Proposed Modifications to the Commission's Policy and Procedure for Enforcement Action
3. Enforcement Issues Associated with Maintenance
4. Response to ACRS Letter of 10/12/89

Commissioners' comments or consent should be provided directly to the Office of the Secretary by COB Wednesday, November 1, 1989.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT Wednesday, October 25, 1989, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

This paper is tentatively scheduled for affirmation at an Open Meeting during the Week of October 30, 1989. Please refer to the appropriate Weekly Commission Schedule, when published, for a specific date and time.

DISTRIBUTION:

Commissioners

OGC

OIG

LSS

GPA

REGIONAL OFFICES

EDO

ACRS

ACNW

ASLEP

ASLAP

SECY

Enclosure 1

Revised Policy Statement
on the
Maintenance of Nuclear Power Plants

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

Maintenance of Nuclear Power Plants; Revised Policy Statement

AGENCY: Nuclear Regulatory Commission.

ACTION: Revised policy statement.

SUMMARY: The Commission believes safety can be enhanced by improving nuclear power plant maintenance across the nuclear industry. Consistent with this belief, the Commission previously published a final policy statement on maintenance on March 23, 1988 (53 FR 9430), and a proposed rule on November 28, 1988 (53 FR 47822). The Commission recognizes that the industry and individual licensees have made improvements in their maintenance programs and have shown a commitment to continue to improve maintenance. Therefore, rulemaking is being held in abeyance to allow additional time for industry initiatives to result in further improvement in maintenance. Accordingly, this revised policy statement is being issued to state the Commission's actions and expectations for improving maintenance while the need for any additional regulatory action is evaluated.

EFFECTIVE DATE: This revised policy statement is effective _____.

FOR FURTHER INFORMATION CONTACT: Moni Dey, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, telephone: (301) 492-3730.

BACKGROUND

On March 23, 1988 (53 FR 9410), the Commission published a Policy Statement on Maintenance of Nuclear Power Plants which stated the Commission's expectations in the area of maintenance and the intention to proceed with a rulemaking on maintenance. Subsequently, on November 28, 1988, the Commission published a notice of proposed rulemaking (53 FR 47822) directed toward improving the effectiveness of maintenance programs.

Based on additional information received after publication of the 1988 policy statement and the notice of proposed rulemaking on maintenance, including the industry's progress in improving maintenance, the Commission has decided to hold rulemaking in abeyance for a period of 18 months from the effective date of this revised policy statement while the need for any additional regulatory action is evaluated. For this reason, the Commission is issuing this revised policy statement which restates the major elements of the Commission's March 23, 1988 policy statement on maintenance and includes additional elements related to Commission actions and expectations in the maintenance area.

REVISED POLICY STATEMENT

The Commission continues to believe that good maintenance is a key factor

in achieving and maintaining a high level of safety in plant operations throughout the life of a nuclear power plant by helping to ensure that equipment will perform its intended function when required. In addition, a well-documented and executed maintenance program is essential to decisions on plant life extension. The Commission acknowledges industry's effort and progress directed toward improvements in maintenance and endorses and encourages continuation of the ongoing industry maintenance initiatives. However, the Commission is concerned that no comprehensive requirements or commitments exist which will ensure that each licensee achieves and maintains an effective maintenance program over the life of his plant. Furthermore, recent NRC inspections of licensee maintenance programs and their implementation and evaluations of plant operational data indicate that many licensee maintenance programs need further improvement. For example, there remains a wide variation across the industry in the implementation of maintenance programs. Areas of weakness include engineering support, root cause analysis, trending and recordkeeping.

In consideration of the above, the Commission desires to have in place an industry-wide program that will ensure effective maintenance is achieved and maintained over the life of each plant. Accordingly, the Commission expects each licensee to assume responsibility for assuring that an effective maintenance program is or has been developed, implemented and maintained at his facility. This should include clear assignments of responsibility and accountability for improvement initiatives, development and implementation of measures to assess the effectiveness of maintenance and commitments to timely, specific and measurable improvement. The Commission recognizes that the Nuclear Management and Resources Council (NUMARC) and the Institute for Nuclear Power Operations (INPO) can contribute, through their leadership, to an industry-wide program

for improving and maintaining effective maintenance and encourages such leadership.

During the next 18 months, the Commission intends to closely monitor individual licensees and the industry as a whole and assess the need for additional regulatory action in the area of maintenance. This monitoring will include completion of the ongoing Maintenance Team Inspections (including some selected reinspections) and review of other inspection results, performance indicators and industry's and individual licensee's performance, commitments and progress toward improvement. Industry groups and individual licensees are encouraged to provide information to document their commitments and to demonstrate their performance and improvement in maintenance. In addition, the Commission intends to continue development of a rule on maintenance so that at the end of the 18-month period, if rulemaking is determined to be necessary, the Commission will be in a position to act quickly to promulgate such a rule.

In enforcing existing requirements over this time period, the Commission intends to emphasize maintenance by assessing whether a significant violation (i.e., Severity Level III or higher) of license conditions or regulations should have been prevented if an effective maintenance program had been implemented. Accordingly, the Commission, by separate action, is modifying its enforcement policy to provide that, where a civil penalty is appropriate for a violation, the amount of the penalty for such a violation may be escalated where inadequate maintenance was a root cause. In addition, plant specific orders or letters requesting information pursuant to 10 CFR 50.54(f) may be issued where poor or declining maintenance performance raises safety issues. Additional Commission actions and expectations are discussed below.

The Commission believes that the development and use of a comprehensive performance-oriented standard for maintenance, which provides guidance and requirements on the scope, goals, performance and activities associated with an effective maintenance program, is essential in assuring that maintenance is improved, where necessary, and remains effective over the life of each plant. Therefore, during the next 18 months, the Commission intends to continue to develop, on a cooperative basis with the industry and public, a maintenance standard for commercial nuclear power plants. In this regard, the Commission has issued for comment a standard for maintenance in the form of a draft regulatory guide and announced its availability in the Federal Register (54 FR 33988). The Commission also intends to hold a workshop early in 1990 to promote further interaction on the standard. The industry and the public are encouraged to assist in the refinement of this standard or propose a suitable alternative standard for NRC endorsement (to be considered, any alternative standard would need to be proposed to the Commission by March 1, 1990). The Commission intends to have a standard available for use in approximately 1 year and encourages voluntary industry use and adoption of this standard. Adoption and use of an acceptable standard will be a consideration in evaluating industry's and individual licensee's commitment to achieving and sustaining effective maintenance.

An integral part of an effective maintenance program is the monitoring and feedback of results. The Commission believes that such programs should utilize quantitative information regarding operational history, especially component failures, to monitor and adjust the maintenance program. Performance indicators that are based upon actual component reliability and failure history provide a useful indication of maintenance effectiveness. Such measures are most

effective when they are based on a well-structured and component-oriented system, e.g. the Nuclear Plant Reliability Data System (NPRDS), to capture and track equipment history data. The Commission encourages the use of the industry-wide NPRDS data for this purpose, including improved industry use of and participation in the NPRDS to gauge the effectiveness of maintenance. Licensee reporting to the system should be timely and complete and would represent an acceptable element of maintenance monitoring.

The Commission intends to develop, validate, and use maintenance effectiveness indicators. The Commission also encourages development and use of such indicators by licensees and the industry such that the progress of improvement in maintenance can be closely monitored. To that effect, the Commission has solicited industry participation in a joint NRC/licensee project with the objective of sharing and comparing development work on maintenance effectiveness indicators.

Finally, the Commission reemphasizes its previous views with respect to what constitutes an effective maintenance program. Specifically, the Commission expects the scope of each licensee's maintenance program to include all systems, structures and components addressed by existing regulations and licensee commitments and described in the documents (e.g. Final Safety Analysis Report) required by 10 CFR 50.34, whose failure could significantly impact the safety or security of the facility. This includes systems, structures, and components in the balance of plant, since experience has shown that failures in many balance of plant systems, structures and components can and do have an impact on plant safety or security.

In addition, the Commission defines maintenance as the aggregate of those actions which prevent the degradation or failure of, and which promptly restore the intended function of, structures, systems, and components. As such, maintenance includes not only the activities traditionally associated with identifying and correcting actual or potential degraded conditions, i.e., repair, surveillance, diagnostic examinations, and preventive measures, but extends to include all supporting functions for the conduct of these activities. Accordingly, each commercial nuclear power plant should either have in place or develop and implement a well-defined maintenance program to assure that the above is accomplished. The activities and supporting functions that should be considered in a maintenance program, as defined in this policy statement, are listed below:

- (1) Technology in the areas of:
 - (i) Corrective maintenance,
 - (ii) Preventive maintenance,
 - (iii) Predictive maintenance,
 - (iv) Maintenance surveillance,
 - (v) Reliability-centered maintenance;
- (2) Engineering in support of maintenance, including root cause analysis;
- (3) Quality assurance and quality control of maintenance activities;
- (4) Updating the maintenance program as a result of plant modifications;

- (5) Equipment history and trending;
- (6) Management of parts, tools, and facilities;
- (7) Maintenance procedures;
- (8) Postmaintenance testing and return-to-service activities;
- (9) Measures of maintenance program effectiveness;
- (10) Maintenance management and organization in the areas of:
 - (i) Planning,
 - (ii) Scheduling,
 - (iii) Staffing,
 - (iv) Shift coverage, and
 - (v) Resource allocation;
- (11) Control of contracted maintenance services;
- (12) Radiological exposure control (including ALARA) during maintenance activities;
- (13) Maintenance personnel qualification and training;
- (14) Internal communications between the maintenance organization and plant operations and support groups;
- (15) Communications between plant and corporate management and the maintenance organization; and
- (16) Consideration of maintenance recommendations or requirements of individual vendors.
- (17) Maintenance recordkeeping

In accordance with the above, the Commission intends to monitor individual licensee and industry commitments, performance and improvement in maintenance over the next 18 months and, based upon those commitments, performance and

improvement, take whatever additional regulatory action is warranted to ensure that effective maintenance is achieved and maintained over the life of each facility.

Dated in Rockville, MD this _____ day of _____, 1989.
For the Nuclear Regulatory Commission.

Samuel J. Chitt
Secretary of the Commission.

Enclosure 2

Proposed Modifications

to the

Commission's Policy and Procedure

for Enforcement Action

NUCLEAR REGULATORY COMMISSION

10 CFR Part 2

Policy and Procedure for Enforcement Actions; Policy Statement

Agency: Nuclear Regulatory Commission

Action: Policy Statement: Modification

The NRC is publishing a modification to its Enforcement Policy to add an additional civil penalty adjustment factor for violations involving maintenance deficiencies. This policy is codified as Appendix C to 10 CFR Part 2.

Date Since this action concerns a general statement of policy, no prior notice is required and, hence, this modification to the Enforcement Policy is effective upon issuance. However, the modification for maintenance will only be applied for violations which occur 60 days or later after the date of publication. Comments submitted within 30 days of publication of this modification will be considered.

Address Send comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555, ATTN: Docketing and Service Branch. Deliver comments to One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852, between 7:30 am and 4:15 pm, weekdays. Copies of comments received may be examined at the NRC Public Document Room, 2120 L Street N.W., Lower Level, Washington, DC.

For Further Information Contact: James Lieberman, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555, Telephone (301) 492-0741.

- 2 -

Supplementary Information: On March 23, 1988, the Commission issued a Policy Statement on Maintenance of Nuclear Power Plants (53 FR 9430) which stated the Commission's expectations in the area of maintenance and the intention to proceed with a rulemaking on maintenance. Subsequently, on November 28, 1988, the Commission published a Notice of Proposed Rulemaking (53 FR 47822) directed toward improving the effectiveness of maintenance programs. Based on additional information received after publication of the Policy Statement and the Notice of Proposed Rulemaking, the Commission decided to hold rulemaking in abeyance for a period of 18 months from the effective date of the Revised Policy Statement on Maintenance of Nuclear Power Plants which was published _____ (Fed. Reg. cite).

The Commission believes that a strong maintenance program can make a significant contribution to continued safety. In the Revised Policy Statement on the Maintenance of Nuclear Power Plants, the Commission stated its intent in enforcing existing requirements for power reactors to emphasize maintenance. Consistent with that position, the Enforcement Policy is being revised to provide such emphasis by adding maintenance failures as an escalating factor in assessing civil penalties where it has been concluded that the violation involves a significant regulatory concern. The Commission acknowledges that inclusion of the root cause of a violation as an escalation factor when considering a civil penalty is a change from past practice. Further, the Commission recognizes that consideration of only one root cause, i.e., maintenance, as a specific escalating factor focuses on only a fraction of the possible causal factors that may be involved in a particular violation.

- 3 -

By this change, the Commission is not establishing a new group of civil penalty actions. A violation will be considered for escalated action, e.g., Severity Level I, II, or III violations, based on the violation including its impact, circumstances, and root causes, as with current practice. Special escalation will only apply if the violation or problem area (aggregated violations) has a maintenance root cause.

There are licensees with good maintenance programs. However, there are other licensees which have weaknesses in their maintenance programs where planning or implementation can be clearly improved. The Commission concludes that modifying the Enforcement Policy to permit increased civil penalties for Severity Level I, II or III violations which occur 60 days or later after the date of this notice and which result from maintenance deficiencies may provide a further incentive to ensure all licensees place appropriate attention on maintenance of equipment that is important to safety. This time period provides licensees an opportunity to emphasize the Commission's concern in the maintenance area. Use of the Commission's enforcement program in this manner to emphasize the importance of meeting existing requirements related to maintenance is warranted because of the varying quality of licensee maintenance programs, including implementation, and the decision to hold in abeyance the rulemaking on maintenance. By this revision to the Enforcement Policy, the Commission is putting licensees on notice that the decision to defer a maintenance rule does not mean the Commission does not expect a serious licensee effort in the maintenance area. It is expected that the revision to the Enforcement Policy will remain effective at least until the Commission reconsiders the need for rulemaking in the maintenance area.

List of Subjects in 10 CFR Part 2

Part 2 - Administrative practice and procedure, Antitrust, Byproduct material, Classified information, Civil penalty, Enforcement, Environmental protection, Nuclear materials, Nuclear power plants and reactors, Penalty, Sex discrimination, Source material, Special nuclear material, Violations, and Waste treatment and disposal.

Part 2 Rules of Practice for Domestic Licensing

1. The authority citation for Part 2 continues to read in part as follows:

AUTHORITY: SEC. 161, 68 Stat. 948, as amended (42 U.S.C. 2201); sec. 201, 88 Stat. 1242, as amended (42 U.S.C. 5841).

2. Appendix C, Section V.B is amended by adding subsection Section V.B.7 after example 3 of subsection V.B.6 which read as follows:

Appendix C - General Statement of Policy and Procedure for NRC Enforcement Actions

* * * * *

- 5 -

V. Enforcement Actions

* * * * *

B. Civil Penalty

* * * * *

7. Maintenance-Related Cause

The base civil penalty may be increased as much as 50% for cases where a cause of the violation at a power reactor is maintenance-related. For the purposes of application of this factor, a cause of the violation shall be considered to be maintenance-related if the violation should have been prevented by implementing a maintenance program consistent with the scope and activities defined by the Revised Policy Statement on the Maintenance of Nuclear Power Plants. In weighing this factor, consideration will be given to, among other things, whether a failure to perform maintenance or improperly performed maintenance was a programmatic failure. The degree of the programmatic failure will also be considered in applying this factor.

Dated at Rockville, Maryland this _____ day of _____, 1989.

FOR THE NUCLEAR REGULATORY COMMISSION

 Samuel J. Chilk
 Secretary of the Commission

Enclosure 3

Enforcement Issues Associated
with Maintenance

Enforcement Criteria Associated with Maintenance

1. Violation & Civil Penalties

To issue a notice of violation or to proposed a civil penalty, a violation of a Commission requirement needs to be identified. In the maintenance area, the matter may be complicated in certain instances by the absence of specific requirements.

With respect to equipment which historically has been considered to be safety-related, it should be possible in most cases to develop a violation related to maintenance failures. For example, the violation could be structured based on 10 CFR Part 50, Appendix B; procedures, training, and personnel qualification required by Technical Specifications in the maintenance area; or the Technical Specifications for the specific piece of equipment.

Some maintenance objectives in the proposed maintenance Policy Statement, even for safety-related equipment, may not be enforced through notices of violations or civil penalties because current Commission requirements may not cover such objectives. For example, one such objective contained in the proposed Policy Statement would be the need for a predictive maintenance program. We could cite a licensee under 10 CFR Part 50, Appendix B, Criterion XVI, if equipment failures occurred and the licensee did not adequately preclude additional failures. However, it is unlikely that we could cite for the failure to have a formal predictive maintenance program to detect the initial failures where there are no vendor instructions or approved procedures that require such programs. On the other hand, in the absence of having important components or systems degraded, it may not necessarily be appropriate to make a citation. If degraded equipment with a safety function was caused by a maintenance failure, a citation likely could be developed.

With regard to non-safety-related plant equipment, i.e., the so-called balance of plant (BOP), there may be some cases where sustainable violations may be developed for the BOP. This would depend in large measure upon the way the licensing basis, and in particular the Safety Analysis Report (SAR), for a particular facility is written. For example, based upon statements in the SAR, a violation of 10 CFR Section 50.59 may be available for enforcement action. Each matter would have to be evaluated on a case-by-case basis. However, it will be significantly more difficult to issue citations for maintenance activities involving BOP in contrast to safety-related activities because of the absence of specific requirements.

Accordingly, the staff has included in the proposed revision to the policy statement on maintenance a statement indicating that the Enforcement Policy is being modified to add an additional civil penalty adjustment factor for significant violations involving maintenance deficiencies. The staff is also proposing to modify Supplement I of the Enforcement Policy to provide that violations that should have been prevented if an adequate maintenance program had been implemented may be considered a significant regulatory concern. Such

a change would amount to considering maintenance violations, especially where degraded equipment was involved, for escalated enforcement action. While such a change would highlight the Commission's desire for licensees to have an effective maintenance program, it would increase the regulatory significance of a violation simply because it has a maintenance root cause. The regulatory significance should be based, as with current practice, on the root causes, surrounding circumstances, and impacts. Therefore, the staff proposes that where a violation with maintenance root cause is considered to be of Severity Level I, II, or III, emphasis will be added by using a maintenance escalation factor. Then, only violations of significant regulatory concern will result in higher civil penalties.

In sum, there are numerous individualized requirements relative to maintenance, including systems in the BOP, scattered throughout Commission requirements that may form the basis for enforcement action. However, these do not address maintenance in an integrated fashion. Nor do the existing regulations clearly require a comprehensive maintenance program. As stated above, there may be difficulties in establishing violations related to certain maintenance activities. In response to the direction of the Commission to identify necessary changes to be able to take enforcement action, the only apparent way to provide assurance that a violation could be developed in every case would be to promulgate a comprehensive maintenance requirement by regulation.

2. Orders

In the absence of a violation, a plant specific order may be issued to address significant safety concerns associated with maintenance activities. In addition, the staff can utilize 10 CFR 50.54(f) to obtain information to assist in determining whether to issue an order.

Consistent with staff practice for other enforcement issues, orders are considered for plants for which Severity Level I or II violations are identified because, by definition, such violations are of very significant regulatory concern. Additionally, plants which demonstrate continuing poor performance as evidenced by inspection findings, plant performance, and enforcement history could be subject to an order and such an order could include specific provisions to improve the plant maintenance program.

Experience has shown that degradation of plant performance to such a level that an order would be required is rarely the result of deficiencies in a single performance area. Deficient performance in a single area normally is adequately addressed through the issuance of notices of violations and the licensee's corrective actions in response to those violations. Therefore, it is difficult to provide specific criteria for orders directed solely at one performance area such as maintenance because that area will likely represent only a portion of a particular plant's problem if performance has reached a level at which an order is necessary.

Nevertheless, notwithstanding the lack of a specific requirement to cite, the option of issuing an order is available where the staff concludes that there is a sufficiently significant safety issue caused by a licensee's poor

maintenance program. The burden will be on the staff as the proponent of an order to make the case for a significant safety issue related to maintenance based on the facts of the particular case. The more closely tied a particular piece of equipment is to a safety function, the easier it will be to support an order based on maintenance issues. Similarly, it should be recognized that it may be more difficult to support an order based solely on maintenance issues for BOP equipment in contrast to safety-related equipment. But if it is concluded that the lack of an adequate maintenance program creates a significant safety issue which raises a question as to whether there is reasonable assurance that licensed activities will be carried out without undue risk of the public health and safety, an order clearly can be issued.

3. Conclusion

The staff is able to address safety issues resulting from poor maintenance by issuing an order where justified. The existing requirements may not allow for issuance of notices of violations and civil penalties in all areas or for all equipment covered by the Policy Statement. However, while there are benefits derived from a rule such as more orderly treatment of maintenance by licensees and easing the ability to take enforcement action for maintenance deficiencies, the lack of a rule, given existing requirements, does not mean that the agency will not be able to address significant safety issues in the maintenance area.

Enclosure 4

ACRS Letter and Staff Response



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

October 12, 1989

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

Dear Chairman Carr:

SUBJECT: PROPOSED REVISED POLICY STATEMENT ON THE MAINTENANCE OF NUCLEAR
POWER PLANTS

During the 354th meeting of the Advisory Committee on Reactor Safeguards, October 5-6, 1989, we discussed with the NRC staff the proposed revised policy statement on the maintenance of nuclear power plants. During this meeting we had the benefit of the document referenced. We had also discussed this matter during our 353rd meeting, September 7-9, 1989.

The Commission's objective in issuing the policy statement is not clear to us. Since no one doubts that the quality of maintenance plays an important role in assuring the safety of nuclear power plants, we judge that the perceived need for a policy statement derives from a Commission sense that the fact needs to be emphasized and that industry initiatives in the area are insufficient to provide assurance that the common objective is being met. These initiatives have certainly resulted in improvements in most plants, and more improvements are in the pipeline, yet the Commission has directed the staff to continue working toward a rule.

The current version of the proposed policy statement recognizes the importance of developing measuring tools for the effectiveness of maintenance, without which it is difficult to judge whether or not maintenance is a major problem in the industry. Certainly, a study of licensee event reports (LERs) would reveal incidents whose origin is in ineffective maintenance, as it would reveal also some whose origin is in overly zealous maintenance; therefore, it is important to develop those tools necessary to make better than visceral judgments about the direction in which change is needed, if any.

We believe that more input from the regional offices as well as from the public and industry would improve the proposed policy statement. There are a number of contentious elements in it, which will surely not survive careful scrutiny. For example, the proposal that errors in maintenance be penalized more severely than other errors with the same public consequences would encourage licensees to divert resources from other safety-related activities into maintenance, with a net negative impact on public safety. That is surely not the Commission's intent. We are loath to make a big issue of this one

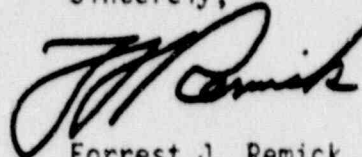
October 12, 1989

because it is so manifestly wrong (and the staff has committed to reconsider it).

We recommend that the Commission not rush to judgment on this matter. The proposed policy statement contains the explicit determination (again, surely not intended) that there is no licensee with an acceptable maintenance program, and makes the determination without even a hint of what is acceptable, or how it can be measured. We think it would be best to spend effort in determining just how serious the problem may be, just what it may be, and only then, whether something needs to be done about it. Armed with this information, the Commission will be better able to make defensible choices among possible ameliorative programs. It is not beyond the bounds of probability that it will only be necessary to support and encourage the industry initiatives. If, in the end, it is determined that a policy statement, or even a rule, is necessary, one will have a better idea of just what it should say.

Additional comments by ACRS Member William Kerr are presented below.

Sincerely,



Forrest J. Remick
Chairman

Additional Comments by ACRS Member William Kerr

I am concerned that the Commission appears to be moving inexorably toward an inadequately defined goal. For example, the draft regulatory guide lists several suggested indicators of appropriate maintenance programs, but nowhere is there mention of risk reduction or of increased plant availability, which must surely be important elements in plant performance goals.

I suggest an exercise that should provide useful information to the Commission. Ask the staff to identify, on the basis of information in the recently released version of NUREG-1150, those plants that have acceptable and those that have unacceptable maintenance programs. If this proves feasible, it should enable the staff to identify the characteristics of at least one, and perhaps several, good maintenance programs. It should also permit an identification of the risk reduction attributable to an acceptable maintenance program. If this is not feasible, then it indicates that something judged by the Commission to be a significant contributor to, or reducer of, risk is not identified in what are said to be state-of-the-art analyses of several representative plants.

Reference:

Memorandum dated September 29, 1989 from Bill M. Morris, Office of Nuclear Regulatory Research, for R. F. Fraley, ACRS, Subject: Revised Policy Statement on Maintenance of Nuclear Power Plants (Predecisional)

Staff Response to ACRS Letter of October 12, 1989 on the
Revised Maintenance Policy Statement

In its October 12, 1989, letter to Chairman Carr on the staff's proposed revised maintenance policy statement, the ACRS commented on six areas. These areas and the staff's response are discussed below. A response to comments from ACRS member William Kerr is also provided below.

1. ACRS Comment: The Commission's objective in issuing the policy statement is not clear to us. Since no one doubts that the quality of maintenance plays an important role in assuring the safety of nuclear power plants, we judge that the perceived need for a policy statement derives from a Commission sense that the fact needs to be emphasized and that industry initiatives in the area are insufficient to provide assurance that the common objective is being met. These initiatives have certainly resulted in improvements in most plants, and more improvements are in the pipeline, yet the Commission has directed the staff to continue working toward a rule.

Staff Response: The revised maintenance policy is a necessary announcement for the public since it is related to the maintenance policy statement (issued March, 1988), in which the Commission declared that it would proceed with rulemaking on maintenance, and to the proposed rule published in November, 1988. The objective of the revised maintenance policy is to inform the public: (1) that the Commission is not necessarily determined to promulgate a rule on maintenance and is holding the rule in abeyance for 18 months; (2) of the Commission's actions during the 18-month period; and (3) of the Commission's expectations of the industry in the 18-month period.

Although industry has initiated a number of improvement programs for maintenance, it is the staff's view (based upon results of Maintenance Team Inspections and other factors) that, for many licensees, additional improvement is warranted and that it is appropriate for the Commission to specify in the revised maintenance policy its expectations for continued improvements and the factors it considers most important.

The revised maintenance policy recognizes the improvements made by industry and states that the Commission will review industry initiatives and improvements prior to determining the need for any regulatory action. The staff will continue to work to improve the proposed rule so as to have a rule available at the time a decision may be made to promulgate a rule.

2. ACRS Comment: The current version of the proposed policy statement recognizes the importance of developing measuring tools for the effectiveness of maintenance, without which it is difficult to judge whether or not maintenance is a major problem in the industry. Certainly, a study of licensee event reports (LERs) would reveal incidents whose origin is in ineffective maintenance, as it would reveal also some whose origin is in overly zealous maintenance; therefore, it is important to develop those tools necessary to make better than visceral judgment about the direction in which change is needed, if any.

Staff Response: The staff experience for the last few years supports this ACRS comment. In NUREG-1212 (May 1986), in special evaluations, including studies of LERs and maintenance assessment programs, and in its most recent Maintenance Team Inspections (MTIs), the staff has noted that there is a clear need to improve the assessment of existing maintenance programs to provide feedback of results. Based upon two special studies, the staff determined that measures based upon actual component failure experience provided a useful and available tool. The staff developed a maintenance indicator for this purpose based upon the component failure data in NPRDS and is currently working with a group of utilities in a demonstration project.

3. ACRS Comment: We believe that more input from the regional offices as well as from the public and industry would improve the proposed policy statement.

Staff Response: Input from the industry has been received via the maintenance policy statement (issued March, 1988), in a public workshop on rulemaking, and on the proposed rule on maintenance. In addition, a Regulatory Guide on maintenance has been published for public comment and a workshop has been planned to discuss the comments. It is the staff's view that public comment on the revised maintenance policy is not necessary since its content has evolved, out of previous actions on which public comment has been sought, and out of previous industry actions and commitments.

The NRC Regions have participated in the maintenance team inspections conducted to date. The results of these inspections which were presented to the Commission in a meeting on May 2, 1988, have been used in developing the revised policy statement. Input from the regions, including insights from the remaining MTIs, will be taken into account in future work on the regulatory guide/standard and in any maintenance rule proposed to the Commission.

4. ACRS Comment: There are a number of contentious elements in it, which will surely not survive careful scrutiny. For example, the proposal that errors in maintenance be penalized more severely than other errors with the same public consequences would encourage licensees to divert resources from other safety-related activities into maintenance, with a net negative impact on public safety. That is surely not the Commission's intent. We are loath to make a big issue of this one because it is so manifestly wrong.

Staff Response: Any Commission initiative whether in the context of rulemaking, inspection effort or enforcement has some impact on licensee resources. It is the Commission's intent that effective maintenance programs be developed and implemented. It is recognized that this will cost some resources and that they must come from somewhere. By modifying the Enforcement Policy licensees will be on notice that the Commission expects a serious effort. The Commission has in the past used the Enforcement Policy to emphasize performance in specific areas of activity, especially where the industry had not taken an aggressive posture towards improving performance (Emergency Planning Notification Systems and Environmental Qualification). This change will only affect a small number of enforcement actions because the escalating factors will be used only where it is first decided that the violation and surrounding circumstances demonstrate a significant regulatory concern and then only if the root cause is maintenance.

Given the controversial nature of the change, the Commission does have the option of proposing the change for comment rather than making it effective upon issuance. However, based on past comments, it is not expected that the industry will favor any additional enforcement initiatives that could increase civil penalties.

5. ACRS Comment: We recommend that the Commission not rush to judgment on this matter. The proposed policy statement contains the explicit determination (again, surely not intended) that there is no licensee with an acceptable maintenance program, and makes the determination without even a hint of what is acceptable, or how it can be measured.

Staff Response: The staff did not intend the earlier draft of the revised policy statement to contain a determination that there is no licensee with an acceptable maintenance program. Several changes to the proposed policy statement have been made to clarify this point.

Currently, the guidance prepared for use in the Maintenance Team Inspections is used to judge the acceptability of licensee maintenance programs. In addition, a draft Regulatory Guide has been published in August, 1989 for public comment. This draft guide has evolved from the guidance prepared and used in the MTIs and emphasizes that an acceptable maintenance program should include goal setting, performance monitoring and feed back and corrective action to ensure improvement is made, where warranted. The revised maintenance policy references the draft Regulatory Guide and encourages industry comment and participation in the development of the guide or the proposal of an alternative maintenance standard that would define the content of an effective and acceptable maintenance program.

6. ACRS Comment: We think it would be best to spend effort in determining just how serious the problem may be, just what it may be, and only then, whether something needs to be done about it. Armed with this information, the Commission will be better able to make defensible choices among possible ameliorative programs. It is not beyond the bounds of probability

that it will only be necessary to support and encourage the industry initiatives. If, in the end, it is determined that a policy statement, or even a rule, is necessary, one will have a better idea of just what it should say.

Staff Response: The staff plans to provide a recommendation to the Commission in 18 months on the need for additional regulatory action which will be based upon information from the Maintenance Team Inspections, performance monitoring and other sources. We believe this approach meets the intent of the ACRS comment in that the staff recommendation will be based upon information regarding how serious the problem is, what it is and what is the best alternative to resolve it.

7. Comments by ACRS Member William Kerr: I am concerned that the Commission appears to be moving inexorably toward an inadequately defined goal. For example, the draft regulatory guide lists several suggested indicators of appropriate maintenance programs, but nowhere is there mention of risk reduction or of increased plant availability, which must surely be important elements in plant performance goals.

I suggest an exercise that should provide useful information to the Commission. Ask the staff to identify, on the basis of information in the recently released version of NUREG-1150, those plants that have acceptable and those that have unacceptable maintenance programs. If this proves feasible, it should enable the staff to identify the characteristics of at least one, and perhaps several, good maintenance programs. It should also permit an identification of the risk reduction attributable to an acceptable maintenance program. If this is not feasible, then it indicates that something judged by the Commission to be a significant contributor to, or reducer of, risk is not identified in what are said to be state-of-the-art analyses of several representative plants.

Staff Response: In the development of the Regulatory Guide, the staff proposed guidance for setting objectives and goals for a plant maintenance program. This guidance suggested that these objectives and goals should be based upon safety and risk. Additionally, the staff has specifically solicited public comments on what these goals should be.

The use of NUREG-1150 in the manner suggested by the comment is not appropriate. NUREG-1150 did not evaluate the maintenance programs of the five plants analyzed. For two of the plants, NUREG-1150 utilized actual plant equipment failure data and maintenance human error data in assessing risk. For the other three plants, generic failure data and maintenance human error data were used. However, in all cases the data was taken at face value in that there was no attempt to analyze whether or not it resulted from a poor or good maintenance program or how various maintenance practices could affect the data.