

April 19, 1999

SECY-99-119

FOR: The Commissioners

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

SUBJECT: RULEMAKING TO MODIFY THE EVENT REPORTING REQUIREMENTS FOR  
POWER REACTORS IN 10 CFR 50.72 AND 50.73

PURPOSE:

The purpose of this paper is to obtain Commission approval to publish a proposed rule to modify the event reporting requirements for power reactors in 10 CFR 50.72 and 50.73.

BACKGROUND:

In SECY-98-036, "Rulemaking to Modify Event Reporting Requirements for Power Reactors," March 4, 1998, the staff proposed a rulemaking plan to modify the event reporting requirements in 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors," and 10 CFR 50.73, "Licensee event report system." In a staff requirements memorandum (SRM) dated May 14, 1998, the Commission approved the proposed rulemaking.

An advance notice of proposed rulemaking (ANPR) was published in the Federal Register on July 23, 1998. Among other things, the ANPR requested public comments on several concrete proposals for modification of the event reporting rules. A public meeting was held to discuss the ANPR at NRC Headquarters on August 21, 1998. The ANPR was also discussed, along with other topics, at a public meeting on the role of industry in nuclear regulation in Rosemont, Illinois on September 1, 1998. The public comment period on the ANPR closed on September 21, 1998. A comment from the Nuclear Energy Institute (NEI) proposed conducting "table top exercises" early in the development and review process to test key parts of the requirements and guidance for clarity and consistency. The comment was accepted and a public meeting for that purpose was held at NRC headquarters on November 13, 1998.

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DISCUSSION:

The purposes of Sections 50.72 and 50.73 would remain the same because the basic needs remain the same. The objectives of the proposed amendments would be as follows:

- (1) To better align the reporting requirements with the NRC's needs for information to carry out its safety mission. An example is extending the required initial reporting times for some events, consistent with the time at which it is needed for NRC action. Another example is changing the criteria for reporting system actuations, to obtain reporting that is more consistent with the risk-significance of the systems involved.
- (2) To reduce the reporting burden, consistent with the NRC's needs. An example is eliminating the reporting of design and analysis defects and deviations of little or no risk- or safety-significance.
- (3) To clarify the reporting requirements where needed. An example is clarifying the criteria for reporting design or analysis defects or deviations.
- (4) To maintain consistency with NRC actions to improve integrated plant assessments. For example, reports that are needed in the assessment process should not be eliminated.

In the proposed amendments, *declaration of an emergency class* would continue to be reported as soon as practical and in all cases within 1 hour. A *deviation from the plant's technical specifications authorized pursuant to 10 CFR 50.54(x)* would also continue to be reported within this time frame. These criteria capture those events where there may be a need for immediate action by the NRC. Other events that are reportable by telephone under Section 50.72 would be reportable as soon as practical and in all cases within 8 hours (instead of within 1 hour or 4 hours as is currently required). This would capture those events where there may be a need for the NRC to contact the plant to find out more about the event and/or initiate a special inspection or investigation.

Written licensee event reports (LERs) would be due within 60 days after discovery of a reportable event or condition (instead of within 30 days as is currently required). This change does not imply that licensees should take longer than they previously did to develop and implement corrective actions. They should continue to do so on a time scale commensurate with the significance of the issue. However, for those cases where it does take longer than 30 days to complete a root cause analysis, there would be fewer LERs that require amendment (by submitting a revised report).

In the interest of simplicity, the proposed amendments would maintain just three basic levels of required reporting times for reporting under 10 CFR 50.72 and 50.73 (1 hour, 8 hours, and 60 days). However, public comment would be specifically invited on the question of whether additional levels should be introduced to better correspond to particular types of reports.

Reporting a *condition that is outside the design basis of the plant* would no longer be required. However, a condition outside the design basis of the plant would still be reported if it is significant enough to qualify under one or more of the following tests:

- (1) If a design or analysis defect or deviation (or any other event or condition) is significant enough that, as a result, a structure or system would not be capable of performing its safety functions, the condition would be reportable under *Sections 50.72(b)(2)(v) and 50.73(a)(2)(v) [i.e., an event or condition ... that ... could have prevented the fulfillment of the safety function of structures or systems that are needed to: shut down the reactor and maintain ...]*.
- (2) If a design or analysis defect or deviation (or any other event or condition) is significant enough that, as a result, one train of a multiple train system controlled by the plant's technical specifications is not capable of performing its safety functions, and thus the train is inoperable for a period of time longer than allowed by the plant's technical specifications, the condition would be reportable under *Section 50.73(a)(2)(i)(B) [i.e., an operation or condition prohibited by technical specifications]*.
- (3) If a condition outside the design basis of the plant (or any other unanalyzed condition) is such that plant safety is significantly affected, the condition would be reportable under *Sections 50.72(b)(2)(ii)(B) and 50.73(a)(2)(ii)(B) [i.e., an unanalyzed condition that significantly affects plant safety]*.
- (4) If a condition outside the design basis of the plant (or any other event or condition) is significant enough that, as a result, a principal safety barrier is seriously degraded, it would be reportable under *Sections 50.72(b)(2)(ii)(A) and 50.73(a)(2)(ii)(A) [i.e., an event or condition that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded]*.
- (5) Finally, if a condition outside the design basis of the plant (or any other event or condition) results in significantly degraded capability to perform a specified safety function that could involve multiple components, it would be reportable under a new criterion. The new criterion is in *Section 50.73(a)(2)(ii)(C) [i.e., a component in a degraded or non-conforming condition such that its ability to perform its specified safety function is significantly degraded and the condition could reasonably be expected to affect other similar components in the plant.]*

A potential concern with this approach involves public perception. It may appear to some that by eliminating the requirement to report when *the plant is in a condition that is outside the design basis of the plant* the NRC would be eliminating needed reports. However, based on reviewing a sample of previously submitted reports, the staff believes that the changes discussed above would not eliminate reporting for significant events that the NRC needs to review in its efforts to identify and resolve safety issues. Furthermore, public comment would be specifically invited on whether or not this is the case. In particular, it would be requested that any potential examples to the contrary be identified.

The rules and reporting guidelines would be revised to eliminate reporting of a late surveillance test (as an *operation or condition prohibited by the plant's technical specifications*) when the oversight is corrected, the equipment is tested, and found to be still functional. These reports have proven to be of little significance if the equipment in question was determined to be functional when tested.

Reporting a *condition not covered by the plant's operating and emergency procedures* would no longer be required because that criterion does not result in worthwhile reports aside from those that would be captured by other reporting criteria.

Earlier drafts of the proposed rule would have also eliminated the requirement to report an *unanalyzed condition that significantly compromises plant safety* on the grounds that worthwhile reports would be captured by other reporting criteria. The Advisory Committee on Reactor Safeguards (ACRS) recommended in favor of that approach. However, subsequent to the ACRS briefing, the staff reconsidered this proposal. Some significant events that the NRC needs to review were identified which do not satisfy significance tests (1), (2), (4) or (5) discussed above. (Examples are discussed in the Federal Register notice.) Therefore, the proposed rules would retain this criterion [significance test (3) discussed above] in a slightly modified form [*i.e., unanalyzed condition that significantly affects plant safety*].

The term "*any engineered safety feature (ESF), including the reactor protection system (RPS)*," which currently defines the systems for which actuation must be reported, would be replaced by a specific list of systems. The current definition has led to confusion and variability in reporting because there are varying definitions of what constitutes an ESF. At some plants systems that are known to have high risk significance, such as emergency ac power, auxiliary feedwater, and reactor core isolation cooling, are not considered ESFs. Furthermore, in many cases systems with much lower levels of risk significance, such as control room ventilation systems, are considered to be ESFs. The proposed amendments would result in consistent reporting of events that result in actuation of these highly risk-significant systems and eliminate reporting for events of lesser significance, such as actuation of control room ventilation systems.

This proposed change to the requirement to report activation of any ESF is controversial. For example, licensee comments on the ANPR generally opposed such a change recommending, instead, reporting the actuation of systems identified as ESFs in the final safety analysis report (FSAR). On the other hand, the ACRS recommended in favor of using a risk-informed list, but further recommended that the list be plant-specific and not be included in the rule. The Committee to Review Generic Requirements (CRGR) also expressed concerns about the proposed approach. Therefore, public comment would be specifically invited on several alternatives to the proposed rule.

The term "significant" would be used in two places in the proposed event reporting rules. In the first place, the immediate notification rule and the LER rule would require reporting an unanalyzed condition that significantly affects plant safety. In this context the term "significant" would be defined by examples, five of which are discussed in the Federal Register notice. In the second place, the LER rule would require reporting when a component's ability to perform its safety function is significantly degraded and the condition could reasonably be expected to affect other similar components in the plant. Again, the term "significant" would be defined by examples, six of which are discussed in the Federal Register notice.

## RELATED PROGRAMS

In related programs, the staff is developing revisions to the process for oversight of operating reactors, including the inspection, assessment and enforcement processes. In connection with this effort, the staff has considered the kinds of event reports that would be eliminated by the proposed rules and believes that the changes would not have a deleterious effect on the oversight process. Public comment would be specifically invited on this question. In addition, the Federal Register notice would describe, for public comment, the specific proposed changes to enforcement policy that the staff believes are appropriate in connection with the proposed amendments.

This proposed rulemaking would change some of the requirements in Section 50.73(b) regarding the format and content of Licensee Event Reports. At the same time, in a rulemaking to make miscellaneous changes to 10 CFR Part 72, it has been proposed to adopt, in Section 72.75(d)(2), format and content requirements comparable to those of Section 50.73(b). If the proposed changes to Section 50.73(b) are adopted in the final rule the staff will, at that time, consider the question of whether or not rulemaking should be initiated to make similar changes in Section 72.75(d)(2).

In the SRM dated May 14, 1998, in addition to approving the proposed rulemaking to modify the event reporting requirements of 10 CFR 50.72 and 10 CFR 50.73, the Commission provided the following direction:

1. "Public comments on the rulemaking schedule should be solicited as well as comments on the content of the proposed rule."

The ANPR solicited public comments on the rulemaking schedule as well as comments on the content of the proposed rule. Some favored a more aggressive schedule and others favored a less aggressive schedule. The schedule was not changed, except to add 5 weeks to accommodate the additional public meeting ("tabletop exercise") recommended by NEI.

2. "The staff should seek State input on proposed changes to the power reactor reporting requirements."

The ANPR specifically solicited State input. In addition, a letter was sent to each State Liaison Officer soliciting input. Written comments were received from the State of Ohio and the State of Illinois. In addition, representatives from several states attended public meetings on the ANPR. Further discussion is provided in the Federal Register notice (FRN) in the responses to comments 24 through 27. Similar steps will be taken with respect to the proposed rule.

3. "The staff should evaluate current regulations to identify areas where event reporting requirements can be risk-informed and/or simplified. For example, the time limit for reporting could be adjusted based on the safety significance of the event and the need for NRC's immediate action. The burden associated with reporting events or conditions with little or no safety or risk significance should be minimized. The staff should request industry identification of other reporting requirements that are potential candidates for

modifying to a more risk-informed approach in the planned ANPR on § 50.72, and include this issue in the agendas for the upcoming workshops on § 50.72 and DSI 13. Based on the results from these workshops, a schedule and plan of action should be submitted to the Commission."

The staff's proposal regarding other reactor reporting rules, beyond 10 CFR 50.72 and 50.73, was provided separately in SECY-99-022, "Rulemaking to Modify Reporting Requirements for Power Reactors," January 20, 1999. The Commission's directions in response to SECY-99-022 were provided in a Staff Requirements Memorandum dated March 19, 1999. Rulemaking to address other rules, beyond 10 CFR 50.72 and 50.73, will be pursued separately.

4. "The staff should also consider the merits of using criteria similar to that developed by the Special Projects Office in establishing thresholds for categorizing design deficiencies."

The proposed rule would adopt standards similar to those developed by Special Projects Office for categorizing design deficiencies. For example, as discussed above, a design or analysis defect or deviation would be reportable under both 10 CFR 50.72 and 50.73 if, as a result, a structure or system is not capable of performing its specified safety function. It would be reportable under 10 CFR 50.73 if, as a result, one train of a redundant system is not capable of performing its specified safety function, and thus the train is inoperable for a period of time longer than allowed by the plant's technical specifications. If it does not rise to this level of significance, or meet another reporting criterion such as *unanalyzed condition that significantly affects plant safety*, it would not be reportable under 10 CFR 50.72 and 50.73 on its own accord. However, other regulatory requirements such as 10 CFR 50.59, 10 CFR 50.71(e), or Appendix B to 10 CFR 50 may be applicable.

5. "If practical, the staff should coordinate the revised reporting with the implementation of ADAMS, to facilitate the use of electronic notifications, when appropriate."

The Federal Register notice for the proposed rule would indicate that the forthcoming Agency-wide Document Access and Management System (ADAMS), will in general provide for electronic submittal of many types of reports, including LERs. Accordingly, no separate rulemaking effort to provide for electronic submittal of LERs is contemplated.

6. "Any changes resulting from this proposed rulemaking should be consistent with agency actions to improve integrated plant assessments."

As discussed above, the staff has considered the kinds of event reports that would be eliminated by the proposed rules and believes that the changes would not have a deleterious effect on the oversight process. In addition, public comment would be specifically invited in this area.

RESOURCES:

Resources to complete this rulemaking (approximately 1.5 full time equivalents (FTE) in FY 1999 and 1.5 FTE in FY 2000) are budgeted. The Office of Nuclear Reactor Regulation (NRR) estimates that it will devote about 2 FTE to the rulemaking effort during the next 12 months. The Office of the General Counsel (OGC), the Office of Nuclear Regulatory Research (RES), and the four regional offices are expected to devote a total of about 1 FTE among them during the same period. The revised reporting requirements would reduce the effort required to review reactor event reports by about 1.5 FTE, as discussed in the draft Regulatory Analysis. Resource savings will be addressed in the FY 2001 internal budget review.

COORDINATION:

OGC has reviewed this paper and has no legal objections. The Office of the Chief Information Officer has reviewed this paper for information technology and information management implications and concurs in it. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

The Advisory Committee on Reactor Safeguards was briefed on May 11, 1999. The Committee's recommendations are provided in Attachment 6 and the staff's responses are provided in Attachment 7.

RECOMMENDATIONS:

That the Commission:

1. Approve publication of the notice of proposed rulemaking (Attachment 1).
2. Note that:
  - a. The proposed rule will be published in the Federal Register for a 75-day public comment period;
  - b. The statement of considerations for the proposed rule sets forth a NRC position that information collection and reporting requirements are not subject to the backfit rule, 10 CFR 50.109.
  - c. In accordance with the Regulatory Flexibility Act (5 U.S.C. 605(b)), I certify that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. This proposed rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the size standards established by the NRC (10 CFR 2.810);
  - d. The Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification regarding economic impact on small entities and the reasons for it as required by the Regulatory Flexibility Act;

- e. The proposed rule contains information collection requirements that are subject to review by the Office of Management and Budget (OMB). An OMB review package is being prepared and will be submitted to OMB in the near future;
- f. A public announcement will be issued when the proposed rule is filed with the Office of the Federal Register (Attachment 4);
- g. The appropriate Congressional committees will be informed (Attachment 5); and
- h. Copies of the Federal Register notice of proposed rulemaking will be distributed to all operating nuclear power plant licensees and all state liaison officers. The notice will be sent to other interested parties upon request.

William D. Travers  
Executive Director  
for Operations

Attachments:

- 1. Federal Register notice
- 2. Draft regulatory analysis
- 3. Draft NUREG-1022, Revision 2
- 4. Draft public announcement
- 5. Draft congressional letters
- 6. Letter providing ACRS recommendations
- 7. Memorandum responding to ACRS recommendations

Federal Register Notice

NUCLEAR REGULATORY COMMISSION

10 CFR Parts 50 and 72

RIN 3150-AF98

Reporting Requirements for

Nuclear Power Reactors

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The Nuclear Regulatory Commission is proposing to amend the event reporting requirements for nuclear power reactors: to update the current rules, including reducing or eliminating the reporting burden associated with events of little or no safety significance; and to better align the rules with the NRC's needs for information to carry out its safety mission, including revising reporting requirements based on importance to risk and extending the required reporting times consistent with the time it is needed for prompt NRC action. Also, a draft report, NUREG-1022, Revision 2, is being made available for public comment concurrently with the proposed amendments.

DATES: Submit comments (75 days after 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 ensure consideration only for comments received on or before this date.

ADDRESSES: Mail comments to: Secretary, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. ATTN: Rulemakings and Adjudications Staff.

Deliver comments to: 11555 Rockville Pike, Rockville, Maryland, between 7:30 am and 4:15 p.m. Federal workdays.

Electronic comments may be provided via the NRC's interactive rulemaking website through the NRC home page (<http://www.nrc.gov>). From the home page, select "Rulemaking" from the tool bar at the bottom of the page. The interactive rulemaking website can then be accessed by selecting "Rulemaking Forum." This site provides the ability to upload comments as files (any format), if your web browser supports that function. For information about the interactive rulemaking website, contact Ms. Carol Gallagher, (301) 415-5905; e-mail [CAG@nrc.gov](mailto:CAG@nrc.gov).

Certain documents related to this rulemaking, including comments received, the transcripts of public meetings held, the draft regulatory analysis and the draft report NUREG-1022, Revision 2 may be examined at the NRC Public Document Room, 2120 L Street, N.W., (Lower Level), Washington, DC. These same documents also may be viewed and downloaded electronically via the interactive rulemaking web site established by NRC for this rulemaking.

FOR FURTHER INFORMATION CONTACT: Dennis P. Allison, Office of Nuclear Reactor Regulation, Washington, DC 20555-0001, telephone (301) 415-6835, e-mail [dpa@nrc.gov](mailto:dpa@nrc.gov).

SUPPLEMENTARY INFORMATION:

## **Contents**

- I. Background
- II. Rulemaking Initiation

### III. Analysis of Comments

### IV. Discussion

1. Objectives of Proposed Amendments
2. Discussion of Proposed Amendments
3. Revisions to Reporting Guidelines in NUREG-1022
4. Reactor Oversight
5. Enforcement
6. Electronic Reporting
7. Schedule
8. State Input

### V. Environmental Impact: Categorical Exclusion

### VI. Backfit Analysis

### VII. Regulatory Analysis

### VIII. Paperwork Reduction Act Statement

### IX. Regulatory Flexibility Certification

### X. Proposed Amendments

## **5. Background**

Section 50.72 has been in effect, with minor modifications, since 1983. Its essential purpose is "... to provide the Commission with immediate reporting of .... significant events where immediate Commission action to protect the public health and safety may be required or where the Commission needs timely and accurate information to respond to heightened public concern." (48 FR 39039; August 29, 1983).

Section 50.73 has also been in effect, with minor modification, since 1983. Its essential

purpose is to identify "... the types of reactor events and problems that are believed to be significant and useful to the NRC in its effort to identify and resolve threats to public safety. It is designed to provide the information necessary for engineering studies of operational anomalies and trends and patterns analysis of operational occurrences. The same information can be used for other analytic procedures that will aid in identifying accident precursors." (48 FR 33851; July 26, 1983).

## **(6) Rulemaking Initiation**

Experience has shown a need for change in several areas. On July 23, 1998 (63 FR 39522) the NRC published in the Federal Register an advance notice of proposed rulemaking (ANPR) to announce a contemplated rulemaking that would modify reporting requirements for nuclear power reactors. Among other things, the ANPR requested public comments on whether the NRC should proceed with rulemaking to modify the event reporting requirements in 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors," and 50.73, "Licensee event report system," and several concrete proposals were provided for comment.

A public meeting was held to discuss the ANPR at NRC Headquarters on August 21, 1998. The ANPR was also discussed, along with other topics, at a public meeting on the role of industry in nuclear regulation in Rosemont, Illinois on September 1, 1998. The public comment period on the ANPR closed on September 21, 1998. A comment from the Nuclear Energy Institute (NEI) proposed conducting "table top exercises" early in the development and review process to test key parts of the requirements and guidance for clarity and consistency. That comment was accepted and a third public meeting was held on November 13, 1998 to discuss issues of clarity and consistency in the contemplated approach. Transcripts of these meetings

are available for inspection in the NRC Public Document Room or they may be viewed and downloaded electronically via the interactive rulemaking web site established by NRC for this rulemaking, as discussed above under the heading "ADDRESSES." Single copies may be obtained from the contact listed above under the heading "For Further Information Contact."

### **III. Analysis of Comments**

The comment period for the ANPR expired September 21, 1998. Twenty-one comment letters were received, representing comments from sixteen nuclear power plant licensees (utilities), two organizations of utilities, two States and one public interest group. A list of comment letters is provided below. The comment letters expressed support for amending the rules along the general lines of the objectives discussed in the ANPR. Most of the letters also provided specific recommendations for changes to the contemplated amendments discussed in the ANPR. In addition to the written comments received, the ANPR has been the subject of three public meetings as discussed above under the heading "Background," and comments made at those meetings have also been considered.

The resolution of comments is summarized below. This summary addresses the principal comments (i.e., comments other than those that are: minor or editorial in nature; supportive of the approach described in the ANPR; or applicable to another area or activity outside the scope of sections 50.72 and 50.73).

*Comment 1:* Several comments recommended amending 10 CFR 50.73 to allow 60 days (instead of the current 30 days) for submittal of Licensee Event Reports (LERs). They indicated that this would allow a more reasonable time to determine the root causes of events and lead to fewer amended reports.

*Response:* The comments are accepted for the reason stated above. The proposed rule would change the time limit to 60 days.

*Comment 2:* Two comments suggested a need to establish starting points for reporting time clocks that are clear and not subject to varied interpretations.

*Response:* The reporting guidelines in this area have been reviewed for clarity. Some editorial clarifications are proposed in Section 2.5 of the draft of Revision 2 to NUREG-1022, which is being made available for public comment concurrently with the proposed rule, as discussed below under the heading "Revisions to Reporting Guidelines in NUREG-1022."

*Comment 3:* Many comments opposed adopting a check the box approach for human performance and other information in LERs (as was proposed in the ANPR, with the objective of reducing reporting burden). They indicated that adopting a check the box approach would result in substantial implementation problems, and recommended continuing to rely on the narrative description which provides adequate information. One comment opposed the idea of a check the box approach on the grounds that it would make LERs more difficult for the general public to understand. A few comments supported the check the box approach.

*Response:* The intent of the check the box approach was to reduce the effort required in reporting; however, the majority of comments indicate this would not be the case. Accordingly, the proposed rule does not reflect adoption of a check the box approach.

*Comment 4:* Several comments opposed codifying the current guidelines for reporting human performance information in LERs (i.e., adding the detailed guidelines to the rule, as was proposed in the ANPR). They recommended leaving the rule unchanged in this regard,

indicating that sufficient information is being provided under the current rule and guidelines.

*Response:* The comments are partially accepted. The proposed rule would not codify the reporting guidelines (as proposed in the ANPR) for the reasons stated above.

However, the proposed rule would simplify the requirement. It is not necessary to specify the level of detail provided in the current rule. Accordingly, the amended paragraph would simply require a discussion of the causes and circumstances for any human performance related problems that contributed to the event. Details would continue to be provided in the reporting guidelines, as indicated in Section 5.2.1 of the draft of Revision 2 to NUREG-1022. This draft report is being made available for public comment concurrently with the proposed rule, as discussed below under the heading "Revisions to Reporting Guidelines in NUREG-1022."

*Comment 5:* Several comments opposed codifying a list of specific systems for which actuation must be reported (by naming the systems in 10 CFR 50.72 and 50.73, as was proposed in the ANPR). They indicated that a system's contribution to risk can vary widely from plant to plant, which precludes construction of a valid universal list. They recommended that, instead, actuation be reported only for those systems that are specified to be engineered safety features (ESFs) in the final safety analysis report (FSAR).

*Response:* The proposed rule would include a list of systems for which actuation would be reported. However, the concern is recognized and public comment will be specifically invited on several alternatives to the proposed rule.

*Comment 6:* Several comments opposed changing the criteria in 10 CFR 50.72 and 50.73 which require reporting any *event or condition that alone could have prevented the fulfillment of the safety function of structures or systems ....* The change proposed in the ANPR would have substituted the phrase "alone or in combination with other existing conditions" for the word "alone" in this criterion. The comments indicated that this would add confusion, the

rule as currently worded is sufficiently clear, and the need to consider other existing plant conditions in evaluating reportability is understood and uniformly implemented. They recommended leaving the rule unchanged in this regard.

*Response:* The comments are partially accepted. The requirement would not be changed by substituting the phrase "alone or in combination with other existing conditions" for the word "alone" in this criterion (as proposed in the ANPR).

However, the proposed amendments would change the rules by deleting the word "alone," so that they would require reporting "any event or condition that could have prevented fulfillment of the safety function of structures or systems ..." This would simplify the wording, rather than making it more complicated. It is not intended to change the meaning of the requirement, but to make the meaning more apparent in the wording of the rule. The following points, which are relevant to this question, would continue to be made clear in the reporting guidelines. See Section 3.2.7 of the draft of Revision 2 to NUREG-1022, which is being made available for public comment concurrently with the proposed rule, as discussed below under the heading "Revisions to Reporting Guidelines in NUREG-1022."

(1) It is not necessary to assume an additional random single failure in evaluating reportability. (If such an assumption were necessary, inoperability of a single train would generally be reportable under this criterion.)

(2) It is necessary to consider other existing conditions in determining reportability. (For example, if Train A fails at a time when Train B is out of service for maintenance, the event is reportable.)

(3) The event is reportable regardless of whether or not a system was called upon to perform its safety function. (For example, if an emergency core cooling system [ECCS] was incapable of performing its specified safety functions, the event is reportable even if there was no call for the ECCS function.)

(4) The event is reportable regardless of whether or not a different system was capable of performing the safety function. (For example, if the onsite power system failed, the event is reportable even if the offsite power system was available and capable of performing its safety functions.)

*Comment 7:* Several comments recommended changing 10 CFR 50.72 and 50.73 to exclude reporting an invalid actuation of an ESF. (An invalid actuation is one that does not result from a plant condition that warrants ESF initiation.)

*Response:* The comments are partially accepted. The proposed amendments would eliminate the requirement for telephone notification of an invalid actuation under 10 CFR 50.72. Invalid actuations are generally less significant than valid actuations because they do not involve plant conditions (e.g., low reactor coolant system pressure) conditions that would warrant system actuation. Instead, they result from other causes such as a dropped electrical lead during testing).

However, the proposed amendments would not eliminate the requirement for a written report of an invalid actuation under 10 CFR 50.73. There is still a need for reporting of invalid actuations because they are needed to make estimates of equipment reliability parameters, which in turn are needed to support the Commission's move towards risk-informed regulation. This is discussed further in a May 7, 1997 Commission paper, SECY-97-101, "Proposed Rule, 10 CFR 50.76, Reporting Reliability and Availability Information for Risk-significant Systems and Equipment," Attachment 3.

*Comment 8:* Several comments recommended changing 10 CFR 50.72 and 50.73 to limit certain reports to current events and conditions. That is, they recommended that *an event or condition that could have prevented the fulfillment of the safety function of structures or systems ....* be reported:

- (1) by telephone under 10 CFR 50.72(b)(2)(iii) only if it currently exists, and
- (2) by written LER under 10 CFR 50.73(a)(2)(v) only if it existed within the previous two years.

For a "historical" event or condition of this type (i.e., one which might have been significant at one time but has since been corrected) there is less significance than there is for a current event and, thus, immediate notification under 50.72(b)(2)(iii) is not warranted. With regard to 50.73(a)(2)(v), two years encompasses at least one operating cycle. Considerable resources are expended when it is necessary to search historical records older than this to make past operability determinations, and this is not warranted by the lesser significance of historical events older than two years.

*Response:* The comments are partially accepted, for the reasons stated above. That is, under the proposed rules, an *event or condition that could have prevented the fulfillment of the safety function of structures or systems ...* would be reported by telephone under 10 CFR 50.72(b)(2)(iii) only if it exists at the time of discovery. An *event or condition that could have prevented the fulfillment of the safety function of structures or systems ....* would be reported by written LER under 10 CFR 50.73(a)(2)(v) only if it existed within the previous three years.

In addition, although not recommended in the comments, under the proposed rule an *operation or condition prohibited by the plant's Technical Specifications* would be reported under 50.73(a)(2)(i)(b) only if it existed within the previous three years. For this criterion as well, considerable resources are expended when it is necessary to search historical records older than three years to make past operability determinations, and this is not warranted by the lesser significance of historical events older than three years.

Three years is proposed, rather than two years as suggested in the comments, because the NRC staff trends plant performance indicators over a period of three years to ensure inclusion of periods of both shut down and operation.

*Comment 9:* Several comments opposed using the term risk-significant (or significant) in the absence of a clear definition.

*Response:* The term "significant" would be used in two criteria in the proposed rules. In the first criterion, sections 50.72 and 50.73 would require reporting an unanalyzed condition that significantly affects plant safety. In this context the term "significant" would be defined by examples, five of which are discussed below under the heading "Condition that is outside the design basis of the plant." In the second criterion, section 50.73 would require reporting when a component's ability to perform its safety function is significantly degraded and the condition could reasonably be expected to affect other similar components in the plant. Again, the term "significant" would be defined by examples, six of which are discussed below under the heading "Significantly degraded components."

*Comment 10:* Several comments recommended changing 10 CFR 50.72 and 50.73 to exclude reporting of an *unanalyzed condition that significantly compromised plant safety* on the basis that it is redundant to other reporting criteria.

*Response:* The comment is not accepted. Several types of worthwhile reports have been identified that could not readily be captured by other criteria as discussed further below under the heading "Condition that is outside the design basis of the plant."

*Comment 11:* Several comments recommended amending 10 CFR 50.72 and 50.73 to exclude reporting of a seriously degraded principal safety barrier on the basis that it is redundant to other reporting criteria.

*Response:* The comments are not accepted. This criterion captures some worthwhile reports that would not be captured by other criteria, such as significant welding or material defects in the primary coolant system. However, some clarifications are proposed in Section 3.2.4 of the draft reporting guidelines, to better indicate which events are serious enough to qualify for reporting under this criterion.

*Comment 12:* One comment recommended that, with regard to a condition or operation prohibited by the plant's Technical Specifications, reporting should be eliminated for violation of all administrative Technical Specifications.

*Response:* The comment is partially accepted. The proposed rule would eliminate reporting for Technical Specifications that are administrative in nature. The reporting guidelines would not change. As stated in the current reporting guidelines in NUREG-1022, Revision 1, failure to meet administrative Technical Specifications requirements is reportable only if it results in violations of equipment operability requirements, or had a similar detrimental effect on a licensee's ability to safely operate the plant. For example, operation with less than the required number of people on shift would constitute operation prohibited by the Technical Specifications. However, a change in the plant's organizational structure that has not yet been approved as a Technical Specification change would not. An administrative procedure violation or failure to implement a procedure, such as failure to lock a high radiation area door, that does not have a direct impact on the safe operation of the plant, is generally not reportable under this criterion.

*Comment 13:* One comment recommended changing 10 CFR 50.73 to require that LERs identify: (1) how many opportunities to detect the problem were missed and (2) corrective actions to prevent future misses.

*Response:* No changes are proposed. If missed opportunities are identified and are significant to the event, they should be captured by the current requirements to provide a comprehensive description of the event and to describe corrective actions if they are significant to the event.

*Comment 14:* With regard to design issues, one comment recommended including language in the rules or their statements of considerations encouraging a voluntary report under 10 CFR 50.9 for a newly discovered design issue which is not otherwise reportable at the

plant where first discovered (because the affected systems can still perform their specified safety functions) but which might have a significant impact on generic design issues at other plants.

*Response:* A statement encouraging submittal of voluntary LERs is included in the reporting guidelines. In addition, the guidelines would indicate that any significant degradation that could reasonably be expected to affect multiple similar components in the plant should be reported.

*Comment 15:* Several comments opposed placing a condition, related to systematic non-compliance, on the elimination of reporting of late surveillance tests (as proposed in the ANPR) under 10 CFR 50.73. The condition would be burdensome because licensees would need to track instances of missed surveillance tests in given time periods.

*Response:* The proposed rule does not contain this condition. Reporting for the purpose of identifying systematic non-compliance is not needed because NRC resident inspectors routinely review plant problem lists, and thus would be aware of any systematic non-compliance in this area if it occurs.

*Comment 16:* One comment recommended changing the rules to allow licensees to rely on notifications made to resident inspectors, which could eliminate the need to make a telephone notification via the emergency notification system (ENS) and/or submit a written LER, at least for some events or conditions. They indicated, for example, this should be adequate where the event is a decision to issue a news release.

*Response:* No changes are proposed. Telephone notifications to the NRC Operations Center, when required, are needed to ensure that the event can be promptly reviewed. This includes notification of the NRC Headquarters Emergency Officers and the Regional Duty Officer and consideration of whether to activate NRC incident response procedures. Written LERs, when required, are needed to ensure that events can be systematically reviewed for

safety significance.

*Comment 17:* Some comments opposed amending 10 CFR 50.73 to require additional information regarding equipment availability for shutdown events (as proposed in the ANPR) to support staff probabilistic risk assessments (PRAs). They indicated that it is rare that sufficient information is not available in an LER.

*Response:* The proposed rule would require such information. Frequently, when shutdown events are subjected to a probabilistic risk analysis, it is necessary to call the plant to determine the status of systems and equipment. The proposed rule would eliminate much of that need.

*Comment 18:* Several comments recommended deleting 10 CFR 50.72(b)(2)(i), "Any event found while the reactor is shut down, that, had it been found while the reactor was in operation, would have resulted in the nuclear power plant, including its principal safety barriers, being seriously degraded or being in an unanalyzed condition that significantly compromises plant safety." The comments indicated that because the plant would be shutdown, there is no need for immediate NRC action.

*Response:* The requirement for telephone reporting would not be entirely eliminated because, if a principal safety barrier is significantly degraded or a condition that significantly affects plant safety exists; the event may be significant enough that the NRC would need to initiate actions [such as contacting the plant to better understand the event and/or initiating a special inspection or investigation] within about a day even if the plant is shutdown.

However, in the proposed rule this specific criterion would be combined with 10 CFR 50.72(b)(1)(ii), "Any event or condition during plant operation that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded or ..." Also, the term "unanalyzed condition that significantly compromises plant safety" would be deleted. In combination with other changes, this would result in the following criterion for telephone

notification "Any event or condition that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded."

*Comment 19:* Some comments recommended that the NRC use enforcement discretion during the rulemaking process to provide early relief with regard to reporting a condition *outside the design basis of the plant* and/or a late surveillance test (*condition or operation prohibited by Technical Specifications*).

*Response:* The current rules will continue to apply until final revised rules are issued and become effective. However in dispositioning any violation, the risk- and safety-significance of the violation will be an important consideration. Establishing an interim enforcement discretion policy would involve the same critical elements as developing the revised rule and guidance including a provision for public comment. This would complicate the rulemaking process, and essentially constitute a prediction of its final outcome, which may or may not turn out to be correct.

*Comment 20:* Several comment letters opposed the idea of tying enforcement criteria (i.e., violation severity levels) to reporting criteria. They indicated this could have an unintended adverse effect on reporting and the resources consumed because in matching an event with a reporting criterion, a licensee would essentially be forced to make a preliminary determination of severity level.

*Response:* The comments are not accepted. The proposed changes to the enforcement criteria, are discussed below under the heading "Enforcement."

*Comment 21:* As requested by the ANPR, a number of comments identified reactor reporting requirements other than sections 50.72 and 50.73 where changes are warranted.

*Response:* Comments regarding changes to reactor reporting requirements other than sections 50.72 and 50.73 will be addressed in a separate action. A Commission paper on that subject was submitted on January 20, 1999, SECY-99-022, "Rulemaking to Modify Reporting

Requirements for Power Reactors" and the Commission issued a Staff Requirements Memorandum on March 19, 1999 directing the staff to proceed with planning and scheduling.

*Comment 22:* One comment recommended changing the required initial reporting time for some events to "... within 8 hours or by the beginning of the next business day," instead of simply specifying "... within 8 hours." The comment indicated it does not appear that the NRC takes action on these events during non-business hours.

*Response:* The comment is not accepted. The NRC needs these reports in time to call the plant to find out more about the event and/or initiate a special inspection or an investigation, if warranted, within a day. Sometimes these actions are taken during non-business hours.

*Comment 23:* One comment recommended that an *event or condition that could have prevented fulfillment of the safety function of structures or systems ....* should be reportable only when the time limits of the TS are exceeded. It indicated that if the time limits are not exceeded the event is not significant enough to warrant reporting.

*Response:* The comment is not accepted. Generally, standard TS require commencement of shutdown within one hour if an important system, such as emergency ac power, is inoperable. However, the stated reason for allowing one hour before commencing the shutdown is to provide time to prepare for an orderly shutdown. Also, the condition might have lasted much longer than one hour before it was discovered. Finally, an event that results in a safety system failure (or inability to perform its function) is generally significant enough to warrant NRC review.

*Comment 24:* One comment from the State of Ohio recommended that, although rule changes are not necessary, emphasis should be placed on positive notification of State and local agencies of emergency conditions before calling the NRC.

*Response:* The comment is accepted. It arose from a weakness in the NRC's response to an event at the Davis-Besse plant. Because there were considerable difficulties in establishing telephone communications with the plant at the time of the event, NRC Operations Center personnel requested that the licensee remain on the line and said that the NRC would notify the State. However, the NRC did not do so in a timely manner. Training and procedure changes have been implemented to ensure this type of problem will not reoccur.

*Comment 25:* One comment letter, from the State of Illinois, stated the following: "In section 50.72 of the advance notice of proposed rulemaking, seven non-emergency events listed as (f), are proposed to be reported in eight hours instead of one hour. Of those seven events, six (specifically, (ii), (iii), (iv), (v), (vi), and (vii)) would probably be classified as emergency events under existing emergency plans at an Illinois site .... This will cause reporting confusion during an event at a time when clarity is necessary. These six events should all be reported as emergency events, not non-emergency events. EAL thresholds in licensee emergency plans should be required to reflect them clearly. All of these events would affect the State of Illinois' response and our emergency plans. NRC must reconsider the categories of non-emergency events in the context of the current guidance to licensees for classifying EALs to ensure there is a clear distinction between emergency and non-emergency reportable events."

*Response:* Section 50.72 has been reviewed, and appears to be clear in this regard. It indicates the following:

(1) any declaration of an Emergency Class is reportable pursuant to 10 CFR 50.72(a)(1)(i) and (a)(3),

(2) the conditions listed in paragraph (b)(1), "One-hour reports," are reportable pursuant to paragraph (b)(1) if not reported as a declaration of an Emergency Class under paragraph (a), and

(3) the conditions listed in paragraph (b)(2), "Eight-hour reports, are reportable pursuant to paragraph (b)(2), if not reported under paragraphs (a) or (b)(1).

*Comment 26:* One comment letter, from the State of Illinois, opposed relaxing the required initial reporting time from 4 hours to 8 hours for the following types of events:

(i) Airborne radioactive release that results in concentrations over 20 times allowable levels in an unrestricted area;

(ii) Liquid effluent in excess of 20 times allowable concentrations released to an unrestricted area;

(iii) Radioactively contaminated person transported to an offsite medical facility for treatment;

(iv) News release or other government agency notification related to the health and safety of the public or onsite personnel, or protection of the environment.

The comment further indicated: "It is of paramount importance that those charged with regulating and monitoring the public impact of radiological releases are being kept informed of unplanned releases in a timely manner. Illinois law requires that we perform independent assessments, decide what actions may be necessary to protect the public, and assist in informing the public regarding any radiological risk. Should follow-up action to a release be necessary, then the less time that has elapsed, the better the state is able to respond in a timely and appropriate manner. We oppose any reduction in notification requirements for unplanned radiation releases from a site regardless of the source or quantity.

Timeliness is also important for items of obvious public interest. News of seemingly small events spreads quickly, particularly in local communities around the power plants. Delayed reporting of such events means that we will be unprepared to respond to queries from local officials, or the media, with a resultant loss of public confidence. Therefore, we also oppose any reduction in notification requirements for newsworthy events."

*Response:* In the interest of simplicity, the proposed amendments would maintain just three basic levels of required reporting times in 10 CFR 50.72 and 50.73 (1 hour, 8 hours, and 60 days). However, the concern is recognized and public comment is specifically invited on the question of whether additional levels should be introduced to better correspond to particular types of events, as discussed below under the heading "Required Initial Reporting Times." Also, if in a final rule the NRC should relax the time limit to 8 hours, a State would not be precluded from obtaining reports earlier than 8 hours.

*Comment 27:* Two comment letters addressed coordination with States. The comment letter from Florida Power & Light Company stated "The NRC's Public workshop on August 21, 1998, touched on a number of examples where opportunities exist to reduce reporting burdens. An industry representative commented that licensees sometimes have to report the same event to state agencies and the NRC provided one such example. FPL concurs with the recommendation that the time requirement for reporting an event to the NRC and to the state should be consistent wherever practical and possibly in some cases eliminated."

The comment letter from Northeast Nuclear Energy Company stated "Northeast Nuclear Energy Company agrees with extending the non-emergency prompt notifications to eight hours. This would help to eliminate unnecessary reports and retractions. However, it is necessary to have the individual states closely involved with the rule change since they may have requirements that are more restrictive or conflict with the proposed rulemaking. For example, in Connecticut all 10 CFR 50.72 reports require notification of the state within one hour."

*Response:* The ANPR specifically requested State input. In addition, a letter requesting input was sent to each State. Written comments were received from the State of Ohio and the State of Illinois. In addition, representatives from several States attended one of the public meetings on the ANPR. The NRC will continue to solicit State input as the rulemaking process proceeds.

*Comment 28:* One comment recommended eliminating two of the requirements for immediate followup notification during the course of an event, section 50.72(c)(2)(i), *the results of ensuing evaluations or assessments of plant conditions*, and section 50.72(c)(2)(ii), *the effectiveness of response or protective measures taken*. The comment indicated that the requirements continue to apply after the event and that they require reporting even if, for example, the result of a further analysis does not change the initial report.

*Response:* The comment is not accepted. The requirements for followup reporting apply only during the course of the event. Followup reports are needed while the event is ongoing. For example, if an analysis is completed during an ongoing event, and it confirms an earlier estimate of how long it will take to uncover the reactor core if electric power is not restored, that information may very well be useful for the purpose of evaluating the need for protective measures (evacuation).

*Comment 29:* One comment recommended clarifying the reporting requirements for problems identified by NRC inspectors.

*Response:* No changes are proposed. The current reporting guidelines include a paragraph making it clear that an event must be reported via telephone notification and/or written LER, as required, regardless of whether it had been discussed with NRC staff personnel or was identified by NRC personnel.

*Comment 30:* Several comments recommended changing the requirements in 50.46(a)(iii)(2) for reporting errors in or corrections to ECCS analyses.

*Response:* These comments will be addressed in a separate action (along with other comments on reporting requirements other than sections 50.72 and 50.73).

*Comment 31:* Some comments raised issues regarding plant-specific reporting requirements contained in Technical Specifications (or other parts of the operating license). One suggestion was that 10 CFR 50.72 and 50.73 should be changed to address these issues.

Another suggestion was that a Generic Letter be issued indicating that the NRC would be receptive to requests for license amendments to eliminate specific reporting requirements.

*Response:* No changes are proposed for sections 50.72 and 50.73, which identify generic reporting requirements. It is not feasible or appropriate to address the specific reporting requirements contained in individual operating licenses in this format.

The idea of issuing a generic communication to specific requests for license amendments will be addressed (along with other comments on reporting requirements beyond the scope of sections 50.72 and 50.73) in a separate action.

*Comment 32:* One comment recommended that in section 50.72(b)(1)(v), the word "offsite" be added before "communications capability" to make it clear that what must be reported is a loss of communications with outside agencies, not internal plant communications systems.

*Response:* The comment is accepted. In the proposed rule the word "offsite" would be added.

*Comment 33:* Several comments suggested that the NRC should define its needs relative to the information provided in LERs.

*Response:* The essential purpose of the LER rule is to identify the types of reactor events and problems that are believed to be significant and useful to the NRC in its effort to identify and resolve threats to public safety. The rule is designed to provide the information necessary for engineering studies of operational anomalies and trends, and patterns analysis of operational occurrences. To this end, the information required in LERs is generally needed to understand the event, its significance, and its causes in order to determine whether generic or plant specific action is needed to preclude recurrence. Some further specific functions are discussed below.

It is necessary to identify and analyze events and conditions that are precursors to potential severe core damage, to discover emerging trends or patterns of potential safety significance, to identify events that are important to safety and their associated safety concerns and root causes, to determine the adequacy of corrective actions taken to address the safety concerns, and to assess the generic applicability of events.

The NRC staff reviews each LER to identify those individual events or generic situations that warrant additional analysis and evaluation. The staff identifies repetitive events and failures and situations where the frequency or the combined significance of reported events may be cause for concern. The NRC staff reviews past operating history for similar events and initiates a generic study, as appropriate, to focus upon the nature, cause, consequences and possible corrective actions for the particular situation or concern.

The NRC staff uses the information reported in LERs in confirming licensing bases, studying potentially generic safety problems, assessing trends and patterns of operational experience, monitoring performance, identifying precursors of more significant events, and providing operational experience to the industry.

The NRC determines whether events meet the criteria for reporting as an Abnormal Occurrence Report to Congress or for reporting to the European Nuclear Energy Agency (NEA).

The information from LERs is widely used within the nuclear industry, both nationally and internationally. The industry's Institute of Nuclear Power Operation (INPO) uses LERs as a basis for providing operational safety experience feedback data to individual utilities through such documents as significant operating experience reports, significant event reports, significant events notifications, and operations and maintenance reminders. U.S. vendors and nuclear steam system suppliers, as well as other countries and international organizations, use LER data as a source of operational experience data.

*Comment 34:* Some comments indicated that the licensing basis should be defined.

*Response:* No changes are proposed. The term "licensing basis" is not explicitly used in the event reporting rules or the draft reporting guidelines. It can come into play, via Generic Letter (GL) 91-18, "Information to Licensees Regarding two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," in determining what the "specified safety function" of a system is. This relates to whether an event is reportable as an *event or condition that could have prevented the fulfillment of the safety function of structures or systems .... and/or an operation or condition prohibited by the plant's technical specification (TS)*. However, any unsettled details regarding exactly which commitments are included in the licensing basis (for example because of differences between the definitions in GL 91-18 and 10 CFR 54.3) are not of a nature that would change the determination of whether or not a system is capable of performing its specified safety functions (i.e., operable).

*Comment 35:* Several comments recommended conducting tabletop exercises (public meetings) early in the drafting process, involving licensees, inspectors, and headquarters personnel to discuss the draft amendments and associated and guidance.

*Response:* The Commission agrees. The recommended public meeting was held on November 13, 1998.

*Comment 36:* Several comments recommended conducting a workshop (public meeting) early during the public comment period to discuss the proposed rule and draft guidance.

*Response:* The Commission agrees. The recommended workshop has been added to the schedule.

*Comment 37:* Several comments recommended that the reporting guidelines be revised concurrently with the rules.

*Response:* The Commission agrees. Draft guidelines are being made available for comment concurrent with the proposed rules.

*Comment 38:* Several comment letters recommended reviewing enforcement criteria at the same time the rule is being developed to ensure consistent application of enforcement to reporting.

*Response:* The comment is accepted. The Enforcement Policy is being reviewed concurrently with development of the rule.

#### **IV. Discussion**

##### *1. Objectives of Proposed Amendments*

The purpose of sections 50.72 and 50.73 would remain the same because the basic needs remain the same. The objectives of the proposed amendments would be as follows:

(1) To better align the reporting requirements with the NRC's current reporting needs. An example is extending the required initial reporting times for some events, consistent with the need for timely NRC action. Another example is changing the criteria for reporting system actuations, to obtain reporting that is more consistent with the risk-significance of the systems involved.

(2) To reduce the reporting burden, consistent with the NRC's reporting needs. An example is eliminating the reporting of design and analysis defects and deviations of little or no risk- or safety-significance.

(3) To clarify the reporting requirements where needed. An example is clarifying the criteria for reporting design or analysis defects or deviations.

(4) To maintain consistency with NRC actions to improve integrated plant assessments.

For example, reports that are needed in the assessment process should not be eliminated.

## *2. Section by Section Discussion of Proposed Amendments*

*General requirements [section 50.72(a)(5)].* The requirement to inform the NRC of the type of report being made (i.e., emergency class declared, non-emergency 1-hour report, or non-emergency 8-hour report) would be revised to refer to paragraph (a)(1) instead of referring to paragraph (a)(3) to correct a typographical error.

*Required initial reporting times [sections 50.72(a)(5), (b)(1), (b)(2), and sections 50.73(a)(1) and (d)].* In the proposed amendments, declaration of an emergency class would continue to be reported immediately after notification of appropriate State or local agencies not later than 1-hour after declaration. This includes declaration of an Unusual Event, the lowest emergency class.

Deviations from technical specifications authorized pursuant to 10 CFR 50.54(x) would continue to be reported as soon as practical and in all cases within 1 hour of occurrence. These two criteria capture those events where there may be a need for immediate action by the NRC.

Non-emergency events that are reportable by telephone under 10 CFR 50.72 would be reportable as soon as practical and in all cases within 8 hours (instead of within 1 hour or 4 hours as is currently required). This would reduce the burden of rapid reporting, while still capturing those events where there may be a need for the NRC to contact the plant to find out more about the event and/or initiate a special inspection or investigation within about a day.

Written LERs would be due within 60 days after discovery of a reportable event or condition (instead of within 30 days as is currently required). Changing the time limit from 30 days to 60 days does not imply that licensees should take longer than they previously did to

develop and implement corrective actions. They should continue to do so on a time scale commensurate with the safety significance of the issue. However, for those cases where it does take longer than thirty days to complete a root cause analysis, this change would result in fewer LERs that require amendment (by submittal of an additional report).

The Performance Indicator (PI) program and the future risk-based performance indicator program provide valued input to regulatory decisions (e.g. Senior Management Meetings). Adding 30 days to the delivery of data supplying these programs would result in the reduction in the currency and value of these indicators to senior managers. With respect to the Accident Sequence Precursor program, the additional 30 days will add a commensurate amount of time to each individual event assessment since Licensee Event Reports (LERs) are the main source of data for these analyses. The delivery date for the annual Accident Sequence Precursor report would also slip accordingly. The NRC staff would have to make more extensive use of Immediate Notifications (10 CFR 50.72) and event followup to compensate in part for the Licensee Event Report (LER) reporting extension.

In the interest of simplicity, the proposed amendments would maintain just three basic levels of required reporting times in 10 CFR 50.72 and 50.73 (1 hour, 8 hours, and 60 days). However public comment is specifically invited on the question of whether additional levels should be introduced to better correspond to particular types of events. For example, 10 CFR 50.72 currently requires reporting within 4 hours for events that involve low levels of radioactive releases, and events related to safety or environmental protection that involve a press release or notification of another government agency. These types of events could be maintained at 4 hours so that information is available on a more timely basis to respond to heightened public concern about such events. In another example, events related to environmental protection are sometimes reportable to another agency, which is the lead agency for the matter, with a different time limit, such as 12 hours. These types of events could be

reported to the NRC at approximately the same time as they are reported to the other agency.

*Operation or condition prohibited by TS [section 50.73(a)(2)(i)(B)].* The term "during the previous three years" would be added to eliminate written LERs for conditions that have not existed during the previous three years. Such a historical event would now have less significance, and assessing reportability for earlier times can consume considerable resources. For example, assume that a procedure is found to be unclear and, as a result, a question is raised as to whether the plant was ever operated in a prohibited condition. If operation in the prohibited condition is likely, the answer should be reasonably apparent based on the knowledge and experience of the plant's operators and/or a review of operating records for the past three years. The very considerable effort required to review all records older than three years, in order to rule out the possibility, would not be warranted.

In addition, this criterion would be modified to eliminate reporting if the technical specification is administrative in nature. Violation of administrative technical specifications have generally not been considered to warrant submittal of an LER, and since 1983 when the rule was issued the staff's reporting guidance has excluded almost all cases of such reporting. This change would make the plain wording of the rule consistent with that guidance.

Finally, this criterion would be modified to eliminate reporting if the event consisted solely of a case of a late surveillance test where the oversight is corrected, the test is performed, and the equipment is found to be functional. This type of event has not proven to be significant because the equipment remained functional.

*Condition of the nuclear power plant, including its principal safety barriers, being seriously degraded [current sections 50.72(b)(1)(ii) and (b)(2)(i), replaced by new section 50.72(b)(2)(ii), and section 50.73(a)(2)(ii)].* Currently, 10 CFR 50.72(b)(1)(ii) and (b)(2)(i) provide the following distinction: a qualifying event or condition during operation is initially reportable in one hour; a condition discovered while shutdown that would have qualified if it had

it been discovered during operation is initially reportable in four hours. The new 10 CFR 50.72(b)(2)(ii) would eliminate the distinction because there would no longer be separate 1-hour and 4-hour categories of non-emergency reports for this criterion. There would only be 8-hour non-emergency reports for this criterion.

*Unanalyzed condition that significantly compromises plant safety [sections 50.72(b)(1)(ii)(A) and (b)(2)(i), and section 50.73(a)(2)(ii)(A); replaced by new section 50.72(b)(2)(ii)(B), and section 50.73(a)(2)(ii)(B)].* Currently, 10 CFR 50.72(b)(1)(ii)(A) and (b)(2)(i) provide the following distinction: a qualifying event or condition during operation is initially reportable in one hour; a condition discovered while shutdown that would have qualified if it had it been discovered during operation is initially reportable in four hours. The new 10 CFR 50.72(b)(2)(ii)(B) would eliminate the distinction because there would no longer be separate 1-hour and 4-hour categories of non-emergency reports for this reporting criterion. There would only be 8-hour non-emergency reports for this criterion.

In addition, the new 10 CFR 50.72(b)(2)(ii)(B) and 50.73(a)(2)(ii)(B) would refer to a condition that significantly affects plant safety rather than a condition that significantly compromises plant safety. This is an editorial change intended to better reflect the nature of the criterion.

*Condition that is outside the design basis of the plant [current Section 50.72(b)(2)(ii)(B) and section 50.73(a)(2)(ii)(B)].* This criterion would be deleted. However, a condition outside the design basis of the plant would still be reported if it is significant enough to qualify under one or more of the following criteria.

If a design or analysis defect or deviation (or any other event or condition) is significant enough that, as a result, a structure or system would not be capable of performing its specified safety functions, the condition would be reportable under *sections 50.72(b)(2)(v) and 50.73(a)(2)(v) [i.e., an event or condition that could have prevented the fulfillment of the safety*

*function of structures or systems that are needed to: (A) Shut down ...].*

For example, during testing of 480 volt safety-related breakers, one breaker would not trip electrically. The cause was a loose connection, due to a lug that was too large for a connecting wire. Other safety related breakers did not malfunction, but they had the same mismatch. The event would be reportable because the incompatible lugs and wires could have caused one or more safety systems to fail to perform their specified safety function(s).

Another example is as follows. An annual inspection indicated that some bearings were wiped or cracked on both emergency diesel generators (EDGs). Although the EDGs were running prior to the inspection, the event would be reportable because there was reasonable doubt about the ability of the EDGs to operate for an extended period of time, as required.

If a design or analysis defect or deviation (or any other event or condition) is significant enough that, as a result, one train of a multiple train system controlled by the plant's TS is not capable of performing its specified safety functions, and thus the train is inoperable longer than allowed by the TS, the condition would be reportable under *section 50.73(a)(2)(i)(B) [i.e., an operation or condition prohibited by TS]*.

For example, if it is found that an exciter panel for one EDG lacks appropriate seismic restraints because of a design, analysis or construction inadequacy and, as a result, there is reasonable doubt about the EDG's ability to perform its specified safety functions during and after an SSE, the event would be reportable.

Or, for example, if it is found that a loss of offsite power could cause a loss of instrument air and, as a result, there is reasonable doubt about the ability of one train of the auxiliary feedwater system to perform its specified safety functions for a certain postulated steam line breaks, the event would be reportable.

If a condition outside the design basis of the plant (or any other unanalyzed condition) is significant enough that, as a result, plant safety is significantly affected, the condition would be reportable under *sections 50.72(b)(2)(ii)(B) and 50.73(a)(2)(ii)(B) [i.e., an unanalyzed condition that significantly affects plant safety]*.

As was previously indicated in the 1983 Statements of Considerations for 10 CFR 50.72 and 50.73, with regard to an *unanalyzed condition that significantly compromises plant safety*, "The Commission recognizes that the licensee may use engineering judgment and experience to determine whether an unanalyzed condition existed. It is not intended that this paragraph apply to minor variations in individual parameters, or to problems concerning single pieces of equipment. For example, at any time, one or more safety-related components may be out of service due to testing, maintenance, or a fault that has not yet been repaired. Any trivial single failure or minor error in performing surveillance tests could produce a situation in which two or more often unrelated, safety-grade components are out-of-service. Technically, this is an unanalyzed condition. However, these events should be reported only if they involve functionally related components or if they significantly compromise plant safety."<sup>1</sup>

"When applying engineering judgment, and there is a doubt regarding whether to report or not, the Commission's policy is that licensees should make the report."<sup>2</sup>

"For example, small voids in systems designed to remove heat from the reactor core which have been previously shown through analysis not to be safety significant need not be reported. However, the accumulation of voids that could inhibit the ability to adequately remove heat from the reactor core, particularly under natural circulation conditions, would constitute an unanalyzed condition and would be reportable."<sup>3</sup>

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<sup>1</sup> 48 FR 39042, August 29, 1983 and 48 FR 33856, July 26, 1983.

<sup>2</sup> 48 FR 39042, August 29, 1983.

<sup>3</sup> 48 FR 39042, August 29, 1983 and 48 FR 33856, July 26, 1983.

"In addition, voiding in instrument lines that results in an erroneous indication causing the operator to misunderstand the true condition of the plant is also an unanalyzed condition and should be reported."<sup>4</sup>

Furthermore, beyond the examples given in 1983, examples of reportable events would include discovery that a system required to meet the single failure criterion does not do so.

In another example, if fire barriers are found to be missing, such that the required degree of separation for redundant safe shutdown trains is lacking, the event would be reportable. On the other hand, if a fire wrap, to which the licensee has committed, is missing from a safe shutdown train but another safe shutdown train is available in a different fire area, protected such that the required separation for safe shutdown trains is still provided, the event would not be reportable.

If a condition outside the design basis of the plant (or any other event or condition) is significant enough that, as a result, a principal safety barrier is seriously degraded, it would be reportable under *sections 50.72(b)(2)(ii)(A) and 50.73(a)(2)(ii)(A) [i.e., any event or condition that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded]*. This reporting criterion applies to material (e.g., metallurgical or chemical) problems that cause abnormal degradation of or stress upon the principal safety barriers (i.e., the fuel cladding, reactor coolant system pressure boundary, or the containment) such as:

(i) Fuel cladding failures in the reactor, or in the storage pool, that exceed expected values, or that are unique or widespread, or that are caused by unexpected factors.

(ii) Welding or material defects in the primary coolant system which cannot be found acceptable under ASME Section XI, IWB-3600, "Analytical Evaluation of Flaws" or ASME Section XI, Table IWB-3410-1, "Acceptance Standards."

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<sup>4</sup> 48 FR 39042, August 29, 1983 and 48 FR 33856, July 26, 1983.

(iii) Steam generator tube degradation in the following circumstances:

(1) The severity of degradation corresponds to failure to maintain structural safety factors. The structural safety factors implicit in the licensing basis are those described in Regulatory Guide 1.121. These safety factors include a margin of 3.0 against gross failure or burst under normal plant operating conditions, including startup, operation in the power range, hot standby, and cooldown, and all anticipated transients that are included in the plant design specification.

(2) The calculated potential primary-to-secondary leak rate is not consistent with the plant licensing basis. The licensing basis accident analyses typically assume [for accidents other than a steam generator tube rupture (SGTR)] a 1 gpm primary-to-secondary leak rate concurrent with the accident to demonstrate that the radiological consequences satisfy 10 CFR Part 100 and GDC-19. In these instances, degradation which may lead to leakage above 1 gpm under accident conditions, other than a SGTR, would exceed the threshold. For some units, the staff has approved accident leakages above 1 gpm subject to updating the licensing basis accident analyses to reflect this amount of leakage and subject to risk implications being acceptable.<sup>5</sup>

(iv) Low temperature over pressure transients where the pressure-temperature relationship violates pressure-temperature limits derived from Appendix G to 10 CFR Part 50 (e.g., TS pressure-temperature curves).

(v) Loss of containment function or integrity, including containment leak rate tests where the total containment as-found, minimum-pathway leak rate exceeds the limiting condition for

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<sup>5</sup> In addition, if the extent of degradation is great (i.e., if many tubes are degraded or defective), a telephone notification and a written LER should be provided. The plant's TS typically provide specific requirements indicating when reporting is required (based on the number of tubes degraded or defective in terms of 'percent inspected') and those requirements should be used to determine reportability.

operation (LCO) in the facility's TS.<sup>6</sup>

Finally, a condition outside the design basis of the plant (or any other event or condition) would be reportable if a component is in a degraded or non-conforming condition such that the ability of a component to perform its specified safety function is significantly degraded and the condition could reasonably be expected to apply to other similar components in the plant. This new criterion is contained in section 50.73(a)(2)(ii)(C) as discussed below.

As a result, these proposed amendments would focus the reporting of conditions outside the design basis of the plant to the safety significant issues while reducing the number of reports under the current rules in order to minimize the reporting of less significant issues. In particular, the proposed amendments will help ensure that significant safety problems that could reasonably be expected to be applicable to similar components at the specific plant or at other plants will be identified and addressed although the specific licensee might determine that the system or structure remained operable, or that technical specification requirements were met. The proposed rules will provide that, consistent with the NRC's effort to obtain information for engineering studies of operational anomalies and trends and patterns analysis of operational occurrences, the NRC would be able to monitor the capability of safety-related components to perform their design-basis functions.

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<sup>6</sup> The LCO typically employs  $L_a$ , which is defined in Appendix J to 10 CFR Part 50 as the maximum allowable containment leak rate at pressure  $P_a$ , the calculated peak containment internal pressure related to the design basis accident. Minimum-pathway leak rate means the minimum leak rate that can be attributed to a penetration leakage path; for example, the smaller of either the inboard or outboard valve's individual leak rates.

*Significantly degraded component(s) [section 50.73(a)(2)(ii)(C)].* This new reporting criterion would require reporting if a component is in a degraded or non-conforming condition such that the ability of the component to perform its specified safety function is significantly degraded and the condition could reasonably be expected to apply to other similar components in the plant. It would be added to ensure that design basis or other discrepancies would continue to be reported if the capability to perform a specified safety function is significantly degraded and the condition has generic implications. On the other hand, if the degradations are not significant or the condition does not have generic implications, reporting would not be required under this criterion.

For example, at one plant several normally open valves in the low pressure safety injection system were routinely closed to support quarterly surveillance testing of the system. In reviewing the design basis and associated calculations, it was determined that the capability of the valves to open in the event of a large break loss-of-coolant accident (LOCA) combined with degraded grid voltage during a surveillance test was degraded. The licensee concluded that the valves would still be able to reopen under the postulated conditions and considered them operable. However, that conclusion could not be supported using the conservative standards established by Generic Letter 89-10. Pending determination of final corrective action, administrative procedures were implemented to preclude closing the valves. The event would be reportable because the capability of a component to perform its specified safety functions was significantly degraded and the same condition could reasonably be expected to apply to other similar components.

In another example, during a routine periodic inspection, jumper wires in the valve operators for three valves were found contaminated with grease which was leaking from the limit switch gear box. The cause was overfilling of the grease box, as a result of following a generic maintenance procedure. The leakage resulted in contamination and degradation of the

electrical components which were not qualified for exposure to grease. This could result in valve malfunction(s). The conditions were corrected and the maintenance procedures were changed. The event would be reportable because the capability of several similar components to perform their specified safety functions could be significantly degraded.

In a further example, while processing calculations it was determined that four motor operated valves within the reactor building were located below the accident flood level and were not qualified for that condition. Pending replacement with qualified equipment, the licensee determined that three of the valves had sufficiently short opening time that their safety function would be completed before they were submerged. The fourth valve was normally open and could remain open. After flooding, valve position indication could be lost, but valve position could be established indirectly using process parameter indications. The event would be reportable because the capability of several similar components to perform their specified safety functions could be significantly degraded.

An example of an event that would not be reportable is as follows. The motor on a motor-operated valve (MOV) burned out after repeated cycling for testing. This event would not be reportable because it is a single component failure, and while there might be similar MOVs in the plant, there is not a reasonable basis to think that other MOVs would be affected by this same condition. On the other hand, if several MOVs had been repeatedly cycled and then after some extended period of time one of the MOVs was found inoperable or significantly degraded because of that cycling, then the condition would be reportable.

Minor switch adjustments on MOVs would not be reported where they do not significantly affect the ability of the MOV to carry out its design-basis function and the cause of the adjustments is not a generic concern.

At one plant the switch on the radio transmitter for the auxiliary building crane was used to handle a spent fuel cask while two protective features had been defeated by wiring errors. A

new radio control transmitter had been procured and placed in service. Because the new controller was wired differently than the old one, the drum overspeed protection and spent fuel pool roof slot limit switch were inadvertently defeated. While the crane was found to be outside its design basis, this condition would not be reportable because the switch wiring deficiency could not reasonably be expected to affect any other components at the plant.

*Condition not covered by the plant's operating and emergency procedures [section 50.72(b)(2)(ii)(C), and section 50.73(a)(2)(ii)(C)].* This criterion would be deleted because it does not result in worthwhile reports aside from those that would be captured by other reporting criteria such as:

- (1) an unanalyzed condition that significantly affects plant safety;
- (2) an event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: shut down the reactor and maintain it in a safe shutdown condition; remove residual heat; control the release of radioactive material; or mitigate the consequences of an accident;
- (3) an event or condition that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded;
- (4) an operation or condition prohibited by the plant's TS;
- (5) an event or condition that results in actuation of any of the systems listed in the rules, as amended;
- (6) an event that poses an actual threat to the safety of the nuclear power plant or significantly hampers site personnel in the performance of duties necessary for the safe operation of the nuclear power plant.

*Manual or automatic actuation of any engineered safety feature ESF [current sections 50.72(b)(1)(iv) and (b)(2)(ii), replaced by new sections 50.72(b)(2)(iv), and section 50.73(a)(2)(iv)].* Currently, sections 50.72(b)(1)(iv) and (b)(2)(ii) provide the following

distinction: an event that results or should have resulted in ECCS discharge into the reactor coolant system is initially reportable within 1 hour; other ESF actuations are initially reportable within 4 hours. The new 10 CFR 50.72(b)(2)(iv) would eliminate this distinction because there would no longer be separate 1-hour and 4-hour categories of non-emergency reports for this criterion. There would only be 8-hour non-emergency reports for this criterion.

The new section 50.72(b)(2)(iv) would eliminate telephone reporting for invalid automatic actuation or unintentional manual actuation. These events are not significant and thus telephone reporting is not needed. However, the proposed amendments would not eliminate the requirement for a written report of an invalid actuation under 10 CFR 50.73. There is still a need for reporting of these events because they are used in making estimates of equipment reliability parameters, which in turn are needed to support the Commission's move towards risk-informed regulation. (See SECY-97-101, May 7, 1997, "Proposed Rule, 10 CFR 50.76, Reporting Reliability and Availability Information for Risk-significant Systems and Equipment," Attachment 3).

The term "any engineered safety feature (ESF), including the reactor protection system (RPS)," which currently defines the systems for which actuation must be reported in section 50.72(b)(2)(iv) and section 50.73(a)(2)(iv), would be replaced by a specific list of systems. The current definition has led to confusion and variability in reporting because there are varying definitions of what constitutes an ESF. For example, at some plants systems that are known to have high risk significance, such as emergency ac power, auxiliary feedwater, and reactor core isolation cooling are not considered ESFs. Furthermore, in many cases systems with much lower levels of risk significance, such as control room ventilation systems, are considered to be ESFs.

In the proposed amendments actuation would be reportable for the specific systems named in sections 50.72(b)(2)(iv) and 50.73(a)(2)(iv). This would result in consistent reporting

of events that result in actuation of these highly risk-significant systems. Reasonable consistency in reporting actuation of highly risk-significant systems is needed to support estimating equipment reliability parameters, which is important to several aspects of the move towards more risk-informed regulation, including more risk-informed monitoring of plant performance.

The specific list of systems in the proposed rule would also eliminate reporting for events of lesser significance, such as actuation of control room ventilation systems.

The specific list of systems in the proposed rule is similar to the list of systems currently provided in the reporting guidelines in NUREG-1022, Revision 1, with some minor revisions. It is based on systems for which actuation is frequently reported, and systems with relatively high risk-significance based on a sampling of plant-specific PRAs (see Draft Regulatory Guide DG-1046, "Guidelines for Reporting Reliability and Availability Information for Risk-Significant Systems and Equipment in Nuclear Power Plants," particularly Tables C-1 through C-5).

This proposal to list the systems in the rule is controversial and public comment is specifically invited in this area. In particular, three principal alternatives to the proposed rule have been identified for comment:

(1) Maintain the status quo. Under this alternative, the rule would continue to require reporting for actuation of "any ESF." The guidance would continue to indicate that reporting should include as a minimum the system on the list.

(2) Require use of a plant-specific, risk-informed list. Under this alternative, the list of systems would be risk-informed, and plant-specific. Licensees would develop the list based on existing PRA analyses, judgment, and specific plant design. No list would be provided in the rule.

(3) Return to the pre-1998 situation (i.e., before publication of the reporting guidance in NUREG-1022, Revision 1). Under this alternative, the rule would continue to require reporting

for actuation of “any ESF.” The guidance would indicate that reporting should include those systems identified as ESF’s for each particular plant (e.g., in the FSAR).

With regard to this third alternative, it may be noted that this approach has the advantage of clarity and simplicity. There would be no need to develop a new list, and this is the practice that was followed from 1984-1997 without creating major problems. However, the lists of ESFs are not based on risk-significance. For example, emergency diesel generators (EDGs) are known to be highly risk-significant; however, at six plants, the EDGs are not considered to be ESFs. Similarly, auxiliary feedwater (AFW), systems at pressurized water reactors (PWRs) are known to be highly risk-significant; however, at a number of plants these systems are not considered to be ESFs. Also, reactor core isolation cooling (RCIC) systems at boiling water reactors (BWRs) are known to be highly risk significant; however, at a number of plants these systems are not considered to be ESFs. In contrast, at many plants, systems with much lower levels of risk significance, such as control room ventilation systems, are considered to be ESFs.

*Event or condition that could have prevented fulfillment of the safety function of structures or systems that ... [current sections 50.72(b)(1)(ii) and (b)(2)(i), replaced by new sections 50.72(b)(2)(v) and (vi), and sections 50.73(a)(2)(v) and (vi)]* The phrase “event or condition that alone could have prevented the fulfillment of the safety function of structures or systems ....” would be clarified by deleting the word “alone”. This clarifies the requirements by more clearly reflecting the principle that it is necessary to consider other existing plant conditions in determining the reportability of an event or condition under this criterion. For example, if one train of a two train system is incapable of performing its safety function for one reason, and the other train is incapable of performing its safety function for a different reason, the event is reportable.

The term "at the time of discovery" would be added to section 50.72(b)(2)(v) to eliminate telephone notification for a condition that no longer exists, or no longer has an effect on required safety functions. For example, it might be discovered that some time ago both trains of a two train system were incapable of performing their safety function, but the condition was subsequently corrected and no longer exists. In another example, while the plant is shutdown, it might be discovered that during a previous period of operation a system was incapable of performing its safety function, but the system is not currently required to be operable. These events are considered significant, and an LER would be required, but there would be no need for telephone notification.

The phrase "occurring within three years of the date of discovery" would be added to section 50.73(a)(2)(v) to eliminate written LERs for conditions that have not existed during the previous three years. Such a historical event would now have less significance, and assessing reportability for earlier times can consume considerable resources. For example, assume that during a design review a discrepancy is found that affects the ability of a system to perform its safety function in a given specific configuration. If it is likely that the safety function could have been prevented, the answer should be reasonably apparent based on the knowledge and experience of the plant's operators and/or a review of operating records for the past three years. The very considerable effort required to review all records older than three years, in order to rule out the possibility, would not be warranted.

A new paragraph, section 50.72(b)(2)(vi) would be added to clarify section 50.72. The new paragraph would explicitly state that telephone reporting is not required under section 50.72(b)(2)(v) for single failures if redundant equipment in the same system was operable and available to perform the required safety function. That is, although one train of a system may be incapable of performing its safety function, reporting is not required under this criterion if that system is still capable of performing the safety function. This is the same principle that is

currently stated explicitly in section 50.73(a)(2)(vi) with regard to written LERs.

*Major loss of emergency assessment capability, offsite response capability, or communication capability [current section 50.72(b)(2)(v), new section 50.72(b)(2)(xiii)].* The new section would be modified by adding the word "offsite" in front of the term "communications capability" to make it clear that the requirement does not apply to internal plant communication systems.

*Airborne radioactive release... and liquid effluent release...[section 50.72(b)(2)(viii) and sections 50.73(a)(2)(viii) and 50.73(a)(2)(ix)].* The statement indicating reporting under section 50.72(b)(2)(viii) satisfies the requirements of section 20.2202 would be removed because it would not be correct. For example, some events captured by section 20.2202 would not be captured by section 50.72(b)(2)(viii). Also, the statement indicating that reporting under section 50.73(a)(2)(viii) satisfies the requirements of section 20.2203(a)(3) would be deleted because it would not be correct. Some events captured by section 20.2203(a)(3) would not be captured by section 50.73(a)(2)(viii).

The proposed extension of reporting deadlines to 8 hours in section 50.72 and 60 days in section 50.73 raises questions about whether similar changes should be made to Parts 20, 30, 40, 70, 72 and 76. The merits of such changes, which may vary for different types of licensees, will be addressed in separate actions.

*Contents of LERs [sections 50.73(b)(2)(ii)(F) and 50.73(b)(2)(ii)(J)].* Paragraph (F) would be revised to correct the address of the NRC Library.

Paragraph (J) currently requires that the narrative section include the following specific information as appropriate for the particular event:

"(1) Operator actions that affected the course of the event, including operator errors, procedural deficiencies, or both, that contributed to the event.

(2) For each personnel error, the licensee shall discuss:

(i) Whether the error was a cognitive error (e.g., failure to recognize the actual plant condition, failure to realize which systems should be functioning, failure to recognize the true nature of the event) or a procedural error;

(ii) Whether the error was contrary to an approved procedure, was a direct result of an error in an approved procedure, or was associated with an activity or task that was not covered by an approved procedure;

(iii) Any unusual characteristics of the work location (e.g., heat, noise) that directly contributed to the error; and

(iv) The type of personnel involved (i.e., contractor personnel, utility-licensed operator, utility non-licensed operator, other utility personnel)."

The proposed amendment would change section 50.73(b)(2)(ii)(J) to simply require that the licensee discuss the causes and circumstances for each human performance related problem that contributed to the event. It is not necessary to specify the level of detail provided in the current rule, which is more appropriate for guidance. Details would continue to be provided in the reporting guidelines, as indicated in section 5.2.1 of the draft of Revision 2 to NUREG-1022. This draft report is being made available for public comment concurrently with the proposed rule, as discussed below under the heading "Revisions to Reporting Guidelines in NUREG-1022."

*Spent fuel storage cask problems [current sections 50.72(b)(2)(vii) and 72.16(a)(1), (a)(2), (b) and (c)].* Section 50.72(b)(2)(vii) would be deleted because these reporting criteria are redundant to the reporting criteria contained in sections 72.216(a)(1), (a)(2), and (b). Repetition of the same reporting criteria in different sections of the rules adds unnecessary complexity and is inconsistent with the current practice in other areas, such as reporting of safeguards events as required by section 73.71.

Also, a conforming amendment would be made to section 72.216. This is necessary because section 72.216(a) currently relies on section 50.72(b)(2)(vii), which would be deleted, to establish the time limit for initial notification. The amended section 72.216 would refer to sections 72.74 and 72.75 for initial notification and followup reporting requirements.

*Assessment of Safety Consequences [section 50.73(b)(3)].* This section currently requires that an LER include an assessment of the safety consequences and implications of the event. This assessment must include the availability of other systems or components that could have performed the same function as the components and systems that failed during the event. It would be modified by adding a requirement to also include the status of components and systems that "are included in emergency or operating procedures and could have been used to recover from the event in case of an additional failure in the systems actually used for recovery." This information is needed to better support the NRC's assessment of the risk-significance of reported events.

*Exemptions [section 50.73(f)].* This provision would be deleted because the exemption provisions in section 50.12 provide for granting of exemptions as warranted. Thus, including another, section-specific exemption provision in section 50.73 adds unnecessary complexity to the rules.

### *3. Revisions to Reporting Guidelines in NUREG-1022.*

A draft report, NUREG-1022, Revision 2, "Event Reporting Guidelines, 10 CFR 50.72 and 50.73," is being made available for public comment concurrently with the proposed amendments to 10 CFR 50.72 and 50.73. The draft report is available for inspection in the NRC Public Document Room or it may be viewed and downloaded electronically via the interactive rulemaking web site established by NRC for this rulemaking, as discussed above

under the heading "ADDRESSES." Single copies may be obtained from the contact listed above under the heading "For Further Information Contact." In the draft report, guidance that is considered to be new or different in a meaningful way, relative to that provided in NUREG-1022, Revision 1, is indicated by redlining the appropriate text.

#### *4. Reactor Oversight*

The NRC is developing revisions to process for oversight of operating reactors, including inspection, assessment and enforcement processes. In connection with this effort, the NRC has considered the kinds of event reports that would be eliminated by the proposed rules and believes that the changes would not have a deleterious effect on the oversight process. Public comment is invited on whether or not this is the case. In particular, it is requested that if any examples to the contrary are known they be identified.

#### *5. Enforcement.*

The NRC intends to modify its existing enforcement policy in connection with the proposed amendments to sections 50.72 and 50.73. The philosophy of the proposed changes is to base the significance of the reporting violation on: (1) the reporting requirement, which will require reporting within time frames more commensurate with the significance of the underlying issues than the current rule; and (2) the impact that a late report may have on the ability of the NRC to fulfill its obligations of fully understanding issues that are required to be reported in order to accomplish its public health and safety mission, which in many cases involves reacting to reportable issues or events. As such, the NRC intends to revise the Enforcement Policy, NUREG-1600, Rev. 1 as follows:

(1) Appendix B, Supplement I.C - Examples of Severity Level III violations.

(a) Example 14 would be revised to read as follows - A failure to provide the required

one hour telephone notification of an emergency action taken pursuant to 10 CFR 50.54(x).

(b) An additional example would be added that would read as follows - A failure to provide a required 1-hour or 8-hour *non-emergency* telephone notification pursuant to 10 CFR 50.72.

(c) An additional example would be added that would read as follows - A late 8-hour notification that substantially impacts agency response.

(2) Appendix B, Supplement I.D -Examples of Severity Level IV violations.

(a) Example 4, would be revised to read as follows - A failure to provide a required 60-day written LER pursuant to 10 CFR 50.73.

These changes in the Enforcement Policy would be consistent with the overall objective of the rule change of better aligning the reporting requirements with the NRC's reporting needs. The Enforcement Policy changes would correlate the Severity Level of the infractions with the relative importance of the information needed by the NRC.

Section IV.D of the Enforcement Policy provides that the Severity Level of an untimely report may be reduced depending on the individual circumstances. In deciding whether the Severity Level should be reduced for an untimely 1-hour or 8-hour *non-emergency* report the impact that the failure to report had on any agency response would be considered. For example, if a delayed 8-hour reportable event impacted the timing of a followup inspection that was deemed necessary, then the Severity Level would not normally be reduced. Similarly, a late notification that delayed the NRC's ability to perform an engineering analysis of a condition to determine if additional regulatory action was necessary would generally not be considered for disposition at a reduced Severity Level. Additionally, late reports filed in cases where the NRC had to prompt the licensee to report would generally not be subject to disposition at reduced

Severity Level and the Severity Level for failure to submit a timely Licensee Event Report (LER) would not be reduced to a minor violation.

In accordance with Appendix C of the Enforcement Policy, “ Interim Enforcement Policy for Severity Level IV Violations Involving Activities of Power Reactor Licensees,” the failure to file a 60-day LER would normally be dispositioned as a Non-Cited Violation (NCV). Repetitive failures to make LER reports indicative of a licensee’s inability to recognize reportable conditions, such that it is not likely that the NRC will be made aware of operational, design and configuration issues deemed reportable pursuant to 10 CFR 50.73, will be considered for categorization at Severity Level III. This disposition may be warranted since such licensee performance impacts the ability of the NRC to fulfill its regulatory obligations.

#### *6. Electronic Reporting.*

The NRC is currently planning to implement an electronic document management and reporting program, known as the Agency-wide Document Access and Management System (ADAMS), that will in general provide for electronic submittal of many types of reports, including LERs. Accordingly, no separate rulemaking effort to provide for electronic submittal of LERs is contemplated.

#### *7. Schedule.*

The current schedule is as follows:

05/28/99      Conduct public workshop to discuss proposed rule and draft reporting guidelines (14 days after publication in Federal Register)

6/14/99      Public comments due to OMB (30 days after publication)

7/13/99      Receive OMB approval (60 days after publication)

07/30/99	Public comments due to NRC (75 days after publication)
08/13/99	Provide final rule and guidelines to NRC staff rulemaking group
09/24/99	Provide final rule and guidelines to the formal concurrence chain
10/29/99	Provide final rule and guidelines to CRGR and ACRS
12/10/99	Complete briefings of CRGR and ACRS
01/14/00	Provide final rule and guidelines to Commission
02/25/00	Publish final rule and guidelines

#### *8. State Input.*

Many States (Agreement States and Non-Agreement States) have agreements with power reactors to inform the States of plant issues. State reporting requirements are frequently triggered by NRC reporting requirements. Accordingly, the NRC seeks State comment on issues related to the proposed amendments to power reactor reporting requirements.

#### Plain Language

The President's Memorandum dated June 1, 1998, entitled, "Plain Language in Government Writing," directed that the Federal government's writing be in plain language. The NRC requests comments on this proposed rule specifically with respect to the clarity and effectiveness of the language used. Comments should be sent to the address listed above.

## **V. Environmental Impact: Categorical Exclusion.**

The NRC has determined that this proposed regulation is the type of action described in categorical exclusion 10 CFR 51.22(c)(3)(iii). Therefore neither an environmental impact statement nor an environmental assessment has been prepared for this proposed regulation.

## **VI. Backfit Analysis.**

The NRC has determined that the backfit rule, 10 CFR 50.109, does not apply to information collection and reporting requirements such as those contained in the proposed rule. Therefore, a backfit analysis has not been prepared. However, as discussed below, the NRC has prepared a regulatory analysis for the proposed rule, which examines the costs and benefits of the proposed requirements in this rule. The Commission regards the regulatory analysis as a disciplined process for assessing information collection and reporting requirements to determine that the burden imposed is justified in light of the potential safety significance of the information to be collected.

## **VII. Regulatory Analysis.**

The Commission has prepared a draft regulatory analysis on this proposed rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The draft analysis is available for inspection in the NRC Public Document Room or it may be viewed and downloaded electronically via the interactive rulemaking web site established by NRC for this rulemaking, as discussed above under the heading "ADDRESSES." Single copies may be obtained from the contact listed above under the heading "For Further Information Contact."

The Commission requests public comment on this draft analysis. Comments on the draft analysis may be submitted to the NRC as discussed above under the heading "ADDRESSES."

### **VIII. Paperwork Reduction Act Statement**

This proposed rule would amend information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). This rule has been submitted to the Office of Management and Budget for review and approval of the information collection requirements.

The public reporting burden for the currently existing reporting requirements in 10 CFR 50.72 and 50.73 is estimated to average about 790 hours per response (i.e., per commercial nuclear power reactor per year) including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. It is estimated that the proposed amendments would impose a one time implementation burden of about 200 hours per reactor, after which there would be a recurring annual burden reduction of about 200 hours per reactor per year. The U.S. Nuclear Regulatory Commission is seeking public comment on the potential impact of the information collection contained in the proposed rule and on the following issues:

Is the proposed information collection necessary for the proper performance of the NRC, including whether the information will have practical utility?

Is the estimate of burden accurate?

Is there a way to enhance the quality, utility, and clarity of the information to be collected?

How can the burden of the information collection be minimized, including the use of automated collection techniques?

Send comments on any aspect of this proposed information collection, including suggestions for reducing this burden, to the Information and Records Management Branch (T-5 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001 or by Internet electronic mail to BJS1@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150AF98), Office of Management and Budget, Washington, DC 20503.

Comments to OMB on the information collections or on the above issues should be submitted by (insert date 30 days after publication in the Federal Register). Comments received after this date will be considered if it is practical to do so, but consideration cannot be ensured for comments received after this date.

#### 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.

#### **IX. Regulatory Flexibility Certification.**

In accordance with the Regulatory Flexibility Act (5 U.S.C. 605(b)), the Commission certifies that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. This proposed rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of

the definition of "small entities" set forth in the Regulatory Flexibility Act or the size standards established by the NRC (10 CFR 2.810).

## **X. Proposed Amendments.**

### List of Subjects

10 CFR Part 50: Antitrust, Classified information, Criminal penalties, Fire prevention, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

10 CFR Part 72: Criminal penalties, Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, and Spent fuel.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and 5 U.S.C. 553, the NRC is proposing to adopt the following amendments to 10 CFR Part 50 and 10 CFR Part 70.

### PART 50 - DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES

The authority citation for Part 50 continues to read as follows:

AUTHORITY: Secs. 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851).

Section 50.10 also issued under secs. 101, 185, 68 Stat. 955 as amended (42 U.S.C. 2131, 2235), sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.13, 50.54(dd), and 50.103 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138). Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

1. Section 50.72 is revised by amending paragraphs (a) and (b) to read as follows:

**§ 50.72 Immediate notification requirements for operating nuclear power reactors.**

**(a) *General requirements.***<sup>7</sup> **(1)** Each nuclear power reactor licensee licensed under § 50.21(b) or § 50.22 of this part shall notify the NRC Operations Center via the Emergency Notification System of:

(i) The declaration of any of the Emergency Classes specified in the licensee's approved Emergency Plan;<sup>8</sup> or

(ii) Of those non-Emergency events specified in paragraph (b) of this section.

**(2)** If the Emergency Notification System is inoperative, the licensee shall make the required notifications via commercial telephone service, other dedicated telephone system, or any other method which will ensure that a report is made as soon as practical to the NRC

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<sup>7</sup> Other requirements for immediate notification of the NRC by licensed operating nuclear power reactors are contained elsewhere in this chapter, in particular §§ 20.1906, 20.2202, 50.36, 72.74, 72.75, and 73.71.

<sup>8</sup> These Emergency Classes are addressed in Appendix E of this part.

Operations Center.<sup>9, 10</sup>

**(3)** The licensee shall notify the NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes.

**(4)** The licensee shall activate the Emergency Response Data System (ERDS)<sup>11</sup> as soon as possible but not later than one hour after declaring an emergency class of alert, site area emergency, or general emergency. The ERDS may also be activated by the licensee during emergency drills or exercises if the licensee's computer system has the capability to transmit the exercise data.

**(5)** When making a report under paragraph (a)(1) of this section, the licensee shall identify:

(i) The Emergency Class declared; or

(ii) Either paragraph (b)(1), "One-Hour Report," or paragraph (b)(2) "Eight-Hour Report," as the paragraph of this section requiring notification of the Non-Emergency Event.

**(b) Non-emergency events – (1) One-Hour reports.** If not reported as a declaration of the Emergency Class under paragraph (a) of this section, the licensee shall notify the NRC as soon as practical and in all cases within one hour of the occurrence of any deviation from the plant's Technical Specifications authorized pursuant to § 50.54(x) of this part.

**(2) Eight-hour reports.** If not reported under paragraphs (a) or (b)(1) of this section, the licensee shall notify the NRC as soon as practical and in all cases within eight hours of the occurrence of any of the following:

(i) The initiation of any nuclear plant shutdown required by the plant's Technical

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<sup>9</sup> Commercial telephone number of the NRC Operations Center is (301) 816-5100.

<sup>10</sup> [Reserved]

<sup>11</sup> Requirements for ERDS are addressed in Appendix E, Section VI.

Specifications.

(ii) Any event or condition that results in:

(A) The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; or

(B) The nuclear power plant being in an unanalyzed condition that significantly affects plant safety.

(iii) Any natural phenomenon or other external condition that poses an actual threat to the safety of the nuclear power plant or significantly hampers site personnel in the performance of duties necessary for the safe operation of the plant.

(iv)(A) Any event or condition that results in intentional manual actuation or valid automatic actuation of any of the systems listed in paragraph (b)(2)(iv)(B) of this section, except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.

(B) The systems to which the requirements of paragraph (b)(2)(iv)(A) of this section apply are:

(1) Reactor protection system (reactor scram, reactor trip).

(2) Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.

(3) ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; feedwater coolant injection system; low pressure injection function of the residual heat removal system; and automatic depressurization system.

(4) BWR isolation condenser system and reactor core isolation cooling system.

(5) PWR auxiliary feedwater system.

(6) Containment systems including: containment and reactor vessel isolation systems

(general containment isolation signals affecting numerous valves and main steam isolation valve [MSIV] closure signals in BWRs) and containment heat removal and depressurization systems, including containment spray and fan cooler systems.

(7) Emergency ac electrical power systems, including: emergency diesel generators (EDGs) and their associated support systems; hydroelectric facilities used in lieu of EDGs at the Oconee Station; safety related gas turbine generators; BWR dedicated Division 3 EDGs and their associated support systems; and station blackout diesel generators (and black-start gas turbines that serve a similar purpose) which are started from the control room and included in the plant's operating and emergency procedures.

(8) Anticipated transient without scram (ATWS) mitigating systems.

(9) Service water (standby emergency service water systems that do not normally run).

(v) Any event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to:

(A) Shut down the reactor and maintain it in a safe shutdown condition;

(B) Remove residual heat;

(C) Control the release of radioactive material, or

(D) Mitigate the consequences of an accident.

(vi) Events covered in paragraph (b)(2)(v) of this section may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to this paragraph if redundant equipment in the same system was operable and available to perform the required safety function.

(vii) Reserved.

(viii) (A) Any airborne radioactive release that, when averaged over a time period of 1 hour, results in concentrations in an unrestricted area that exceed 20 times the applicable concentration specified in appendix B to part 20, table 2, column 1.

(B) Any liquid effluent release that, when averaged over a time of 1 hour, exceeds 20 times the applicable concentration specified in appendix B to part 20, table 2, column 2, at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases.

(ix) Any event that poses an actual threat to the safety of the nuclear power plant or significantly hampers site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases.

(x) Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.

(xi) Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an onsite fatality or inadvertent release of radioactively contaminated materials.

(xii) Any event that results in a major loss of emergency assessment capability, offsite response capability, or offsite communications capability (e.g., significant portion of control room indication, Emergency Notification System, or offsite notification system).

\* \* \* \* \*

2. Section 50.73 is revised by amending sections (a), (b)(2)(ii)(F), (b)(2)(ii)(J), (b)(3), (d), and (f) to read as follows:

**§ 50.73 Licensee event report system.**

**(a) Reportable events. (1)** The holder of an operating license for a nuclear power plant (licensee) shall submit a Licensee Event Report (LER) for any event of the type described in this paragraph within 60 days after the discovery of the event. Unless otherwise specified in this section, the licensee shall report an event regardless of the plant mode or power level, and regardless of the significance of the structure, system, or component that initiated the event.

**(2)** *The licensee shall report:*

(i)(A) The completion of any nuclear plant shutdown required by the plant's Technical Specifications.

(B) Any operation or condition occurring within three years of the date of discovery which was prohibited by the plant's Technical Specifications, except when:

(i) The technical specification is administrative in nature; or

(ii) The event consists solely of a case of a late surveillance test where the oversight is corrected, the test is performed, and the equipment is found to be capable of performing its specified safety functions.

(C) Any deviation from the plant's Technical Specifications authorized pursuant to § 50.54(x) of this part.

(ii) Any event or condition that resulted in:

(A) The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded;

(B) The nuclear power plant being in an unanalyzed condition that significantly affects plant safety; or

(C) A component being in a degraded or non-conforming condition such that the ability

of the component to perform its specified safety function is significantly degraded and the condition could reasonably be expected to affect other similar components in the plant.

(iii) Any natural phenomenon or other external condition that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant.

(iv)(A) Any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph (a)(2)(iv)(B) of this section, except when:

(1) The actuation resulted from and was part of a pre-planned sequence during testing or reactor operation; or

(2) The actuation was invalid and;

(i) Occurred while the system was properly removed from service; or

(ii) Occurred after the safety function had been already completed.

(B) The systems to which the requirements of paragraph (a)(2)(iv)(A) of this section apply are:

(1) Reactor protection system (reactor scram, reactor trip).

(2) Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.

(3) ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; feedwater coolant injection system; low pressure injection function of the residual heat removal system; and automatic depressurization system.

(4) BWR isolation condenser system and reactor core isolation cooling system.

(5) PWR auxiliary feedwater system.

(6) Containment systems including: containment and reactor vessel isolation systems (general containment isolation signals affecting numerous valves and main steam isolation

valve [MSIV] closure signals in BWRs) and containment heat removal and depressurization systems, including containment spray and fan cooler systems.

(7) Emergency ac electrical power systems, including: emergency diesel generators (EDGs) and their associated support systems; hydroelectric facilities used in lieu of EDGs at the Oconee Station; safety related gas turbine generators; BWR dedicated Division 3 EDGs and their associated support systems; and station blackout diesel generators (and black-start gas turbines that serve a similar purpose) which are started from the control room and included in the plant's operating and emergency procedures.

(8) Anticipated transient without scram (ATWS) mitigating systems.

(9) Service water (standby emergency service water systems that do not normally run).

(v) Any event or condition occurring within three years of the date of discovery that could have prevented the fulfillment of the safety function of structures or systems that are needed to:

(A) Shut down the reactor and maintain it in a safe shutdown condition;

(B) Remove residual heat;

(C) Control the release of radioactive material; or

(D) Mitigate the consequences of an accident.

(vi) Events covered in paragraph (a)(2)(v) of this section may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to this paragraph if redundant equipment in the same system was operable and available to perform the required safety function.

(vii) Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to:

(A) Shut down the reactor and maintain it in a safe shutdown condition;

(B) Remove residual heat;

(C) Control the release of radioactive material; or

(D) Mitigate the consequences of an accident.

(viii)(A) Any airborne radioactive release that, when averaged over a time period of 1 hour, resulted in airborne radionuclide concentrations in an unrestricted area that exceeded 20 times the applicable concentration limits specified in appendix B to part 20, table 2, column 1.

(B) Any liquid effluent release that, when averaged over a time period of 1 hour, exceeds 20 times the applicable concentrations specified in appendix B to part 20, table 2, column 2, at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases.

(ix) Any event that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases.

**(b) Contents.**

\* \* \* \* \*

**(2)**

\* \* \* \* \*

(ii)

\* \* \* \* \*

(F) The Energy Industry Identification System component function identifier and system name of each component or system referred to in the LER.

(1) The Energy Industry Identification System is defined in: IEEE Std 803-1983 (May 16, 1983) Recommended Practice for Unique Identification in Power Plants and Related Facilities--Principles and Definitions.

(2) IEEE Std 803-1983 has been approved for incorporation by reference by the Director of the Federal Register.

A notice of any changes made to the material incorporated by reference will be published in the *Federal Register*. Copies may be obtained from the Institute of Electrical and Electronics Engineers, 345 East 47th Street, New York, NY 10017. IEEE Std 803-1983 is available for inspection at the NRC's Technical Library, which is located in the Two White Flint North building, 11545 Rockville Pike, Rockville, Maryland; and at the Office of the Federal Register, 1100 L Street, NW, Washington, DC.

\* \* \* \* \*

(J) For each human performance related problem that contributed to the event, the licensee shall discuss the cause(s) and circumstances.

\* \* \* \* \*

**(3)** An assessment of the safety consequences and implications of the event. This assessment must include the availability of systems or components that:

(i) Could have performed the same function as the components and systems that failed during the event, or

(ii) Are included in emergency or operating procedures and could have been used to recover from the event in case of an additional failure in the systems actually used for recovery.

\* \* \* \* \*

**(d) *Submission of reports.*** Licensee Event Reports must be prepared on Form NRC 366 and submitted within 60 days of discovery of a reportable event or situation to the U.S. Nuclear Regulatory Commission, as specified in § 50.4.

**(e) *Report legibility.*** The reports and copies that licensees are required to submit to the Commission under the provisions of this section must be of sufficient quality to permit legible reproduction and micrographic processing.

**(f) *Reserved.***

\* \* \* \* \*

## PART 72 - LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE

The authority citation for Part 72 continues to read as follows:

AUTHORITY: Secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 189, 68 Stat. 929, 930, 932, 933, 934, 935, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201, 2232, 2233, 2234, 2236,

2237, 2238, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688, as amended (42 U.S.C. 5841, 5842, 5846); Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102-486, sec. 7902, 106 Stat. 3123 (42 U.S.C. 5851); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332); secs. 131, 132, 133, 135, 137, 141, Pub. L. 97-425, 96 Stat. 2229, 2230, 2232, 2241, sec. 148, Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10151, 10152, 10153, 10155, 10157, 10161, 10168).

Section 72.44(g) also issued under secs. 142(b) and 148(c), (d), Pub. L. 100-203, 101 Stat. 1330-232, 1330-236 (42 U.S.C. 10162(b), 10168(c), (d)). Section 72.46 also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239); sec. 134, Pub. L. 97-425, 96 Stat. 2230 (42 U.S.C. 10154). Section 72.96(d) also issued under sec. 145(g), Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10165(g)). Subpart J also issued under secs. 2(2), 2(15), 2(19), 117(a), 141(h), Pub. L. 97-425, 96 Stat. 2202, 2203, 2204, 2222, 2224, (42 U.S.C. 10101, 10137(a), 10161(h)). Subparts K and L are also issued under sec. 133, 98 Stat. 2230 (42 U.S.C. 10153) and sec. 218(a), 96 Stat. 2252 (42 U.S.C. 10198).

3. Section 72.216 is revised by amending paragraphs (a), (b), and (c) to read as follows:

**§ 72.216 Reports**

(a) Reserved.

(b) Reserved.

(c) The general licensee shall make initial and written reports in accordance with §§ 72.74 and 72.75.

\* \* \* \* \*

Dated at Rockville, Maryland, this \_\_\_\_\_ day of \_\_\_\_\_, 1999.

For the Nuclear Regulatory Commission.

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Annette L. Vietti-Cook

Secretary of the Commission

Draft Regulatory Analysis

## DRAFT REGULATORY ANALYSIS

Proposed Modifications to 10 CFR 50.72, "Immediate notification,"  
and 10 CFR 50.73, "Licensee event report system"

(March 1999)

### Statement of the Problem

The Nuclear Regulatory Commission is proposing to amend the event reporting requirements for nuclear power reactors in 10 CFR 50.72 and 50.73 to: (1) update the current rules, including reducing or eliminating the reporting burden associated with events of little or no safety significance and (2) better align the rules with the NRC's current needs, including revising reporting requirements based on importance to risk and extending the required reporting times consistent with the need for prompt NRC action.

Experience with the current rules has indicated they are in need of change to update the current rules in several areas. For example, there is a need to reduce or eliminate the reporting burden associated with events of little or no safety significance; the proposed amendments would eliminate reporting insignificant design problems. There is a need to better align the rules with the NRC's current needs; the proposed rules would extend some required initial reporting times be more consistent with the actual need for prompt NRC action. There is a need to obtain information better related to risk; the proposed amendments would revise the current requirement to report actuation of any engineered safety feature (ESF) to: (1) reduce reporting for systems and/or events with minimal risk significance, and (2) increase consistency of reporting for systems of greater risk significance.

## Objectives

The objectives of the proposed amendments are as follows:

(1) To better align the reporting requirements with the NRC's current reporting needs.

An example is extending the required initial reporting times, consistent with the need for timely NRC action.

(2) To reduce the reporting burden, consistent with the NRC's reporting needs. An example is reducing or eliminating the reporting burden associated with events of little or no safety or risk significance, provided reporting is not otherwise needed to support NRC regulatory programs.

(3) To clarify the reporting requirements where needed. The principal example is clarifying which events involving design or analysis defects or deviations must be reported.

## Alternatives

The only reasonable alternative to the proposed action that has been identified is to take no action.

## Consequences

### *1. Status Quo*

This is the base case. The incremental values and impacts for the base case are zero. However, maintaining the status quo would result in continued submittal of the some reports that the NRC has now identified as unneeded.

## *2. Proposed Action*

The one-time implementation costs to licensees are estimated to be about 70 hours per reactor for revising procedures and about 130 hours per reactor for training. This yields an estimated burden increase of about 21,000 hours, or about 200 hours per reactor for 104 operating reactors.

A key benefit of the proposed amendments would be a reduction in the recurring annual reporting burden on licensees, as a result of reducing the efforts associated with reporting events of little or no risk or safety significance. Based on a review of past reports, the proposed amendments are expected to result in about 200 fewer telephone notifications per year under 10 CFR 50.72 and about 400 fewer written licensee event reports (LERs) per year under 10 CFR 50.73. It is estimated that licensees expend 1.5 hours per telephone notification and 50 hours per LER for the events involved. This yields an estimated recurring annual burden reduction of about 20,000 hours per year industry-wide, or about 200 hours per reactor per year.

The NRC's one-time implementation cost for rulemaking, from March 1999 forward, is estimated to be about 3 full time equivalents (FTE). This yields an estimated cost of about 4000 direct hours.

The NRC's recurring annual review efforts for telephone notifications under 10 CFR 50.72 would not be significantly reduced because the operations officer and daily event screening systems would remain about the same. However, it is estimated the NRC's cost for reviewing LERs would be reduced by about 5 hours per LER for the LERs involved. This yields

an estimated recurring annual cost reduction of about 2000 hours per year.

The estimated changes in cost or burden have been discounted to present value using a 7-percent real discount rate<sup>12</sup> and 20-year plant life, summed, and rounded to 2 significant digits. The results, in terms of hours, are presented in Table 1. The same results, converted to dollars at a value of about \$71 per hour are presented in Table 2<sup>13</sup>.

Table 1

Estimated Changes in Cost or Burden in Terms of Hours

	One time implementation costs	Recurring annual costs	Net effect (present value)
Changes in industry costs	+21,000	-20,000	-190,000
Changes in NRC costs	+4,000	-2,000	-17,000

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<sup>12</sup> A real discount rate of 7 percent was used, as specified in OMB Circular A-94. Use of a more realistic 3-percent real discount rate would not change the basic conclusion. It would make the proposed action appear more attractive because the benefits, which are in the future, would have a greater present value.

<sup>13</sup> NUREG/BR/1084, "Regulatory Analysis Technical Evaluation Handbook," January 1997, Page 5.55, provides a value of \$67.50 per hour in 1996 dollars for NRC technical personnel. (Those involved in rulemaking and reviewing LERs would be technical personnel.) This includes allowances for benefits, management and secretarial support. This would translate into about \$71 per hour in current dollars. The same figure would be appropriate for licensee technical personnel who would be involved in procedure writing, training and reporting.

Table 2

Estimated Changes in Cost or Burden in Terms of Dollars

	One time implementation costs	Recurring annual costs	Net effect (present value)
Changes in industry costs	+\$1,500,000	-\$1,400,000	-\$14,000,000
Changes in NRC costs	+\$280,000	-\$140,000	-\$1,200,000

Decision Rationale

The benefits of the proposed action, in terms of reduced recurring annual costs, outweigh the one-time implementation costs.



Draft NUREG-1022, Revision 2

DRAFT

NUREG-1022

Rev. 2

Draft for Public Comment

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# EVENT REPORTING GUIDELINES

10 CFR 50.72 and 50.73

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Manuscript Completed: \_\_\_\_\_

Date Published: \_\_\_\_\_

U.S. Nuclear Regulatory Commission

Washington, DC 20555

## PAPERWORK REDUCTION ACT STATEMENT

This draft Revision 2 to NUREG-1022 would revise the event reporting guidelines to implement proposed amendments 10 CFR 50.72 and 50.73 and incorporate minor revisions to the guidelines for the purpose of clarification. In addition, Section 3.2.2 of NUREG-1022 would be revised to eliminate reporting of certain late surveillance tests.

The proposed rule would amend information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). This rule has been submitted to the Office of Management and Budget for review and approval of the information collection requirements.

The public reporting burden for the currently existing reporting requirements in 10 CFR 50.72 and 50.73 is estimated to average about 790 hours per response (i.e., per commercial nuclear power reactor per year) including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. It is estimated that the proposed amendments would impose a one time implementation burden of about 200 hours per reactor, after which there would be a recurring annual burden reduction of about 200 hours per reactor per year. The U.S. Nuclear Regulatory Commission is seeking public comment on the potential impact of the information collection

contained in the proposed rule and on the following issues:

- Is the proposed information collection necessary for the proper performance of the NRC, including whether the information will have practical utility?
- Is the estimate of burden accurate?
- Is there a way to enhance the quality, utility, and clarity of the information to be collected?
- How can the burden of the information collection be minimized, including the use of automated collection techniques?

Send comments on any aspect of this proposed information collection, including suggestions for reducing this burden, to the Information and Records Management Branch (T-5 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001 or by Internet electronic mail to BJS1@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150AF98), Office of Management and Budget, Washington, DC 20503.

Comments to OMB on the information collections or on the above issues should be submitted by (insert date 30 days after publication in the Federal Register). Comments received after this date will be considered if it is practical to do so, but consideration cannot be ensured for comments received after this date.

#### 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.

## ABSTRACT

This draft Revision 2 to NUREG-1022 would revise the event reporting guidelines to implement proposed amendments to 10 CFR 50.72 and 50.73 and incorporate minor revisions to the guidelines for the purpose of clarification. In addition, Section 3.2.2 of NUREG-1022 would be revised to eliminate reporting of certain late surveillance tests. This report would supersede Revision 1 to NUREG-1022.

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## CONTENTS

PAPERWORK REDUCTION ACT STATEMENT .....	ii
ABSTRACT .....	iii
EXECUTIVE SUMMARY .....	vii
ABBREVIATIONS .....	ix
1 INTRODUCTION .....	1
1.1 Background .....	1
1.2 Revised Reporting Guidelines .....	2
1.4 How to Use These Guidelines .....	3
1.5 New or Different Guidance .....	4
2 REPORTING AREAS WARRANTING SPECIAL MENTION .....	13
2.1 Engineering Judgment .....	13
2.2 Differences in Tense Between 10 CFR 50.72 and 50.73 .....	13
2.3 Reporting Multiple Events .....	13

2.4	Deficiencies Discovered During Engineering Reviews .....	14
2.5	Time Limits for Reporting .....	14
2.6	Events Discussed with the NRC Staff .....	15
2.7	Voluntary Reporting .....	15
2.8	Retraction or Cancellation of Event Reports .....	16
3	SPECIFIC REPORTING GUIDELINES .....	17
3.1	Section 50.72 and 50.73 General Requirements .....	17
3.1.1	Immediate Notification Requirements .....	17
3.1.2	Licensee Event Report System .....	19
3.2	Specific Reporting Criteria .....	19
3.2.1	Plant Shutdown Required by Technical Specifications .....	19
3.2.2	Technical Specification Prohibited Operation or Condition .....	22
3.2.3	Technical Specification Deviation per §50.54(x) .....	28
3.2.4	Degraded Condition .....	29
3.2.5	External Threat to Plant Safety .....	34
3.2.6	System Actuation .....	38
3.2.7	Event or Condition That Could Prevent Fulfillment of a Safety Function	47
3.2.8	Common-cause Failures of Independent Trains or Channels .....	60
3.2.9	Airborne or Liquid Effluent Release .....	63
3.2.10	Internal Threat to Plant Safety .....	65
3.2.11	Contaminated Person Requiring Transport Offsite .....	67
3.2.12	News Release or Other Government Notifications .....	68
3.2.13	Loss of Emergency Preparedness Capabilities .....	72
3.3	Followup Notification .....	76

4	EMERGENCY NOTIFICATION SYSTEM REPORTING .....	78
4.1	Emergency Notification System .....	78
4.2	General ENS Notification .....	79
4.2.1	Timeliness .....	79
4.2.2	Voluntary Notifications .....	79
4.2.3	ENS Notification Retraction .....	79
4.2.4	ENS Event Notification Worksheet (NRC Form 361) .....	79
4.3	Typical ENS Reporting Issues .....	80
5	LICENSEE EVENT REPORTS .....	82
5.1	LER Reporting Guidelines .....	82
5.1.1	Submission of LERs .....	82
5.1.2	LER Forwarding Letter and Cancellations .....	82
5.1.3	Report Legibility .....	83
5.1.4	Voluntary LERs .....	83
5.1.5	Supplemental Information and Revised LERs .....	84
5.1.6	Special Reports .....	84
5.1.7	Appendix J Reports (Containment Leak Rate Test Reports) .....	85
5.1.8	10 CFR Part 21 Reports .....	85
5.1.9	Section 73.71 Reports .....	85
5.1.10	Availability of LER Forms .....	86
5.2	LER Content Requirements and Preparation Guidance .....	86
5.2.1	Narrative Description or Text (NRC Form 366A, Item 17) .....	87
5.2.2	Abstract (NRC Form 366, Item 16) .....	98
5.2.3	Other Fields on the LER Form .....	98

## APPENDICES

- A 10 CFR 50.72, 1983, Including Statement of Considerations
- B 10 CFR 50.73, 1983, Including Statement of Considerations
- C 10 CFR 50.72 and 50.73, (proposed,) 2000, Including Statement of Considerations

## TABLES

- 1. Proposed Amendments ..... 5

## EXECUTIVE SUMMARY

Two of the many elements contributing to the safety of nuclear power are emergency response and the feedback of operating experience into plant operations. These are achieved partly by the licensee event reporting requirements of Title 10 of the *Code of Federal Regulations*, Part 50, Sections 50.72 and 50.73 (10 CFR 50.72 and 50.73). Section 50.72 provides for immediate notification requirements via the emergency notification system (ENS) and Section 50.73 provides for 60-day written licensee event reports (LERs).

The information reported under 10 CFR 50.72 and 50.73 is used by the NRC staff in responding to emergencies, monitoring ongoing events, confirming licensing bases, studying potentially generic safety problems, assessing trends and patterns of operational experience, monitoring performance, identifying precursors of more significant events, and providing operational experience to the industry.

This draft Revision 2 to NUREG-1022 would revise the event reporting guidelines to implement proposed amendments to 10 CFR 50.72 and 50.73 and incorporate minor revisions to the guidelines for the purpose of clarification. In addition, Section 3.2.2 of NUREG-1022 would be revised to eliminate reporting of certain late surveillance tests. This report would supersede

Revision 1 to NUREG-1022.

The document is structured to assist licensees in achieving prompt and complete reporting of specified events and conditions. It includes specific discussions of general issues that have been difficult to implement in the past such as engineering judgment, time limits for reporting, multiple failures and related events, deficiencies discovered during licensee engineering reviews, and human performance issues. It also includes a comprehensive discussion of each specific reporting criterion with illustrative examples and definitions of key terms and phrases.

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## ABBREVIATIONS

AEOD	Analysis and Evaluation of Operational Data, Office for
AIT	augmented inspection team
ASME	American Society of Mechanical Engineers
ASP	accident sequence precursor
ATWS	anticipated transient without scram
BPV	Boiler and Pressure Vessel Code (ASME)
BWR	boiling-water reactor
CFR	<i>Code of Federal Regulations</i>
CRDM	control rod drive mechanism
CRVS	control room ventilation system
DBDR	design-basis documentation review
DDR	design document reconstitution
ECCS	emergency core cooling system

EDG	emergency diesel generator
EIIS	Energy Industry Identification System
ENS	emergency notification system
EO	emergency officer
EOF	emergency operations facility
EOP	emergency operating procedure
EPIX	equipment performance and information exchange
EPA	Environmental Protection Agency (U.S.)
ERDS	emergency response data system
ERF	emergency response facility
ESF	engineered safety feature(s)
ESW	emergency service water
FEMA	Federal Emergency Management Agency
FFD	fitness for duty
FSAR	final safety analysis report
FTS	federal telecommunications system
GDC	general design criteria
GL	generic letter
HOO	headquarters operations officer
HP	health physics
HPCI	high-pressure coolant injection
HPI	high-pressure injection

HPN	health physics network
HPSI	high pressure safety injection
HVAC	heating, ventilation and air conditioning
IEEE	Institute of Electrical and Electronics Engineers
IIT	incident investigation team
ILRT	integrated leak rate test
IN	information notice
INPO	Institute of Nuclear Power Operations
ISI	inservice inspection
IST	inservice testing
ISTS	improved standard technical specifications
LCO	limiting condition for operation
LER	licensee event report
LOCA	loss of coolant accident
LPSW	low pressure service water
MPC	maximum permissible concentration
MSIV	main steam isolation valve
NPRDS	nuclear plant reliability data system
NRC	Nuclear Regulatory Commission (U.S.)
NRR	Nuclear Reactor Regulation, Office of
NUMARC	Nuclear Management and Resources Council

OCR	optical character reader
OMS	overpressure mitigation system
PDR	Public Document Room
PGA	policies, guidance, and administrative controls
PWR	pressurized water reactor
RAB	Reactor Analysis Branch
RBVS	reactor building ventilation system
RCIC	reactor core isolation cooling
RCP	reactor coolant pump
RCS	reactor coolant system
RDO	regional duty officer
RHR	residual heat removal
RPS	reactor protection system
RWCU	reactor water cleanup
SALP	systematic assessment of licensee performance
SAR	safety analysis report
S/D	shutdown
SIS	safety injection system
SOV	solenoid-operated valve
SPDS	safety parameter display system
SRO	senior reactor operator
STS	standard technical specifications

TS technical specification(s)

TSC technical support center

## 1 INTRODUCTION

This document provides guidance on the reporting requirements of Title 10 of the *Code of Federal Regulations*, Part 50, Sections 50.72 and 50.73 (10 CFR 50.72 and 10 CFR 50.73). While these reporting requirements range from immediate, 1-hour, and ~~4~~8-hour verbal notifications to ~~30~~60-day written reports, covering a broad spectrum of events from emergencies to generic component level deficiencies, the NRC wishes to emphasize that reporting requirements should not interfere with ensuring the safe operation of a nuclear power plant. Licensees' immediate attention must always be given to operational safety concerns.

### 1.1 Background

In 1983, partially in response to lessons from the Three Mile Island accident, the U.S. Nuclear Regulatory Commission (NRC) revised its immediate notification requirements via the emergency notification system (ENS) in 10 CFR 50.72 and modified and codified its written licensee event report (LER) system requirements in 10 CFR 50.73. The revision of 10 CFR 50.72 and the new 10 CFR 50.73 became effective on January 1, 1984. Together, they specified the types of events and conditions reportable to the NRC for emergency response and identifying plant-specific and generic safety issues.

The two rules have identical reporting thresholds and similar language whenever possible. They are complementary and of equal importance, with necessary dissimilarities in reporting requirements to meet their different purposes, as illustrated in this report, Section 1, Table 1, and Section 3 text.

Section 50.72 is structured to provide telephone notification of reportable events to the NRC Operations Center within a time frame established by the relative importance of the events. Events are categorized as either emergencies (immediate notifications, but no later than 1 hour) or non-emergencies. The latter is further categorized into 1-hour and ~~4-8~~-hour notifications; non-emergency events requiring ~~4-8~~-hour notifications generally have ~~slightly~~-less urgency and safety significance than those requiring 1-hour notifications. Immediate telephone notification to the NRC Operations Center of declared emergencies is necessary so the Commission may immediately respond. Reporting of non-emergency events and conditions is necessary to permit timely NRC followup via event monitoring, special inspections, generic communications, or resolution of public or media concerns.

Section 50.73 requires written LERs to be submitted on reportable events within ~~30~~-60 days of their ~~occurrence~~-discovery after a thorough analysis of the event, its root causes, safety assessments, and corrective actions are available, to permit NRC engineering analyses and studies.

## 1.2 Revised Reporting Guidelines

The purpose of this draft Revision 2 to NUREG-1022 is to revise the event reporting guidelines to implement proposed amendments 10 CFR 50.72 and 50.73, which are summarized in

Table1, and incorporate minor revisions to the guidelines for the purpose of clarification. In addition, Section 3.2.2 of NUREG-1022 would be revised to eliminate reporting of certain late surveillance tests. This report would supersede Revision 1 to NUREG-1022.

Section 2 clarifies specific areas of 10 CFR 50.72 and 50.73 that are applicable to multiple reporting criteria or that historically appear to be subject to varied interpretations. It covers such diverse subjects as engineering judgment, differences in tenses between the two rules, retraction and voluntary reporting, legal reporting requirements, and human performance issues.

Section 3 contains guidelines on event reporting for specific criteria in both rules by means of discussions and examples of reported events. To minimize repetition, similar criteria from both rules are addressed together. The format follows the order of 10 CFR 50.73 with 50.72 appropriately interwoven.

Section 3.1 addresses general methods of ENS reporting for declared emergencies and non-emergencies. Practical guidelines are given on making ENS emergency notifications. Requirements for LER reporting regardless of plant mode, power level, or the significance of an initiating item are specified.

Section 3.2 addresses ENS 1-hour **and 8-hour** reporting criteria and ~~30~~-60-day LERs. It includes a comprehensive discussion of each specific reporting criterion with illustrative examples and definitions of key terms and phrases. The topics covered include shutdown required by technical specifications, technical specification prohibited operation or condition, technical specification deviation per §50.54(x), degraded condition, external threat to plant

safety, loss of emergency preparedness capabilities, internal threat to plant safety, system actuation, event or condition that could prevent fulfillment of a safety function, common-cause failures of independent trains or channels, airborne or liquid effluent release, and contaminated person requiring transport offsite.

Section 3.3 addresses the requirements for immediate ENS followup notifications during the course of an event. The requirement, means, and methods to maintain continuous or periodic communication with the NRC during events, if so requested, are explained. It also addresses the requirements to submit additional information as a supplement to an initial LER if requested in writing.

Section 4 explains ENS communications (from existing information notices), reporting timeliness and completeness, voluntary notifications, and retractions. Appropriate ENS emergency notification methods are described.

Section 5 provided guidelines on administrative requirements, preparation, and submittal of LERs. It specifies the information an LER should contain and provides steps to be followed in preparing an LER. It also includes an expanded human performance discussion to achieve ENS and LER content that examines both equipment and human performance.

Appendix A contains 10 CFR 50.72 including its Statement of Considerations as published in the *Federal Register in 1983*.

Appendix B contains 10 CFR 50.73 including its Statement of Considerations as published in the *Federal Register*.

Appendix C contains proposed revisions to 10 CFR 50.72 and 50.73 including the Statement of Considerations as published in the *Federal Register* in 2000.

#### 1.4 How to Use These Guidelines

This NUREG was designed primarily as a reference to help licensees determine event reportability, make ENS notifications, and prepare and submit LERs.

- Reportability Determination

The applicable 10 CFR 50.72 and 50.73 reporting criteria are identified in the Table of Contents of this report, as well as in the respective rules. It is not unusual to find an event reportable under more than one criterion.

Discussion of general issues that apply to multiple reporting criteria, such as timeliness, can be found in Section 2.

The reporting determination guidelines in Section 3 for both 10 CFR 50.72 and 50.73 are presented together wherever possible in the "Discussion" and "Example" explanations for each paragraph. The differences between the ENS and LER reporting requirements are underlined. The differences are discussed when they are important. Key terms are defined and important concepts are identified in the "Discussion" sections. Events used as examples may be reportable under other criteria but are usually only evaluated for reportability under the specific criteria under which they appear.

Other reporting requirements applicable to operating reactors include 10 CFR 50.9, 20.2202, 20.2203, 50.36, 72.74, 72.216, 73.71, and Part 21. When reports are required under these regulations, some parts require the use of 10 CFR 50.72 and 50.73 notifications and written reports. Duplicate reporting is not required.

- ENS Notification

For an event that is reportable under 10 CFR 50.72, an ENS notification is to be made as soon as practical and in any event within 1 hour or 8 hours depending upon the reporting criterion. The ENS notification time limit can be found under the applicable §50.72 criteria in Section 3; if more than one reporting criterion applies, the shortest time limit should be met. Guidelines on the information to be reported may be found in Section 4.3. Practical information regarding the actual telephone call can be found in Sections 4.1 and 4.3.

- LER Preparation and Submittal

For an event that is reportable under 10 CFR 50.73, an LER is to be prepared and submitted within 60 days of discovery. Administrative requirements and guidelines for submitting LERs can be found in Section 5.1. The requirements and guidelines for the content of LERs can be found in Section 5.2.

## 1.5 New or Different Guidance

Reporting guidance that is considered to be new or different in a meaningful way, relative to

that provided in NUREG-1022, Revision 1, is indicated by redlining the appropriate text. Occasionally, text is marked by both redline and strikeout in order to show that specific items are being deleted.

Table 1. Proposed Amendments

<p><b>50.72 Immediate notification requirements for operating nuclear power reactors.</b></p>	<p><b>50.73 Licensee event report system.</b></p>
<p><b>(a) General requirements.<sup>1</sup></b></p> <p>(1) Each nuclear power reactor licensee licensed under §50.21(a) or §50.22 of this part shall notify the NRC Operations Center via the Emergency Notification System of:</p> <p>(i) The declaration of any of the Emergency Classes specified in the licensee's approved Emergency Plan;<sup>2</sup> or</p> <p>(ii) Of those non-Emergency events specified in paragraph (b) of this section.</p> <p>_____</p> <p><sup>1</sup> Other requirements for immediate notification of the NRC by licensed operating nuclear power reactors are contained elsewhere in this chapter, in particular, §§20.1906, 20.2202, 50.36, <b>72.74, 72.75</b>, and 73.71.</p> <p><sup>2</sup> These Emergency Classes are addressed in Appendix E of this part.</p>	<p><b>(a) Reportable events.</b></p> <p>(1) The holder of an operating license for a nuclear power plant (licensee) shall submit a Licensee Event Report (LER) for any event of the type described in this paragraph within <del>30</del><b>60</b> days after the discovery of the event.</p> <p>Unless otherwise specified in this section, the licensee shall report an event regardless of the plant mode or power level, and regardless of the significance of the structure, system, or component that initiated the event.</p>

**(2)** If the Emergency Notification System is inoperative, the licensee shall make the required notifications via commercial telephone service, other dedicated telephone system, or any other method which will ensure that a report is made as soon as practical to the NRC Operations Center.<sup>3,4</sup>

<sup>3</sup> Commercial telephone number of the NRC Operations Center is (301) 816-5100.

<sup>4</sup> [Reserved]

**(3)** The licensee shall notify the NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes.

**(4)** The licensee shall activate the Emergency Response Data System (ERDS)<sup>5</sup> as soon as possible but not later than one hour after declaring an emergency class of alert, site area emergency, or general emergency. The ERDS may also be activated by the licensee during emergency drills or exercises if the licensee's computer system has the capability to transmit the exercise data.

<sup>5</sup> Requirements for ERDS are addressed in Appendix E, Section VI.

<p>(5) When making a report under paragraph (a)(<del>3</del>-1) of this section, the licensee shall identify:</p> <p>(i) The Emergency Class declared; or</p> <p>(ii) Either paragraph (b)(1), "One-Hour Report," or paragraph (b)(2) "<del>Eight-Four</del>-Hour Report," as the paragraph of this section requiring notification of the Non-Emergency Event.</p>	
<p><b>(b) Non-emergency events—</b></p> <p><b>(1) One-Hour reports.</b> If not reported as a declaration of an Emergency Class under paragraph (a) of this section, the licensee shall notify the NRC as soon as practical and in all cases within one hour of the occurrences <del>of any of the following:</del></p>	
<p>(i) <del>(A) ... initiation of any ... shutdown required ...</del></p> <p><b><i>[moved to (b)(2)(i) below, 8 hrs, unmodified]</i></b></p> <p><del>(B) any deviation from the plant's Technical Specifications authorized pursuant to §50.54(x) of this part.</del></p>	<p><b><i>[see (2)(i)(C), below, for the 50.73 criterion regarding 50.54(x)]</i></b></p>
<p>(ii) <del>... during operation ... seriously degraded ...</del></p> <p><b><i>[moved to (b)(2)(ii) below, 8 hours, and modified as shown there]</i></b></p>	
<p>(iii) <del>... natural phenomenon ... an actual threat ...</del></p> <p><b><i>[moved to (b)(2)(iii) below, 8 hrs, unmodified]</i></b></p>	
<p>(iv) Any event that results or should have resulted in Emergency Core Cooling System (ECCS) discharge into the reactor coolant system as a result of a valid signal:</p> <p><b><i>[deleted this special 1-hour report for this particular type of actuation]</i></b></p>	

<p>(v) ... major loss of emergency ... capability ...  <b>[moved to (b)(2)(xiii) below, 8 hours, and modified as shown there]</b></p>	
<p>(vi) ... event that poses an actual threat ...  <b>[moved to (b)(2)(x) below, 8 hrs, unmodified]</b></p>	
<p><b>(2) <del>Four</del> <b>Eight</b>-hour reports.</b> If not reported under paragraphs (a) or (b)(1) of this section, the licensee shall notify the NRC as soon as practical and in all cases, within <del>four</del> <b>eight</b> hours of the occurrence of any of the following:</p>	<p><b>(2) The licensee shall report:</b></p>
<p>(i) ... while shutdown ... seriously degraded ...  <b>[replaced by (b)(2)(ii) below]</b></p>	
<p>(i) The initiation of any nuclear plant shutdown required by the plant's Technical Specifications.  <b>[relocated from (b)(1)(i), 1 hour]</b></p>	<p>(i) (A) The completion of any nuclear plant shutdown required by the plant's Technical Specifications.</p>
	<p>(B) Any operation or condition <b>occurring within three years of the date of discovery which was prohibited by the plant's Technical Specifications, except when:</b></p> <p style="padding-left: 40px;"><b>(i) The technical specification is administrative in nature; or</b></p> <p style="padding-left: 40px;"><b>(ii) The event consists solely of a case of a late surveillance test where the oversight is corrected, the test is performed, and the equipment is found to be capable of performing its specified safety functions.</b></p>
<p><b>[see (b)(1), above, for the 50.72 criterion regarding 50.54(x)]</b></p>	<p>(C) Any deviation from the plant's Technical Specifications authorized pursuant to §50.54(x) of this part.</p>

<p>(ii) Any event or condition <del>during operation</del> that results in:</p> <p>(A) The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; or results in</p> <p>(B) The nuclear power plant being: <del>(A) In an unanalyzed condition that significantly compromises</del> <b>affects</b> plant safety.</p> <p><del>(B) In a condition that is outside the design basis of the plant; or</del></p> <p><del>(C) In a condition not covered by the plant's operating and emergency procedures."</del></p> <p><b><i>[relocated from (b)(1)(ii), 1 hour]</i></b></p>	<p>(ii) Any event or condition that resulted in:</p> <p>(A) The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; <del>or that resulted in</del></p> <p>(B) The nuclear power plant being in (A) an unanalyzed condition that significantly <del>compromised</del> <b>affected</b> plant safety; or</p> <p>(C) A component being in a degraded or non-conforming condition such that the ability of the component to perform its specified safety function is significantly degraded and the condition could reasonably be expected to affect other similar components in the plant.</p> <p><del>(B) In a condition that was outside the design basis of the plant; or</del></p> <p><del>(C) In a condition not covered by the plant's operating and emergency procedures."</del></p>
<p>(iii) Any natural phenomenon or other external condition that poses an actual threat to the safety of the nuclear power plant or significantly hampers site personnel in the performance of duties necessary for the safe operation of the plant.</p> <p><b><i>[relocated from (b)(1)(iii), 1 hour]</i></b></p>	<p>(iii) Any natural phenomenon or other external condition that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant.</p>
<p><del>(iii)</del> <b>(iv)(A)</b> Any event or condition that results in a <del>an</del> <b>intentional</b> manual <b>actuation</b> or <b>valid</b> automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS) <del>of the systems listed in</del> <b>paragraph (b)(2)(iv)(B) of this section</b> except when:—</p>	<p>(iv)(A) Any event or condition that resulted in a manual or automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS) <del>of the systems listed in</del> <b>paragraph (a)(2)(iv)(B) of this section</b> except when:</p>

~~(A)~~ the actuation results from and is part of a pre-planned sequence during testing or reactor operation;

~~(B)~~ The actuation is invalid and:

~~(1)~~ Occurs while the system is properly removed from service;

~~(2)~~ Occurs after the safety function has been already completed; or

~~(3)~~ Involves only the following specific ESFs or their equivalent systems: ~~(i)~~ Reactor water clean-up system; ~~(ii)~~ Control room emergency ventilation system; ~~(iii)~~ Reactor building ventilation system; ~~(iv)~~ Fuel building ventilation system; or ~~(v)~~ Auxiliary building ventilation system.

~~(B)~~ The systems to which the requirements of paragraph (b)(2)(iv)(A) of this section apply are:

~~(1)~~ Reactor protection system (reactor scram, reactor trip).

~~(2)~~ Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.

~~(A)~~ ~~(1)~~ The actuation resulted from and was part of a pre-planned sequence during testing or reactor operation; or

~~(B)~~ ~~(2)~~ The actuation was invalid and;

~~(1)~~ ~~(i)~~ Occurred while the system was properly removed from service; or

~~(2)~~ ~~(ii)~~ Occurred after the safety function had been already completed. or

~~(3)~~ Involved only the following specific ESFs or their equivalent systems: ~~(i)~~ Reactor water clean-up system; ~~(ii)~~ Control room emergency ventilation system; ~~(iii)~~ Reactor building ventilation system. ~~(iv)~~ Fuel building ventilation system; or ~~(v)~~ Auxiliary building ventilation.

~~(B)~~ The systems to which the requirements of paragraph (a)(2)(iv)(A) of this section apply are:

~~(1)~~ Reactor protection system (reactor scram, reactor trip).

~~(2)~~ Emergency core cooling systems (ECCS) for pressurized water reactors (PWRs) including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.

(3) ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; feedwater coolant injection system; low pressure injection function of the residual heat removal system; and automatic depressurization system.

(4) BWR isolation condenser system and reactor core isolation cooling system.

(5) PWR auxiliary feedwater system.

(6) Containment systems including: containment and reactor vessel isolation systems (general containment isolation signals affecting numerous valves and main steam isolation valve [MSIV] closure signals in BWRs) and containment heat removal and depressurization systems, including containment spray and fan cooler systems.

(7) Emergency ac electrical power systems, including: emergency diesel generators (EDGs) and their associated support systems; hydroelectric facilities used in lieu of EDGs at the Oconee Station; safety related gas turbine generators; BWR dedicated Division 3 EDGs and their associated support systems; and station blackout diesel generators (and black-start gas turbines that serve a similar purpose) which are started from the control room and included in the plant's operating and emergency procedures.

(8) Anticipated transient without scram (ATWS) mitigating systems.

(9) Service water (standby emergency service water systems that do not normally run).

(3) ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; feedwater coolant injection system; low pressure injection function of the residual heat removal system; and automatic depressurization system.

(4) BWR isolation condenser system and reactor core isolation cooling system.

(5) PWR auxiliary feedwater system.

(6) Containment systems including: containment and reactor vessel isolation systems (general containment isolation signals affecting numerous valves and main steam isolation valve [MSIV] closure signals in BWRs) and containment heat removal and depressurization systems, including containment spray and fan cooler systems.

(7) Emergency ac electrical power systems, including: emergency diesel generators (EDGs) and their associated support systems; hydroelectric facilities used in lieu of EDGs at the Oconee Station; safety related gas turbine generators; BWR dedicated Division 3 EDGs and their associated support systems; and station blackout diesel generators (and black-start gas turbines that serve a similar purpose) which are started from the control room and included in the plant's operating and emergency procedures.

(8) Anticipated transient without scram (ATWS) mitigating systems.

(9) Service water (standby emergency service water systems that do not normally run).

<p>(iii)-(v) Any event or condition that <del>alone</del> <b>at the time of discovery</b> could have prevented the fulfillment of the safety function of structures or systems that are needed to:</p> <p>(A) Shut down the reactor and maintain it in a safe shutdown condition,</p> <p>(B) Remove residual heat,</p> <p>(C) Control the release of radioactive material,</p> <p>or</p> <p>(D) Mitigate the consequences of an accident.</p>	<p>(v) Any event or condition <b>occurring within three years of the date of discovery</b> that <del>alone</del> could have prevented the fulfillment of the safety function of structures or systems that are needed to:</p> <p>(A) Shut down the reactor and maintain it in a safe shutdown condition;</p> <p>(B) Remove residual heat;</p> <p>(C) Control the release of radioactive material;</p> <p>or</p> <p>(D) Mitigate the consequences of an accident.</p>
<p><b>(vi) Events covered in paragraph (b)(2)(v) of this section may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to this paragraph if redundant equipment in the same system was operable and available to perform the required safety function.</b></p>	<p>(vi) Events covered in paragraph (a)(2)(v) of this section may include one or more procedural errors, equipment failures, and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported pursuant to this paragraph if redundant equipment in the same system was operable and available to perform the required safety function.</p>
<p><b>(vii) Reserved.</b></p>	<p>(vii) Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to:</p> <p>(A) Shut down the reactor and maintain it in a safe shutdown condition</p> <p>(B) Remove residual heat;</p> <p>(C) Control the release of radioactive material;</p> <p>or</p> <p>(D) Mitigate the consequences of an accident.</p>

<p><del>(iv)-(viii)</del> (A) Any airborne radioactive release that, when averaged over a time period of 1 hour, results in concentrations in an unrestricted area that exceed 20 times the applicable concentration specified in appendix B to part 20, table 2, column 1.</p> <p>(B) Any liquid effluent release that, when averaged over a time of 1 hour, exceeds 20 times the applicable concentration specified in appendix B to part 20, table 2, column 2, at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases.</p> <p><del>Immediate notifications made under this paragraph also satisfy the requirements of §20.2202 of this chapter.)</del></p>	<p>(viii)(A) Any airborne radioactive release that, when averaged over a time period of 1 hour, resulted in airborne radionuclide concentrations in an unrestricted area that exceeded 20 times the applicable concentration limits specified in appendix B to part 20, table 2, column 1.</p> <p>(B) Any liquid effluent release that, when averaged over a time period of 1 hour, exceeds 20 times the applicable concentrations specified in appendix B to part 20, table 2, column 2, at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases.</p>
	<p><del>(ix) Reports submitted to the Commission in accordance with paragraph (a)(2)(viii) of this section also meet the effluent release reporting requirements of §20.2203(a)(3) of this chapter.</del></p>
<p><del>(vi)-(ix)</del> Any event that poses an actual threat to the safety of the nuclear power plant or significantly hampers site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases.</p> <p><b><i>[relocated from (b)(1)(vi), 1 hour]</i></b></p>	<p>(ix) Any event that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases.</p>
<p><del>(v)-(x)</del> Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.</p>	

<p>(vi)-(xi) Any event or situation, related to the health and safety of the public or onsite personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an onsite fatality or inadvertent release of radioactively contaminated materials.</p>	
<p>(v)-(xii) Any event that results in a major loss of emergency assessment capability, offsite response capability, or <b>offsite</b> communications capability (e.g., significant portion of control room indication, Emergency Notification System, or offsite notification system).</p> <p><b><i>[relocated from (b)(1)(v), 1 hour]</i></b></p>	
<p>(vii) <del>Any instance of: (A) A defect in any spent fuel storage cask structure, system, or component which is important to safety; or (B) A significant reduction in the effectiveness of any spent fuel storage cask confinement system during use of the storage cask under a general license issued under §72.210 of this chapter. A followup written report is required by §72.216(b) of this chapter including a description of the means employed to repair any defects or damage and prevent recurrence, using instructions in §72.4, within 30 days of the report submitted in paragraph (a). A copy of the written report must be sent to the administrator of the appropriate Nuclear Regulatory Commission regional office shown in appendix D to part 20 of this chapter.</del></p> <p><b><i>[deleted these redundant criteria]</i></b></p>	

	<p><b>(b) Contents.</b></p> <p>The Licensee Event Report shall contain ...:</p> <ul style="list-style-type: none"><li><b>(1)</b> A brief abstract ...</li><li><b>(2)</b> (i) A clear, specific, narrative ...<ul style="list-style-type: none"><li>(ii) The narrative ... must include ...<ul style="list-style-type: none"><li>(A) Plant operating conditions ...</li><li>(B) Status of ... that contributed ...</li><li>(C) Dates ... times of occurrences.</li><li>(D) The cause of ... failure or ... error ...</li><li>(E) The failure mode, mechanism, ...</li></ul></li></ul></li></ul>
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	<p>(F) The Energy Industry Identification System component function identifier and system name of each component or system referred to in the LER.</p> <p>(1) The Energy Industry Identification System is defined in: IEEE Std 803-1983 (May 16, 1983) Recommended Practice for Unique Identification in Power Plants and Related Facilities--Principles and Definitions.</p> <p>(2) IEEE Std 803-1983 has been approved for incorporation by reference by the Director of the Federal Register.</p> <p>A notice of any changes made to the material incorporated by reference will be published in the <i>Federal Register</i>. Copies may be obtained from the Institute of Electrical and Electronics Engineers, 345 East 47th Street, New York, NY 10017. IEEE Std 803-1983 is available for inspection at the NRC's Technical Library, which is located in the <del>Phillips Building, 7920 Norfolk Avenue, Bethesda,</del> <b>Two White Flint North building, 11545 Rockville Pike, Rockville, Maryland;</b> and at the Office of the Federal Register, 1100 L Street, NW, Washington, DC.</p>
	<p>(G) For failures of components with ...</p> <p>(H) For failure that rendered a train ...</p> <p>(I) The method of discovery of each ...</p>

(J) ~~(1) Operator actions that affected the course of the event, including operator errors, procedural deficiencies, or both, that contributed to the event. (2)~~

For each ~~personnel error~~ **human performance related problem that contributed to the event**, the licensee shall discuss

~~:(i) Whether the error was a cognitive error (e.g., failure to recognize the actual plant condition, failure to realize which systems should be functioning, failure to recognize the true nature of the event) or a procedural error; (ii) Whether the error was contrary to an approved procedure, was a direct result of an error in an approved procedure, or was associated with an activity or task that was not covered by an approved procedure; (iii) Any unusual characteristics of the work location (e.g., heat, noise) that directly contributed to the error; and (iv) The type of personnel involved (i.e., contractor personnel, utility-licensed operator, utility non-licensed operator, other utility personnel)."~~

**the cause(s) and circumstances.**

(K) Automatically and manually initiated ...

(L) The manufacturer and model number ...

	<p>(3) An assessment of the safety consequences and implications of the event. This assessment must include the availability of <del>other</del> systems or components that:</p> <p>(i) could have performed the same function as the components and systems that failed during the event,</p> <p>or</p> <p>(ii) are included in emergency or operating procedures and could have been used to recover from the event in case of an additional failure in the systems actually used for recovery.</p> <p>(4) A description of any corrective actions ...</p> <p>(5) Reference to any previous similar events ...</p> <p>(6) The name and telephone number of a person ...</p>
<p><b>(c) Followup notification.</b></p> <p>With respect to the telephone notifications made under paragraphs (a) and (b) of this section ... during the course of the event ...</p> <p><b>(1) Immediately report</b></p> <p>(i) any further degradation ... or</p> <p>(ii) any change from one Emergency Class to another, or</p> <p>(iii) a termination of the Emergency Class.</p>	<p><b>(c) Supplemental information.</b> The Commission may require the licensee to submit specific additional information ...</p>
<p><b>(2) Immediately report</b></p> <p>(i) the results of ensuing evaluations ...,</p> <p>(ii) the effectiveness of response ..., and</p> <p>(iii) ... plant behavior that is not understood.</p> <p><b>(3) Maintain an open, continuous communication channel ...</b></p>	

	<p><b>(d) <i>Submission of reports.</i></b> Licensee Event Reports must be prepared on Form NRC 366 and submitted within <del>30</del>60 days ...</p>
	<p><b>(e) <i>Report legibility.</i></b> The reports and copies that licensees are required to submit ...</p>
	<p><b>(f) <i>Exemptions.</i></b> <del>Upon written request from a licensee including adequate justification or at the initiation of the NRC staff ...</del> <b>Reserved.</b></p>
	<p><b>(g) <i>Reportable occurrences.</i></b> The requirements contained in this section replace all existing ...</p>

## 2 REPORTING AREAS WARRANTING SPECIAL MENTION

This section clarifies specific areas that are applicable to multiple reporting criteria or that historically appear to be subject to varied interpretations.

### 2.1 Engineering Judgment

The reportability of many events and conditions is self evident. However, the reportability of other events and conditions may not be readily apparent and the use of engineering judgment is involved in determining reportability.

Engineering judgment may include either a documented engineering analysis or a judgment by a technically qualified individual, depending on the complexity, seriousness, and nature of the event or condition. A documented engineering analysis is not a requirement for all events or conditions, but it would be appropriate for particularly complex situations. In addition, although not required by the rule, it may be prudent to record in writing that a judgment was exercised by identifying the individual making the judgment, the date made, and briefly documenting the basis for this judgment. In any case, the staff considers that the use of engineering judgment implies a logical thought process that supports the judgment.

## 2.2 Differences in Tense Between 10 CFR 50.72 and 50.73

The present tense was used in 10 CFR 50.72 because the event or condition generally would be ongoing at the time of reporting. The past tense was used in 10 CFR 50.73 because the event or condition normally would be past when an LER was written. Where the tense is relevant to reportability, it is addressed under the specific criterion in Section 3 of this report.

## 2.3 Reporting Multiple Events in a Single Report

More than one failure or event may be reported in a single ENS notification or LER if (1) the failures or events are related (i.e., they have the same general cause or consequences) and (2) they occurred during a single activity (e.g., a test program) over a reasonably short time (i.e., within 8 hours for ENS notifications, or within 60 days LER reporting).

To the extent feasible, report failures that occurred within the first 60 days of discovery of the first failure on one LER. If appropriate, state in the LER text that a supplement to the LER will be submitted when the test program is completed. Include all the failures, including those reported in the original LER, in the revised LER (i.e., the revised LER should stand alone).

Generally, LERs are intended to address specific events and plant conditions. Thus, unrelated events or conditions should not be reported in one LER. Also, an LER revision should not be used to report subsequent failures of the same or like components that are the result of a different cause or for separate events or activities.

Unrelated failures or events should be reported as separate ENS notifications to be given

unique ENS numbers by the NRC. However, multiple ENS notifications may be addressed in a single telephone call.

#### 2.4 Deficiencies Discovered During Engineering Reviews or Inspections

As indicated in NUREG-1397, "An Assessment of Design Control Practices and Design Reconstitution Programs in the Nuclear Power Industry," February 1991, Section 4.3.2, the reporting requirements specified in 10 CFR 50.9, 50.72, and 50.73 apply equally to discrepancies discovered during design document reconstitution (DDR) programs, design-bases documentation reviews (DBDRs), and other similar engineering reviews. There is no basis for treating discrepancies discovered during such reviews differently from any other reportable item.

Licensees should evaluate the reportability of suspected but unsubstantiated discrepancies discovered during such a review program in the same manner as other potentially reportable items. See Section 2.5 for discussion of reporting time limits and discovery dates.

#### 2.5 Time Limits for Reporting

Reporting times in 10 CFR 50.72 are keyed to the occurrence of the event or condition, as described below.

Section 50.72(a)(3) requires ENS notification of the declaration of an Emergency Class "...immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes."

Section 50.72(b)(1) requires ENS notification for ~~specific types of events and conditions~~ **one type of event** "...as soon as practical and in all cases within one hour of the occurrence of any deviation from the plant's Technical Specifications authorized...."

Section 50.72(b)(2) requires ENS notification for specific types of events and conditions "...as soon as practical and in all cases, within ~~four~~ **eight** hours of the occurrence of any of the following:...."

**These 10 CFR 50.72 reporting times have some flexibility because a licensee needs to ensure that reporting does not interfere with plant operation. However, that does not mean that a licensee should automatically wait until close to the time limit expiration before reporting. For example, assume that a small radioactive release, that does not qualify for declaration of an emergency class, is reported to the State. The rule requires reporting an event of this type as soon as practical and in all cases, within eight hours of occurrence. In this case, since it would be practical to do so, the licensee should make the ENS notification at about the same time as the report to the State.**

Section 50.73 requires submittal of an LER "within ~~30~~ **60** days after the discovery" of a reportable event. Many reportable events are discovered when they occur. However, if the event is discovered at some later time, the discovery date is when the reportability clock starts under 10 CFR 50.73. Discovery date is generally the date when the event was discovered rather than the date when an evaluation of the event is completed. For example, if a technician sees a problem, but a delay occurs before an engineer or supervisor has a chance to review the situation, the discovery date (which starts the 30-day clock) is the date that the technician sees a problem.

In some cases, such as discovery of an existing but previously unrecognized condition, it may be necessary to undertake an evaluation in order to determine if an event or condition is reportable. If so, the guidance provided in Generic Letter 91-18, "Information to Licensees Regarding two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability," which applies primarily to operability determinations, is appropriate for reportability determinations as well. This guidance indicates that **the evaluation should proceed on a time scale commensurate with the safety significance of the issue and**, whenever reasonable expectation that the equipment in question is operable no longer exists, or significant doubts begin to arise, appropriate actions, including reporting, should be taken. **In such cases, if a telephone notification of the condition is required under §50.72, it should be made as soon as practical and in all cases within 8 hours after the reasonable expectation of operability no longer exists.**

## 2.6 Events Discussed with the NRC Staff

On occasion, some licensee personnel have erroneously believed that if a reportable event or condition had been discussed with the resident inspector or other NRC staff, there was no need to report under 10 CFR 50.72 and 50.73 because the NRC was aware of the situation. Some licensee personnel have also expressed a similar misunderstanding for cases in which the NRC staff identified a reportable event or condition to the licensee via inspection or assessment activities. Such conditions do not satisfy §§50.72 and 50.73. Sections 50.72 and 50.73 specifically require a telephone notification via the ENS and/or submittal of a written LER for an event or condition that meets the criteria stated in those rules.

## 2.7 Voluntary Reporting

Information that does not meet the reporting criteria of 10 CFR 50.72 and 50.73 may be reportable under other requirements such as 10 CFR 50.9, 20.2202, 20.2203, 50.36, 72.74, 72.216, 73.71, and Part 21. In particular, 10 CFR 50.9 (b) states "Each applicant or licensee shall notify the Commission of information identified by the applicant or licensee as having for the regulated activity a significant implication for public health and safety or common defense and security." This applies to information which is not already required by other reporting or updating requirements. Notification must be made to the Administrator of the appropriate Regional Office within two working days of identifying the information. Reporting pursuant to §50.9 is required, not voluntary.<sup>14</sup> Voluntary reporting, as discussed in the following paragraphs, pertains to information of lesser significance than described in §50.9(b).

Licensees are permitted and encouraged to report any event or condition that does not meet the criteria for required reporting, if the licensee believes that the event or condition might be of safety significance or of generic interest or concern. Reporting requirements aside, assurance of safe operation of all plants depends on accurate and complete reporting by each licensee of all events having potential safety significance. Instructions for voluntary ENS notifications and LERs are discussed in Sections 4.2.2 and 5.1.5 this report.

The NRC staff encourages voluntary LERs rather than information letters for voluntary reporting. The LER format is preferable because it provides for the information needed to support NRC review of the event and facilitates administrative processing, including data entry.

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<sup>14</sup> As indicated in the Statement of Considerations for §50.9, "A licensee cannot evade the rule by never 'finding' information to be significant. The fact that a licensee considers information to be significant can be established, for example, by the actions taken by the licensee to evaluate that information." 59 FR 49362, December 31, 1987.

## 2.8 Retraction or Cancellation of Event Reports

An ENS notification can be retracted via a follow-up telephone call, as discussed further in Section 4.2.3 of this report. A retracted ENS report is retained in the ENS data base, along with the retraction.

LER cancellations should be made by letter as discussed further in Section 5.1.2 of this report. Canceled LERs are deleted from the LER data base.

Sound, logical bases for the withdrawal should be communicated with the retraction or cancellation. (Example 3 in Section 3.3.1 illustrates a case where there were sound reasons for a retraction. The last event under Example 1 in Section 3.3.2 illustrates a case where the reasons for retraction were not adequate.)

### 3 SPECIFIC REPORTING GUIDELINES

#### 3.1 Section 50.72 and 50.73 General Requirements

##### 3.1.1 Immediate Notification Requirements

<p><b>§50.72(a) General Requirements<sup>1</sup></b></p> <p>"(1) Each nuclear power reactor licensee licensed under §50.21(b) or §50.22 of this part shall notify the NRC Operations Center via the Emergency Notification System of:</p> <ul style="list-style-type: none"> <li>(i) The declaration of any of the Emergency Classes specified in the licensee's approved Emergency Plan;<sup>2</sup> or</li> <li>(ii) Of those non-Emergency events specified in paragraph (b) of this section.</li> </ul> <p>(2) If the Emergency Notification System is inoperative, the licensee shall make the required notifications via commercial telephone service, other dedicated telephone system, or any other method which will ensure that a report is made as soon as practical to the NRC Operations Center.<sup>3</sup></p> <p>(3) The licensee shall notify the NRC immediately after notification of the appropriate State or local agencies and not later than one hour after the time the licensee declares one of the Emergency Classes.</p> <p>(4) The licensee shall activate the Emergency Response Data System (ERDS)<sup>5</sup> as soon as possible but not later than one hour after declaring an emergency class of alert, site area emergency, or general emergency. The ERDS may also be</p>	<p><b>10 CFR 50.73</b></p> <p>[If the event or condition that was the basis for the Emergency Class declaration met one or more of the 10 CFR 50.73 reporting criteria, an LER is required.]</p>
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**50.72(a)** (Continued)

activated by the licensee during emergency drills or exercises if the licensee's computer system has capability to transmit the exercise data.

(5) When making a report under paragraph (a)(~~3~~-1) of this section, the licensee shall identify

(i) The Emergency Class declared; or

(ii) Either paragraph (b)(1), "One-Hour Report," or paragraph (b)(2), "~~Four~~Eight-Hour Report," as the paragraph of this section requiring notification of the Non-Emergency Event."

Discussion

Appendix E to 10 CFR Part 50, Section IV (C), "Activation of Emergency Organization," establishes four emergency classes for nuclear power plants: Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency. NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (March 1987), and more recently, NUMARC/NESP-007, Revision 2, "Methodology for Development of Emergency Action Levels" (January 1992), provides the basis for these emergency classes and numerous examples of the events and conditions typical of each emergency class. Licensees use this guidance in preparing their emergency plans. Use of these four emergency class terms in the ENS

notification will help the NRC recognize the significance of an emergency. Time frames specified for notification in §50.72(a) use the words "immediately" and "not later than one hour" to ensure the Commission can fulfill its responsibilities during and following the most serious events.

Occasionally, a licensee may discover that an event or condition had existed which met the emergency plan criteria but that no emergency had been declared and the basis for the emergency class no longer exists at the time of this discovery. This may be due to a rapidly concluded event or an oversight in the emergency classification made during the event or it may be determined during a post-event review. Frequently, in cases of this nature, which were discovered after the fact, licensees have declared the emergency class, immediately terminated the emergency class and then made the appropriate notifications. However, the staff does not consider actual declaration of the emergency class to be necessary in these circumstances; an ENS notification (or an ENS update if the event was previously reported but misclassified) within one hour of the discovery of the undeclared (or misclassified) event will provide an acceptable alternative.<sup>15</sup>

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<sup>15</sup> Notification of the State and local emergency response organizations should be made in accordance with the arrangements made between the licensee and offsite organizations.

### 3.1.2 Licensee Event Report System

<b>10 CFR 50.72</b>	<b>§50.73(a)(1)</b>
[Bases for ENS notifications (e.g., regardless of plant status), are the same as 10 CFR 50.73 where the two rules are complementary.]	"The holder of an operating license for a nuclear power plant (licensee) shall submit a Licensee Event Report (LER) for any event of the type described in this paragraph within <del>30</del> 60 days after the discovery of the event. Unless otherwise specified in this section, the licensee shall report an event regardless of the plant mode or power level, and regardless of the significance of the structure, system, or component that initiated the event."

#### Discussion

Unless otherwise specified, this part of the rule requires reporting of an event regardless of the plant mode or power level and regardless of the significance of the structure, system, or component that initiated the event. These considerations also are implicit in 10 CFR 50.72 where the two rules are complementary.

### 3.2 Specific Reporting Criteria

#### 3.2.1 Plant Shutdown Required by Technical Specifications

§50.72(b)(1-2)(i)(A)	§50.73(a)(2)(i)(A)
Licensees shall report: "The <u>initiation</u> of any nuclear plant shutdown required by the plant's Technical Specifications."	Licensees shall report: "The <u>completion</u> of any nuclear plant shutdown required by the plant's Technical Specifications."

If not reported as an emergency under §50.72(a), licensees are required to report the initiation of a plant shutdown required by TS to the NRC via the ENS as soon as practical and in all cases within **8 hours** of the initiation of a plant shutdown required by TS to the NRC via the ENS. If the shutdown is completed, licensees are required to submit an LER within 30 days.

#### Discussion

The §50.72 reporting requirement is intended to capture those events for which TS require the initiation of reactor shutdown to provide the NRC with early warning of safety significant conditions serious enough to warrant that the plant be shut down.

For §50.72 reporting purposes, the phrase "initiation of any nuclear plant shutdown" includes action to start reducing reactor power, i.e., adding negative reactivity to achieve a nuclear plant shutdown required by TS. **This includes initiation of any shutdown due to expected inability to restore equipment prior to exceeding the LCO action time. As a practical matter, in order to meet the time limits for reporting under §50.72, the reporting decision should sometimes be based on such expectations. (See Example 4.)**

The "initiation of any nuclear plant shutdown" does not include mode changes required by TS if initiated after the plant is already in a shutdown condition.

A reduction in power for some other purpose, not constituting initiation of a shutdown required by TS, is not reportable under this criterion.

For §50.73 reporting purposes, the phrase "completion of any nuclear plant shutdown" is defined as the point in time during a TS required shutdown when the plant enters the first shutdown condition required by a limiting condition for operations (LCO) [e.g., hot standby (Mode 3) for PWRs] with the standard technical specifications (STS). For example, if at 0200 hours a plant enters an LCO action statement that states, "restore the inoperable channel to operable status within 12 hours or be in at least Hot Standby within the next 6 hours," the plant must be shut down (i.e., at least in hot standby) by 2000 hours. An LER is required if the inoperable channel is not returned to operable status by 2000 hours and the plant enters hot standby.

An LER is not required if a failure was or could have been corrected before a plant has completed shutdown (as discussed above) and no other criteria in §50.73 apply.

### Examples

#### (1) Initiation of a TS-Required Plant Shutdown

While operating at 100-percent power, one of the battery chargers, which feeds a 125 Vdc vital bus, failed during a surveillance test. The battery charger was declared inoperable,

placing the plant in a 2-hour LCO to return the battery charger to an operable status or commence a TS-required plant shutdown. Licensee personnel started reducing reactor power to achieve a nuclear plant shutdown required by a TS when they were unable to complete repairs to the inoperable battery charger in the 2 hours allowed. The cause of the battery charger failure was subsequently identified and repaired. Upon completion of surveillance testing, the battery charger was returned to service and the TS required plant shutdown was stopped at 96-percent power.

The licensee made an ENS notification because of the initiation of a TS-required plant shutdown. An LER was not submitted under this criterion since the failed battery charger was corrected before the plant completed shutdown.

## (2) Initiation and Completion of a TS-Required Plant Shutdown

During startup of a PWR plant with reactor power in the intermediate range, two of the four reactor coolant pumps (RCPs) tripped when the station power transformer supplying power deenergized. With less than four RCPs operating, the plant entered a 1-hour LCO to be in hot standby. Control rods were manually inserted to place the plant in a shutdown condition.

The licensee made an ENS notification because of the initiation of a TS-required plant shutdown. An LER was submitted ~~within 30 days~~ because of the completion of the TS-required plant shutdown.

## (3) Failure that was or could have been corrected before a plant has completed shut down **was**

required.

- Question:

What about the situation where you have seven days to fix a component or be shut down, but the plant must be shut down to fix the component? Assume the plant shuts down, the component is fixed, and the plant returns to power prior to the end of the seven day period. Is that situation reportable?

Answer:

No. If the shutdown was not required by the Technical Specifications, it need not be reported. However, other criteria in 50.73 may apply and may require that the event be reported.

- Question:

Suppose that there are seven days to fix a problem and it is likely the problem can be fixed during this time period. However, the plant management elects to shut down and fix this problem and other problems. Is an LER required?

Answer:

Some judgment is required. An LER is not required if the situation could have been corrected before the plant was required to be shut down, and no other criteria in 50.73

apply. The shut down is reportable, however, if the situation could not have been corrected before the plant was required to be shut down, or if other criteria of 50.73 apply.

(4). Initiation of plant shutdown in anticipation of LCO required shutdown.

The plant lost one of two sources of offsite power due to overheating in the main transformer. The TS allow 72 hours to restore the source or initiate a shutdown and be HOT STANDBY in the next 6 hours and COLD SHUTDOWN in the following 30 hours. The licensee estimated that the transformer problem could not be corrected within the LCO action time. Therefore the decision was made to start a shutdown soon after the transformer problem was discovered.

The shutdown was uneventful and was completed, with the plant in HOT STANDBY, prior to the expiration of the LCO action time. After the plant reached HOT STANDBY, further evaluation indicated that the transformer problem could not be corrected prior to the requirement to place the plant in COLD SHUTDOWN. Based on this time estimate, it was decided to place the unit in COLD SHUTDOWN.

The event is reportable under §50.72(b)(2)(i) as the initiation of plant shutdown required by TS because, at the time the shutdown was initiated, and the time the report was due, it was not expected that the equipment would be restored to operable status within the required time. This is based on the fact that the reporting requirement is intended to capture those events for which TS require the initiation of a reactor shutdown.

The event is reportable under §50.73(a)(2)(i)(A) because the plant shutdown was completed when the plant reached HOT STANDBY (Mode 3). Had the transformer been repaired and the shutdown process terminated before the plant reached Mode 3, the event would not be reportable under §50.73(a)(2)(i)(A).

### 3.2.2 Technical Specification Prohibited Operation or Condition

10 CFR 50.72	§50.73(a)(2)(i)(B)
<p>[There is no corresponding Part 50.72 requirement. However, for certain operations or conditions prohibited by a plant's TS, other reporting requirements may apply, such as 50.72(b)(2)(ii) and (b)(2)(iii-v); 50.36(c)(1) and (2); 20.2202; and 20.2203.]</p>	<p>Licensees shall report: "Any operation or condition occurring within three years of the date of discovery which was prohibited by the plant's Technical Specifications, except when:</p> <ul style="list-style-type: none"> <li>(i) The technical specification is administrative in nature; or</li> <li>(ii) The event consists solely of a case of a late surveillance test where the oversight is corrected, the test is performed, and the equipment is found to be capable of performing its specified safety functions." </li></ul>

Licensees are required to submit an LER for any operation or condition occurring within three years of the date of discovery which was prohibited by the plant's Technical Specifications, except when: (i) The technical specification is administrative in nature; or (ii) The event consists solely of a case of a late surveillance test where the oversight is corrected, the test is

performed, and the equipment is found to be capable of performing its specified safety functions.

### Discussion

~~Section 50.73(a)(2)(i)(B) requires any operation or condition that is prohibited by the plant's TS to be reported in an LER. The five specific TS categories defined in 10 CFR 50.36(e), "Technical Specifications," are discussed below. In addition, based on past experience, Guidelines are provided below, including guidelines for reporting: design and analysis defects and deviations; entry into TS 3.0.3 [ISTS<sup>16</sup> Limiting Condition for Operation (LCO) 3.0.3]; missed or deficient tests; ~~required by the American Society of Mechanical Engineers (ASME) Section XI, Inservice Testing (IST) and Inservice Inspection (ISI), and by STS 4.0.5, or equivalent; and other operations or conditions prohibited by TS, such as fire protection.~~ . and: violation of administrative TS requirements.~~

The LER rule does not address violations of license conditions contained in documents other than the TS. Such notifications are reportable as specified in a plant's license or other applicable documents.

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<sup>16</sup> To be consistent with the improved Standard Technical Specifications (ISTS) discussed in the NUREG-1430 through NUREG-1434 (e.g., NUREG-1431, Vol. 1, Standard Technical Specifications - Westinghouse Plants, September 1992) references to appropriate sections in these ISTS have been included throughout this section of NUREG-1022. The designation used here for references to such sections is "ISTS" followed by the appropriate section number.

#### (1) Safety Limits and Limiting Safety System Settings

Section 50.36(c)(1) outlines the reporting requirements in TS when nuclear reactor safety limits or limiting safety system settings are exceeded and identifies that such reports are to be made under 50.72 and 50.73. Note that there would not be a three year limitation in this case because, in addition to the requirements of §50.73(a)(2)(i)(B), specific reporting requirements are stated in §50.36(c)(1) and the TS.

#### (2) Limiting Conditions for Operation

Section 50.36(c)(2) outlines LCOs in TS. Certain TS contain LCO statements that include action statements (required actions and associated completion time in ISTS) to provide constraints on the length of time components or systems may remain inoperable or out of service before the plant must shut down or other compensatory measures must be taken. Such time constraints are based on the safety significance of the component or system being removed from service.

An LER is required if ~~the conditions of an LCO are not met, e.g., by exceeding action statement constraints (not meeting required actions and associated completion times in ISTS).~~

~~The LCO allows a plant a specific time interval referred to as the allowed outage time (or completion time in ISTS) to accomplish corrective actions (e.g., restoration of equipment, testing of other equipment, and/or an orderly shutdown to either the hot- or cold-shutdown mode or operating condition). If a condition existed for a time longer than permitted by the TS [i.e., greater than the allowed outage time (or completion time in ISTS)] it must be reported even if the condition was not discovered until after the allowable time had elapsed and the~~

condition was rectified immediately upon discovery. This guidance is consistent with that previously given. (For the purpose of this discussion, it is assumed that there was firm evidence that a condition prohibited by TS existed before discovery, for a time longer than permitted by TS.)

### ~~(3)~~ TS Surveillance Requirements

Section 50.36(c)(3) outlines surveillance requirements in TS which assure (1) necessary quality of systems and components, (2) operation within safety limits, and (3) that the limiting conditions for operation will be met. For the purpose of evaluating the reportability of discrepancies found during TS surveillance tests, an operation or condition prohibited by the TS existed and is reportable if the time of equipment inoperability exceeded the LCO allowed outage time (or completion time for restoration of equipment in ISTS).

For a discrepancy discovered during a timely surveillance test, it should be assumed that the discrepancy occurred at the time of its discovery unless there is firm evidence, based on a review of relevant information (e.g., the equipment history and cause of failure) to believe that the discrepancy existed previously. ~~As discussed in Example 5, evaluation of multiple similar failures may indicate that a condition has persisted for some time.~~

A missed or late surveillance test is reportable when the surveillance interval plus allowed surveillance interval extension, e.g., STS section 4.0.2 (or ISTS SR 3.0.2), plus the LCO action statement time is exceeded.<sup>17</sup> ~~This means that a condition prohibited by TS existed for a period of time longer than allowed by TS. The event is reportable even though the surveillance is subsequently satisfactorily performed.~~ it indicates that equipment (i.e., one train of a multiple train system) was not capable of performing its specified safety functions (and thus was inoperable) for a period of time longer than allowed by TS. If the untimely test indicates that the equipment is no longer capable of performing its specified safety function, the time that the deficiency developed should be used to determine reportability. If actual time is known, that should be used. Otherwise, the deficiency should be assumed to have occurred halfway between the last successful test or use and the untimely test that revealed the deficiency.<sup>18</sup>

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~~—<sup>17</sup> The Statement of Considerations for the final rule (48 FR 33855, July 28, 1983, Second column) states, in part, “. . . if a condition that was prohibited by the Technical Specifications existed for a period of time longer than that permitted by the Technical Specifications, it must be reported even if the condition was not discovered until after the allowable time had elapsed and the condition was rectified immediately after discovery.”~~

<sup>18</sup> This guidance is only intended to define when the matter becomes reportable under this specific reporting criterion ("operation or condition during the previous three years which was prohibited by the plant's TS"). It is not intended to define when a TS violation occurs, when a system must actually be declared inoperable, when the surveillance must be completed, or when the plant must be shutdown. These matters are discussed further in GL 87-09, GL 91-18, TS 4.0.2, and ISTS SR 3.0.3.

Some plants have TS which allow a delay of up to 24 hours in declaring an LCO or TS requirements not met if it is found that a surveillance was not performed within its specified frequency or interval. However, as discussed above, failure to perform a surveillance within its frequency or interval is still reportable if it indicates that equipment (i.e., one train of a multiple train system) was not capable of performing its specified safety functions and, thus, was inoperable for a period of time longer than allowed by TS. The additional delay in declaring the LCO not met does not change the fact that the condition existed longer than allowed by TS. The delay merely specifies appropriate remedial action.

As specified in the rule, the event is not reportable if it consists solely of a case of a late surveillance test where the oversight is corrected, the test is performed, and the equipment is found to be capable of performing its specified safety functions.

#### (4) Design Features and Analysis Defects and Deviations

~~Section 50.36(c)(4) indicates that design features to be included in TS are those features of the facility such as materials of construction or geometric arrangements which, if altered or modified, would have a significant effect on safety and are not covered by items (1) through (3) above:~~

~~Reportability requirements related to design features are included in other sections of 10 CFR 50.72 and 50.73.~~ A design or analysis defect or deviation is reportable under this criterion if, as a result, equipment (i.e., one train of a multiple train system) was not capable of performing its specified safety functions (and, thus, was inoperable) for a period of time longer than allowed by TS. Since design and analysis conditions are long-lasting, the essential question is whether

the equipment involved was capable of performing its specified safety functions.

(5) TS Administrative Requirements, Including Radiological Controls, Required by Section 6 of the STS, or Equivalent

Section 6 of the STS (Section 5 of ISTS), or its equivalent, has a number of administrative requirements such as organizational structure, the required number of personnel on shift, the maximum hours of work permitted during a specific interval of time, and the requirement to have, maintain, and implement certain specified procedures. Violation of an administrative TS **that is administrative in nature** in and of itself does not necessarily constitute a reportable condition ("operation or condition prohibited by the plant's TS"). **is not reportable.** This reporting requirement deals with matters affecting plant operation more substantially and more directly than matters that are mainly administrative.<sup>19</sup> Failure to meet administrative TS requirements is reportable only if it results in violations of equipment operability requirements or had a similar detrimental effect on a licensee's ability to safely operate the plant.

For example, operation with less than the required number of people on shift would constitute operation prohibited by the TS. However, a change in the plant's organizational structure that has not yet been approved as a Technical Specification change would not **be reportable.**

An administrative procedure violation or failure to implement a procedure, such as failure to lock

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<sup>19</sup> The proposed rule would have required reporting when "a TS action statement is not met." The wording of the final rule requires reporting "Any operation or condition prohibited by the plant's Technical Specifications." The Statement of Considerations for the final rule indicates that this change was made to accommodate plants that did not have requirements specifically defined as action statements (48 FR 33855, July 26, 1983).

a high radiation area door, that does not have a direct impact on the safe operation of the plant, is generally not reportable under this criterion.

Radiological conditions and events that are reportable are defined in 10 CFR 20.2202 and 20.2203. Redundant reporting is not required.

~~(6)~~ Entry into STS 3.0.3

STS 3.0.3 (ISTS LCO 3.0.3), or its equivalent, establishes requirements for actions when an LCO is not met and no action statement is provided. Entry into STS 3.0.3 is considered to be the action taken, as required, when operations or conditions required by TS LCO action statements (ISTS required actions and associated completion times) are not met indicate that a condition existed longer than allowed by TS. Thus, entry into STS 3.0.3 (ISTS LCO 3.0.3) for any reason or justification is reportable.

~~(7)~~ Missed Tests Required by ASME Section XI IST and ISI and by STS 4.0.5, or Equivalent

Sections 50.55a(g) and 50.55a(f) require the implementation of ISI and IST programs in accordance with the applicable edition of the ASME Code for those pumps and valves whose function is required for safety. STS Section 4.0.5 (or an equivalent) covers these testing requirements. (Generally, there is no comparable ISTS section.) A missed or late IST/ISI/ASME test is reportable when the test interval plus any allowable extension plus the LCO action time has been exceeded it indicates that equipment (i.e., one train of a multiple train system) was not capable of performing its specified safety functions and, thus, was inoperable for a period of time longer than allowed by TS.

## (8) Fire Protection Systems When Required by TS

When operability requirements for fire protection systems are specified in TS they are within the scope of this reporting criterion. **Also, if a fire protection deficiency results in the inability to preserve a safe shutdown train in the event of a fire, it should be reported as an unanalyzed condition that significantly affects plant safety, as discussed in Section 3.2.4 of this report.**

### Examples

#### (1) LCO Exceeded

In conducting a timely 30-day surveillance test a licensee found a standby component with a 7-day LCO allowed outage time and associated 8-hour shutdown action statement to be inoperable. ~~during a 30-day surveillance test.~~ (This is equivalent to a 7-day restoration completion time and an 8-hour action completion time in ISTS.) Subsequent review indicated that the component was assembled improperly during maintenance conducted 30 days previously and the post-maintenance test was not adequate to identify the error. Thus, there was firm evidence that the standby component had been inoperable for the entire 30 days.

An LER was required because the 7-day LCO allowed outage time and the shutdown action statement time of 8 hours were exceeded. Had the inoperability been identified and corrected within the 7-day LCO allowed outage time plus the 8-hour shutdown action statement, the event would not be reportable.

## (2) Missed Surveillance Tests

A licensee, with the plant in Mode 5 following a 10-month refueling outage, determined that certain monthly TS surveillance tests, which were required to be performed regardless of plant mode, had not been performed as required during the outage. The STS 4.0.2 (equivalent to ISTS SR 3.0.2) extension was also exceeded. The surveillance tests were immediately performed.

~~An LER is required because the time interval, including extensions permitted by TS, exceeded the TS surveillance interval plus the LCO action statement times (equivalent to ISTS completion times).~~ No LER would be required if the test showed the equipment was still operable. On the other hand, if the test showed the equipment was not capable of performing its specified safety functions and, thus, was inoperable, the event would be reportable.

## (3) Entering STS 3.0.3

With essential water chillers (A) and (B) out of service, the only remaining operable chiller (A/B) tripped. This condition caused the plant to enter STS 3.0.3 (equivalent to ISTS LCO 3.0.3) for 1 hour, until chiller (A) was restored to service and the temperature was restored to within TS limits.

An LER is required for this event because STS 3.0.3 was entered.

## ~~(4) Missed Tests Required by ASME Section XI IST and ISI, and by STS 4.0.5, or Equivalent~~

~~Examples of potentially reportable conditions are failures to perform required activities within specified times for those components governed by TS. Such activities include stroke testing valves, testing valves in the position required for the performance of their safety function, verifying motor-operated valve stroke times for both (open and closed) directions, using the proper test pressures to properly classify and test active valves and to increase test frequency subsequent to obtaining test results that were below certain threshold values. A missed test is reportable when the test interval plus any allowable extension plus the LCO action time is exceeded.~~

#### (4) Multiple Test Failures

An example of multiple test failures involves the sequential testing of safety valves.

Sometimes multiple valves are found to lift with setpoints outside of TS limits.

As discussed above, discrepancies found in TS surveillance tests should be assumed to occur at the time of the test unless there is firm evidence, based on a review of relevant information (e.g., the equipment history and the cause of failure) to believe that the discrepancy occurred earlier. However, the existence of similar discrepancies in multiple valves is an indication that the discrepancies arose over a period of time. Therefore, the condition existed during plant operation and the event is reportable under §50.73(a)(2)(i)(B) "Any operation or condition prohibited by the plant's Technical Specifications."

If the discrepancies are large enough that multiple valves are inoperable the event may also be reportable under §50.73(a)(2)(vii) "Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two

independent trains or channels to become inoperable in a single system ...."

(5) Seismic Restraints

Assume that during an NRC evaluation it is found that an exciter panel for one EDG had lacked appropriate seismic restraints since the plant was constructed, because of a design, analysis or construction inadequacy. Also assume that, upon evaluation, there is reasonable doubt about the EDG's ability to perform its specified safety functions during and after an SSE.

An LER would be required because the EDG was inoperable for a period of time longer than allowed by TS.

(6) Vulnerability to Loss of Offsite Power

Assume that during a design review it is found that a loss of offsite power could cause a loss of instrument air and, as a result, auxiliary feedwater (AFW) flow control valves could fail open. Then for low steam generator pressure, such as could occur for certain main steam line breaks, high AFW flow rates could result in tripping the motor driven AFW pumps on thermal overload. The single turbine driven AFW pump would not be affected.

An LER would be required because the motor-driven portion of AFW was inoperable for a period of time longer than allowed by TS.

3.2.3 Technical Specification Deviation per §50.54(x)

<b>§50.72(b)(1)(i)(B)</b>	<b>§50.73(a)(2)(i)(C)</b>
Licensees shall report: "Any deviation from the plant's Technical Specifications authorized pursuant to §50.54(x) of this part."	Licensees shall report: "Any deviation from the plant's Technical Specifications authorized pursuant to §50.54(x) of this part."

If not reported as an emergency under §50.72(a), licensees are required to report any such deviation to the NRC via the ENS as soon as practical and in all cases within 1 hour. Licensees are required to submit an LER within ~~30~~60 days.

#### Discussion

10 CFR 50.54(x) generally permits licensees to take reasonable action in an emergency even though the action departs from the license conditions or plant technical specifications if (1) the action is immediately needed to protect the public health and safety, including plant personnel, and (2) no action consistent with the license conditions and technical specifications is immediately apparent that can provide adequate or equivalent protection. Deviations authorized pursuant to 10 CFR 50.54(x) are reportable under this criterion.

#### Example

With the plant at 100-percent power, the upper containment airlock inner door was opened to allow a technician to exit from the containment while the upper airlock outer door was

inoperable, resulting in the loss of containment integrity. The upper airlock door was inoperable pending retests following seal replacement. The technician was inside containment when the lower airlock failed, requiring the technician to exit through the upper door.

The licensee decided to exercise the option allowed for under 10 CFR 50.54(x) and open the upper containment airlock inner door. In this instance, immediate action was considered necessary to protect the safety of the technician. The upper airlock was not scheduled to be returned to operability for another 20 hours and the time to repair the lower airlock door was unknown.

When the action was completed the control room operators notified the NRC Operations Center, in accordance with the reporting requirements of 10 CFR 50.72, that they had exercised 10 CFR 50.54(x). Subsequently, an LER was submitted in accordance with 10 CFR 50.73(a)(2)(i) {use of 10 CFR 50.54(x)} as well as 10 CFR 50.73(a)(2)(v) {event or condition that alone could have prevented ....}.

#### 3.2.4 Degraded Condition

**§50.72(b)(1-2)(ii)**

Licensees shall report: "Any event or condition ~~during operation~~ that results in:

(A) The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; or results in

(B) The nuclear power plant being: (A) In an unanalyzed condition that significantly ~~compromises~~ affects plant safety."

~~(B) In a condition that is outside the design basis of the plant; or~~

~~(C) In a condition not covered by the plant's operating and emergency procedures."~~

**§50.73(a)(2)(ii)**

Licensees shall report: "Any event or condition that resulted in:

(A) The condition of the nuclear power plant, including its principal safety barriers, being seriously degraded; or that resulted in

(B) The nuclear power plant being in (A) an unanalyzed condition that significantly ~~compromised~~ affected plant safety; or

(C) A component being in a degraded or non-conforming condition such that the ability of the component to perform its specified safety function is significantly degraded and the condition could reasonably be expected to affect other similar components in the plant."

~~(B) In a condition that was outside the design basis of the plant; or~~

~~(C) In a condition not covered by the plant's operating and emergency procedures."~~

If not reported as an emergency under §50.72(a), licensees are required to report a seriously

degraded principal safety barrier or an unanalyzed condition that significantly affects plant safety to the NRC via the ENS as soon as practical and in all cases within 8 hours. Licensees are required to submit an LER within 60 days.

In the case of a component with a significantly degraded ability to perform a safety function, where the condition could affect/other similar components in the plant, licensees are required to submit an LER within 60 days.

## Discussion

### (A) Nuclear power plant, including its principal safety barriers, being seriously degraded:

This criterion applies to material (e.g., metallurgical or chemical) problems that cause abnormal degradation of or stress upon the principal safety barriers (i.e., the fuel cladding, reactor coolant system pressure boundary, or the containment) such as:

(1) Fuel cladding failures in the reactor, or in the storage pool, that exceed expected values, or that are unique or widespread, or that are caused by unexpected factors.

(2) Welding or material defects in the primary coolant system which cannot be found acceptable under ASME Section XI, IWB-3600, "Analytical Evaluation of Flaws" or ASME Section XI, Table IWB-3410-1, "Acceptance Standards."

(3) Steam generator tube degradation in the following circumstances:

(a) The severity of degradation corresponds to failure to maintain structural safety factors. The structural safety factors implicit in the licensing basis are those described in Regulatory Guide 1.121. These safety factors include a margin of 3.0 against gross failure or burst under normal plant operating conditions, including startup, operation in the power range, hot standby, and cooldown, and all anticipated transients that are included in the plant design specification.

(b) The calculated potential primary-to-secondary leak rate is not consistent with the plant

licensing basis. The licensing basis accident analyses typically assume [for accidents other than a steam generator tube rupture (SGTR)] a 1 gpm primary-to-secondary leak rate concurrent with the accident to demonstrate that the radiological consequences satisfy 10 CFR Part 100 and GDC-19. In these instances, degradation which may lead to leakage above 1 gpm under accident conditions, other than a SGTR, would exceed the threshold. For some units, the staff has approved accident leakages above 1 gpm subject to updating the licensing basis accident analyses to reflect this amount of leakage and subject to risk implications being acceptable.<sup>20</sup>

(4) Low temperature over pressure transients where the pressure-temperature relationship violates pressure-temperature limits derived from Appendix G to 10 CFR Part 50 (e.g., TS pressure-temperature curves).

(5) Loss of containment function or integrity, including containment leak rate tests where the total containment as-found, minimum-pathway leak rate exceeds the limiting condition for operation (LCO) in the facility's TS.<sup>21</sup>

(B) Unanalyzed condition that significantly affects plant safety:

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<sup>20</sup>In addition, if the extent of degradation is great (i.e., if many tubes are degraded or defective), a telephone notification and a written LER should be provided. The plant's TS typically provide specific requirements indicating when reporting is required (based on the number of tubes degraded or defective in terms of 'percent inspected') and those requirements should be used to determine reportability.

<sup>21</sup> The LCO typically employs  $L_a$ , which is defined in Appendix J to 10 CFR Part 50 as the maximum allowable containment leak rate at pressure  $P_a$ , the calculated peak containment internal pressure related to the design basis accident. Minimum-pathway leak rate means the minimum leak rate that can be attributed to a penetration leakage path; for example, the smaller of either the inboard or outboard valve's individual leak rates.

As was indicated in the 1983 Statements of Considerations for 10 CFR 50.72 and 50.73, with regard to an *Unanalyzed condition that significantly compromises plant safety*, "The Commission recognizes that the licensee may use engineering judgment and experience to determine whether an unanalyzed condition existed. It is not intended that this paragraph apply to minor variations in individual parameters, or to problems concerning single pieces of equipment. For example, at any time, one or more safety-related components may be out of service due to testing, maintenance, or a fault that has not yet been repaired. Any trivial single failure or minor error in performing surveillance tests could produce a situation in which two or more often unrelated, safety-grade components are out-of-service. Technically, this is an unanalyzed condition. However, these events should be reported only if they involve functionally related components or if they significantly compromise plant safety."<sup>22</sup>

"When applying engineering judgment, and there is a doubt regarding whether to report or not, the Commission's policy is that licensees should make the report."<sup>23</sup>

"For example, small voids in systems designed to remove heat from the reactor core which have been previously shown through analysis not to be safety significant need not be reported. However, the accumulation of voids that could inhibit the ability to adequately remove heat from the reactor core, particularly under natural circulation conditions, would constitute an unanalyzed condition and would be reportable."<sup>24</sup>

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<sup>22</sup> 48 FR 39042, August 29, 1983 and 48 FR 33856, July 26, 1983.

<sup>23</sup> 48 FR 39042, August 29, 1983.

<sup>24</sup> 48 FR 39042, August 29, 1983 and 48 FR 33856, July 26, 1983.

"In addition, voiding in instrument lines that results in an erroneous indication causing the operator to misunderstand the true condition of the plant is also an unanalyzed condition and should be reported."<sup>25</sup>

Furthermore, beyond the examples given in 1983, examples of reportable events would include discovery that a system required to meet the single failure criterion does not do so.

In another example, if fire barriers are found to be missing, such that the required degree of separation for redundant safe shutdown trains is lacking, the event would be reportable. On the other hand, if a fire wrap, to which the licensee has committed, is missing from a safe shutdown train but another safe shutdown train is available in a different fire area, protected such that the required separation for safe shutdown trains is still provided, the event would not be reportable.

*(C) Significantly degraded component(s):*

This new reporting criterion would require reporting if a component is in a degraded or non-conforming condition such that the ability of the component to perform its specified safety function is significantly degraded and the condition could reasonably be expected to apply to other similar components in the plant. It would be added to ensure that design basis or other discrepancies would continue to be reported if the capability to perform a specified safety function is significantly degraded and the condition has generic implications. On the other hand, if the degradations are not significant or the condition does not have generic

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<sup>25</sup> 48 FR 39042, August 29, 1983 and 48 FR 33856, July 26, 1983.

implications, reporting would not be required under this criterion.

For example, at one plant several normally open valves in the low pressure safety injection system were routinely closed to support quarterly surveillance testing of the system. In reviewing the design basis and associated calculations, it was determined that the capability of the valves to open in the event of a large break LOCA combined with degraded grid voltage during a surveillance test was significantly degraded. The licensee concluded that the valves would still be able to reopen under the postulated conditions and considered them operable. However, that conclusion could not be supported using the conservative standards established by Generic Letter 89-10. Pending determination of final corrective action, administrative procedures were implemented to preclude closing the valves. The event would be reportable because the capability of a component to perform its specified safety functions was significantly degraded and the same condition could reasonably be expected to apply to other similar components.

In another example, during a routine periodic inspection, jumper wires in the valve operators for three valves were found contaminated with grease which was leaking from the limit switch gear box. The cause was overfilling of the grease box, as a result of following a generic maintenance procedure. The leakage resulted in contamination and degradation of the electrical components which were not qualified for exposure to grease. This could result in valve malfunction(s). The conditions were corrected and the maintenance procedures were changed. The event would be reportable because the capability of several similar components to perform their specified safety functions could be significantly degraded.

In a further example, while processing calculations it was determined that four motor

operated valves within the reactor building were located below the accident flood level and were not qualified for that condition. Pending replacement with qualified equipment, the licensee determined that three of the valves had sufficiently short opening time that their safety function would be completed before they were submerged. The fourth valve was normally open and could remain open. After flooding, valve position indication could be lost, but valve position could be established indirectly using process parameter indications. The event would be reportable because the capability of several similar components to perform their specified safety functions could be significantly degraded.

An example of an event that would not be reportable is as follows. The motor on a motor-operated valve burned out after repeated cycling for testing. This event would not be reportable because it is a single component failure, and while there might be similar MOVs in the plant, there is not a reasonable basis to think that other MOVs would be affected by this same condition. On the other hand, if several MOVs had been repeatedly cycled and then after some extended period of time one of the MOVs was found inoperable or significantly degraded because of that cycling, then the condition would be reportable.

Minor switch adjustments on MOVs would not be reported where they do not significantly affect the ability of the MOV to carry out its design-basis function and the cause of the adjustments is not a generic concern.

At one plant the switch on the radio transmitter for the auxiliary building crane was used to handle a spent fuel cask while two protective features had been defeated by wiring errors. A new radio control transmitter had been procured and placed in service. Because the new controller was wired differently than the old one, the drum overspeed protection and spent

fuel pool roof slot limit switch were inadvertently defeated. While the crane was found to be outside its design basis, this condition would not be reportable because switch wiring deficiency could not reasonably be expected to affect any other components at the plant.

### Examples

(1) ~~Significant Degradation Failures~~ of Reactor Fuel Rod Cladding Identified During Testing of Fuel Assemblies

Radio-chemistry data for a particular PWR indicated that a number of fuel rods had failed during the first few months of operation. Projections ranged from 6 to 12 failed rods. The end of cycle reactor coolant system iodine-131 activity averaged 0.025 micro curies per milliliter. Following the end of cycle shutdown, iodine-131 spiked to 11.45 micro curies per milliliter. The cause was due to a significant number of failed fuel rods. Inspections revealed that 136 of the total 157 fuel assemblies contained failed fuel (approximately 300 fuel rods had through-wall penetrations), far exceeding the anticipated number of failures. The defects were generally pinhole sized. The fuel cladding failures were caused by long-term fretting from debris that became lodged between the lower fuel assembly nozzle and the first spacer grid, resulting in penetration of the stainless-steel fuel cladding. The source of the debris was apparently a machining byproduct from the thermal shield support system repairs during the previous refueling outage.

~~An ENS notification is required because a principal safety barrier (the fuel cladding) was found seriously degraded. An LER is required.~~ The event is reportable because the cladding failures exceed expected values, are unique or widespread, and are caused by

unexpected factors.

(2) Reactor Coolant System Pressure Boundary Degradation due to Corrosion of a Control Rod Drive Mechanism Flange

While the plant was in hot shutdown, a total of six control rod drive mechanism (CRDM) reactor vessel nozzle flanges were identified as leaking. Subsequently one of the flanges was found eroded and pitted. While removing the nut ring from beneath the flange, it was discovered that approximately 50 percent of one of the nut ring halves had corroded away and that two of the four bolt holes in the corroded nut ring half were degraded to the point where there was no bolt/thread engagement.

An inspection of the flanges and spiral wound gaskets, which were removed from between the flanges, revealed that the cause of the leaks was the gradual deterioration of the gaskets from age. A replacement CRDM was installed and the gaskets on all six CRDMs were replaced with new design graphite-type gaskets.

~~An ENS notification is required because the condition caused a significant degradation of the RCS pressure boundary. An LER is required. The event is reportable because the degradation cannot be considered acceptable as-is.~~

(3) **Significant** Degradation of Reactor Fuel Rod Cladding Identified During Fuel Sipping Operations

With the plant in cold shutdown, fuel sipping operations **appeared to indicate** a significant portion of cycle 2 fuel, type "LYP," had failed, i.e., four confirmed and twelve potential fuel leakers. The potential fuel leakers had only been sipped once prior to making the ENS notification. The licensee contacted the fuel vendor for assistance on-site in evaluating this problem.

An ENS notification was made because the fuel cladding degradation was **thought to be widespread**. However, additional sipping operations and a subsequent evaluation by the licensee's reactor engineering department with vendor assistance concluded that no additional fuel failures had occurred, i.e., the abnormal readings associated with the potential fuel leakers was attributed to fission products trapped in the crud layer. Based on the results of the evaluation the licensee concluded that the fuel cladding was not seriously degraded and that the event was not reportable. Consequently, after discussion with the Regional Office, the licensee retracted this event.

### 3.2.5 External Threat to Plant Safety

<b>§50.72(b)(1)(iii)</b>	<b>§50.73(a)(2)(iii)</b>
<p>Licensee shall report: "Any natural phenomenon or other external condition that poses an actual threat to the safety of the nuclear power plant or significantly hampers site personnel in the performance of duties necessary for the safe operation of the plant."</p>	<p>Licensee shall report: "Any natural phenomenon or other external condition that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the <u>nuclear power</u> plant."</p>

If not reported as an emergency under §50.72(a), licensees are required to report any natural phenomenon or other external condition that poses an actual threat to the safety of the nuclear power plant or significantly hampers site personnel in the performance of duties necessary for the safe operation of the plant to the NRC via the ENS as soon as practical and in all cases within ~~4~~8 hours. Subsequent evaluation may indicate that the phenomenon did not pose an actual threat or significantly hamper site personnel. If so, an LER is not required and the ENS notification may be retracted. Otherwise, licensees are required to submit an LER within ~~30~~60 days.

#### Discussion

These criteria apply only to acts of nature (e.g., tornadoes, earthquakes, fires, lightning, hurricanes, floods) and external hazards (i.e., industrial or transportation accidents).

References to acts of sabotage are covered by 10 CFR 73.71. Actual threats or significant

hampering from internal hazards are covered by separate criteria in §50.72(b)(2)(ix) and §50.73(a)(2)(ix), as discussed in Section 3.2.10 of this report.

For ENS reporting, the phrase "actual threat to safety of the nuclear power plant" is one reporting trigger. This covers those events involving an actual threat to the plant from an external condition or natural phenomenon where the threat or damage challenges the ability of the plant to continue to operate in a safe manner (including the orderly shutdown and maintenance of shutdown conditions).

The licensee should decide if a phenomenon or condition actually threatens the plant. For example, a minor brush fire in a remote area of the site that is quickly controlled by fire fighting personnel and, as a result, did not present a threat to the plant should not be reported. However, a major forest fire, large-scale flood, or major earthquake that presents a clear threat to the plant should be reported. As another example, an industrial or transportation accident which occurs near the site, creating a plant safety concern, should be reported.

The licensee must use engineering judgment to determine if there was an actual threat. For example, with regard to tornadoes the decision would be based on such factors as the size of the tornado, and its location and path. There are no prescribed limits. In general, situations involving only monitoring by the plant's staff are not reportable, but if preventive actions are taken or if there are serious concerns, then the situation should be carefully reviewed for reportability.

Responsive actions, by themselves, do not necessarily indicate actual threats. Those which are purely precautionary, such as placement of sandbags, even though flood levels are not

expected to be high enough to require sandbags, do not trigger reporting.

Some natural phenomena such as floods may be accurately predicted. If there is a credible prediction of a flood that would challenge the ability of the plant to continue to operate safely, the threat is reportable as an actual threat via ENS as soon as practical and in all cases within **8 hours**.

In most cases, events such as earthquakes, approaching hurricanes or tornado warnings result in ENS notification because there is a declaration of an emergency class, which is reportable under §50.72(a)(1)(i) as discussed in Section 3.1.1 of this report, rather than because the event is considered an actual threat. Usually, with the passage of time, it is apparent that an actual

threat did not occur and, thus, no LER is submitted (see Example 1). In some cases, with the passage of time, it is judged that an actual threat did occur and, thus, an LER is submitted (see Example 2).

Section 3.2.10 of this report discusses the meaning of the phrase "significantly hampers site personnel in the performance of duties necessary for the safe operation of the plant," in the context of internal threats. A natural phenomenon or external condition may also significantly hamper personnel. If so, it is reportable under this criterion.

If a snowstorm, hurricane or similar event significantly hampers personnel in the conduct of activities necessary for the safe operation of the plant, the event is reportable via the ENS as soon as practical and in all cases within **8 hours**. In the case of snow, the licensee must use judgment based on the amount of snow, the extent to which personnel were hampered, the extent to which additional assistance could have been available in an emergency, the length of time the condition existed, etc. For example, if snow prevented shift relief for several hours, the situation would be reportable if the delay were such that site personnel were significantly hampered in the performance of duties necessary for safe operation. For example, shift personnel might exceed normal shift overtime limits, become excessively fatigued, or find it necessary to operate with fewer than the required number of watchstanders in order to allow some to rest.

### Examples

#### (1) Earthquake

Seismic alarms were received in the Unit 1 control room of a Southern California plant. Seismic monitors were not tripped in Units 2 or 3. The earthquake was readily felt on site. Seismic instrumentation measured less than 0.02g lateral acceleration.

The licensee classified this as an Unusual Event in accordance with the emergency plan and notified the NRC via ENS per §50.72(a)(1)(i) within 30 minutes of the earthquake. The licensee terminated the event after walkdowns of the plant were satisfactorily completed and made an ENS update call. No LER was submitted because the event was not considered to be an actual threat.

## (2) Hurricane

A licensee in southern Florida declared an Unusual Event after a hurricane warning was issued by the National Hurricane Center. The hurricane was predicted to reach the site in approximately 24 hours. As part of the licensee's severe weather preparations both operating units were taken to hot shutdown before the hurricane's predicted arrival. Offsite power to both units was lost. As the hurricane approached, wind velocity on site was measured in excess of 140 mph. All personnel were withdrawn to protected safety-related structures. Extensive damage occurred on site. The Unusual Event was upgraded to an Alert when the pressurized fire header was lost because of storm-related damage to the fire protection system water supply piping and electric pump. All safety-related equipment functioned as designed before, during, and after the storm with the exception of two minor emergency diesel generator anomalies. The licensee downgraded the Alert to an Unusual Event once offsite power was restored and a damage assessment completed.

An ENS notification was required because the licensee declared an emergency class. The licensee submitted an LER, based on the occurrence of a natural phenomenon that posed an actual threat and several other reporting criteria as well.

### (3) Fire

With the unit at 100-percent power, the control room was notified that a forest fire was burning west of the plant close to the 230-kV distribution lines. Approximately 15 minutes later, voltage fluctuations were observed and then a full reactor scram occurred. The licensee determined that the offsite distribution breakers had tripped on fault, apparently from heavy smoke and heat in the vicinity of the offsite 230-kV line insulators. The other source of offsite power, i.e., the 34.5-kV lines supplying the startup transformers, was also lost. Both station emergency diesel generators received a fast start signal and load sequenced as designed. Five minutes later, offsite power was available through the startup transformer to the non-safety-related 4160-v buses, but the licensee decided to maintain the vital buses on their emergency power source until the reliability of offsite power could be assured. The fire continued to burn and, although no plant structures or equipment were directly affected, the fire did approach within 70 feet of the fire pump house.

The licensee entered the emergency plan, declaring an Unusual Event based on high drywell temperature and an Alert based on the potential of the forest fire to further affect the plant. The licensee submitted an LER, based on the occurrence of natural phenomenon that posed an actual threat and several other reporting criteria as well.

### 3.2.6 System Actuation

**§50.72(b)(2)(ii)-(iv)(A)**

Licensees shall report "Any event or condition that results in a ~~intentional~~ manual ~~actuation~~ or ~~valid~~ automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS) ~~of the systems listed in paragraph (b)(2)(iv)(B) of this section~~ except when: ~~(A) the actuation results from and is part of a pre-planned sequence during testing or reactor operation;~~

~~(B) The actuation is invalid and:~~

~~(1) Occurs while the system is properly removed from service;~~

~~(2) Occurs after the safety function has been already completed; or~~

~~(3) Involves only the following specific ESFs or their equivalent systems: (i) Reactor water clean-up system; (ii) Control room emergency ventilation system; (iii) Reactor building ventilation system; (iv) Fuel building ventilation system; or (v) Auxiliary building ventilation system.~~

**§50.73(a)(2)(iv)(A)**

Licensees shall report "Any event or condition that resulted in a ~~manual or automatic actuation of any engineered safety feature (ESF), including the reactor protection system (RPS) of the systems listed in paragraph (a)(2)(iv)(B) of this section~~ except when:

~~(A) (1) The actuation resulted from and was part of a pre-planned sequence during testing or reactor operation; or~~

~~(B) (2) The actuation was invalid and;~~

~~(1) (i) Occurred while the system was properly removed from service; or~~

~~(2) (ii) Occurred after the safety function had been already completed. or~~

~~(3) Involved only the following specific ESFs or their equivalent systems: (i) Reactor water clean-up system; (ii) Control room emergency ventilation system; (iii) Reactor building ventilation system. (iv) Fuel building ventilation system; or (v) Auxiliary building ventilation.~~

<p><b>§50.72(b)(2)(ii)(iv)(B)</b> (continued)</p>	<p><b>§50.73(a)(2)(iv)(B)</b> (continued)</p>
<p><u>injection system: low pressure injection</u></p> <p><u>function of the residual heat removal system:</u></p> <p><u>and automatic depressurization system.</u></p> <p><u>(4) BWR isolation condenser system and</u></p> <p><u>reactor core isolation cooling system.</u></p> <p><u>(5) PWR auxiliary feedwater system.</u></p> <p><u>(6) Containment systems including:</u></p> <p><u>containment and reactor vessel isolation</u></p> <p><u>systems (general containment isolation</u></p> <p><u>signals affecting numerous valves and main</u></p> <p><u>steam isolation valve [MSIV] closure signals</u></p> <p><u>in BWRs) and containment heat removal and</u></p> <p><u>depressurization systems, including</u></p> <p><u>containment spray and fan cooler systems.</u></p> <p><u>(7) Emergency ac electrical power</u></p> <p><u>systems, including: emergency diesel</u></p> <p><u>generators (EDGs) and their associated</u></p> <p><u>support systems; hydroelectric facilities used</u></p> <p><u>in lieu of EDGs at the Oconee Station; safety</u></p> <p><u>related gas turbine generators; BWR</u></p> <p><u>dedicated Division 3 EDGs and their</u></p> <p><u>associated support systems; and station</u></p>	<p><u>injection system: low pressure injection</u></p> <p><u>function of the residual heat removal system:</u></p> <p><u>and automatic depressurization system.</u></p> <p><u>(4) BWR isolation condenser system and</u></p> <p><u>reactor core isolation cooling system.</u></p> <p><u>(5) PWR auxiliary feedwater system.</u></p> <p><u>(6) Containment systems including:</u></p> <p><u>containment and reactor vessel isolation</u></p> <p><u>systems (general containment isolation</u></p> <p><u>signals affecting numerous valves and main</u></p> <p><u>steam isolation valve [MSIV] closure signals</u></p> <p><u>in BWRs) and containment heat removal and</u></p> <p><u>depressurization systems, including</u></p> <p><u>containment spray and fan cooler systems.</u></p> <p><u>(7) Emergency ac electrical power</u></p> <p><u>systems, including: emergency diesel</u></p> <p><u>generators (EDGs) and their associated</u></p> <p><u>support systems; hydroelectric facilities used</u></p> <p><u>in lieu of EDGs at the Oconee Station; safety</u></p> <p><u>related gas turbine generators; BWR</u></p> <p><u>dedicated Division 3 EDGs and their</u></p> <p><u>associated support systems; and station</u></p>

If not reported under §50.72(a) or (b)(1), licensees are required to report ~~any engineered safety feature actuation~~ of a system listed in the rule, including the reactor protection system, to the NRC via the ENS as soon as practical and in all cases **within 8 hours** of the event. Licensees are required to submit an LER within 60 days.

### Discussion

~~The Statements of Considerations indicate that this~~ These paragraphs require events to be reported whenever an ESF one of the defined systems actuates either manually or automatically, regardless of plant status. It is They are based on the premise that these systems are provided to mitigate the consequences of a significant event and, therefore: (1) they should work properly when called upon, and (2) they should not be challenged frequently or unnecessarily. The Commission is interested both in events where a system was needed to mitigate the consequences of an event (whether or not the equipment performed properly) and events where a system actuated unnecessarily.

~~In discussing the reporting of actuations which are part of preplanned procedures, the Statements of Considerations also state that~~ Actuations that need not be reported are those initiated for reasons other than to mitigate the consequences of an event (e.g., at the discretion of the licensee as part of a preplanned procedure).

This indicates an The intent is to require reporting actuation of systems that mitigate the consequences of significant events. Usually, the staff would not consider this to include single component actuations because single components of complex systems, by themselves, usually do not mitigate the consequences of significant events. However, in some cases a component

would be sufficient to mitigate the event (i.e., perform the safety function) and its actuation would, therefore, be reportable. This position is consistent with the statement that the reporting requirement is based on the premise that these systems are provided to mitigate the consequences of a significant event.

Single trains do mitigate the consequences of events, and, thus, train level actuations are reportable.

In this regard, the staff considers actuation of a diesel-generator to be actuation of a train--not actuation of a single component -- because a diesel generator mitigates the event (performs the safety function for plants at which diesel generators are classified as ESF systems). (See Example 3 below.)

The staff also considers intentional manual actions, in which one or more ESF-components are actuated in response to actual plant conditions resulting from equipment failure or human error, to be reportable because such actions would usually mitigate the consequences of a significant event. This position is consistent with the statement that the Commission is interested in events where a system was needed to mitigate the consequences of the event. For example, starting a safety injection pump in response to a rapidly decreasing pressurizer level or starting HPCI in response to a loss of feedwater would be reportable. However, shifting alignment of makeup pumps or closing a containment isolation valve for normal operational purposes would not be reportable.

~~The Statement of Considerations also indicates that Actuation of multichannel ESF actuation systems is defined as actuation of enough channels to complete the minimum actuation logic.~~

~~Therefore, single channel actuations, whether caused by failures or otherwise, are not reportable if they do not complete the minimum actuation logic. Note, however, that if only a single logic channel actuates when, in fact, the system should have actuated in response to plant parameters, this would be reportable. The event would be reportable under these criteria (ESF actuation) as well as under 10 CFR 50.72(b)(2)(iii) and 10 CFR 50.73(a)(2)(v) (event or condition alone). This position is consistent with the statement that the Commission is interested in events where an ESF was needed to mitigate the consequences, whether or not the equipment performed properly.~~

With regard to preplanned actuations, ~~the Statements of Consideration indicate that operation of~~ a system as part of a planned test or operational evolution need not be reported. Preplanned actuations are those which are expected to actually occur due to preplanned activities covered by procedures. Such actuations are those for which a procedural step or other appropriate documentation indicates the specific ESF actuation that is actually expected to occur. Control room personnel are aware of the specific signal generation before its occurrence or indication in the control room. However, if during the test or evolution, the system actuates in a way that is not part of the planned evolution, that actuation should be reported. For example, if the normal reactor shutdown procedure requires that the control rods be inserted by a manual reactor scram, the reactor scram need not be reported. However, if unanticipated conditions develop during the shutdown that cause an automatic reactor scram, such a reactor scram should be reported. The fact that the safety analysis assumes that a system will actuate automatically during an event does not eliminate the need to report that actuation. Actuations that need not be reported are those initiated for reasons other than to mitigate the consequences of an event (e.g., at the discretion of the licensee as part of a planned evolution).

Note that if an operator were to manually scram the reactor in anticipation of receiving an automatic reactor scram, this would be reportable just as the automatic scram would be reportable.

~~On September 10, 1992, the Commission published final amendments to 10 CFR 50.72 and 50.73 that apply to reporting of ESF actuations. Three categories of invalid ESF actuations are not reportable. These three categories are invalid ESF actuations of (1) systems which had been properly removed from service, or (2) systems for which the safety function which the ESF is intended to accomplish had already been accomplished, and (3) several specific systems listed below.~~

Valid ESF actuations are those actuations that result from "valid signals" or from intentional manual initiation, unless it is part of a preplanned test. Valid signals are those signals that are initiated in response to actual plant conditions or parameters satisfying the requirements for initiation of the safety function of the system. ~~Note this definition of "valid" requires that the initiation signal must be an ESF signal. This distinction eliminates actuations They do not include those which are the result of other signals from the class of valid actuations.~~ Invalid actuations are, by definition, those that do not meet the criteria for being valid. Thus, invalid actuations include actuations that are not the result of valid signals and are not intentional manual actuations.

In general, invalid actuations are not reportable by telephone under §50.72(b)(2)(iv). In addition, invalid actuations that occur when the system is already properly removed from service are not reportable if all requirements of plant procedures for removing equipment from service have been met. This includes required clearance documentation, equipment and

control board tagging, and properly positioned valves and power supply breakers. In addition, invalid actuations that occur after the safety function has already been completed are not reportable. An example would be RPS actuation after the control rods have already been inserted into the core.

~~Finally, invalid actuations for several specific systems or their equivalent are not reportable. These systems are the reactor water clean up system in boiling water reactors (BWRs), the control room emergency ventilation system, the reactor building ventilation system (RBVS), the fuel building ventilation system, and the auxiliary building ventilation system. Thus, reporting of invalid actuations for these specific systems due to signals that originated from non-ESF circuitry are not required.~~

~~Invalid actuations of other ESF systems continue to be reportable. For BWRs, the actuation of the standby gas treatment system following an invalid actuation of the RBVS is also not reportable.~~

If an invalid ESF actuation reveals a defect in the ESF system so the system failed or would fail to perform its intended function, the event continues to be reportable under other requirements of 10 CFR 50.72 and 50.73. When invalid ESF actuations excluded by the conditions described above occur as part of a reportable event, they should be described as part of the reportable event, in order to provide a complete, accurate and thorough description of the event.

~~The reporting criterion "is based on the premise that ESFs are provided to mitigate the~~

consequences of a significant event ..."<sup>26</sup> Systems typically reported under this criterion include the systems listed in Table 2. These are systems required to mitigate significant events and include ECCS, RPS, containment systems and certain auxiliary and support systems required to perform ESF functions. These are systems that are described in the FSAR and are required to satisfy ESF functional requirements. The NRC staff considers these systems to be a reasonable interpretation of what constitutes systems "provided to mitigate the consequences of a significant event."

### Examples

#### (1) RPS Actuation

- The licensee was placing the residual heat removal (RHR) system in its shutdown cooling mode while the plant was in hot shutdown. The BWR vessel level decreased for unknown reasons, causing RPS scram and Group III primary containment isolation signals, as designed. All control rods had been previously inserted and all Group III isolation valves had been manually isolated. The licensee isolated RHR to stop the decrease in reactor vessel level.

This event is reportable ~~within 4 hours under this criterion~~ because, although the systems' safety functions had already been completed, the RPS scram and primary containment isolation signals were valid and the actuations were not part of the planned procedure. The automatic signals were valid because they were generated from the

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<sup>26</sup> 48 FR 33854, July 26, 1983.

sensor by measurement of an actual physical system parameter that was at its set point.  
~~An LER is required.~~

- With the BWR defueled, an invalid signal actuated the RPS. There was no component operation because the control rod drive system had been properly removed from service. This event is not reportable because (1) the RPS signal was invalid, and (2) the system had been properly removed from service.
- ~~An immediate notification (§50.72) was received from a BWR licensee.~~ At a BWR, both recirculation pumps tripped as a result of a breaker problem. This placed the plant in a condition in which BWRs are generally scrammed to avoid potential power/flow oscillations. At this plant, for this condition, a written off-normal procedure required the plant operations staff to scram the reactor. The plant staff performed a reactor scram which was uncomplicated.

This event is reportable as a manual RPS actuation. Even though the reactor scram was in response to an existing written procedure, this event does not involve a preplanned sequence because the loss of recirculation pumps and the resultant off-normal procedure entry were event driven, not preplanned. ~~An LER is required. In this case, the licensee initially retracted the ENS notification believing that the event was not reportable. After staff review and further discussion, it was agreed that the event is reportable for the reasons discussed above.~~

## (2) BWR Control Rod Block Monitor Actuation

A rod block that was part of the planned startup procedure occurred from the rod block monitor, which, at this plant, is classified as a portion of the RPS or as an ESF.

This event is not reportable because it occurred as a part of a preplanned startup procedure that specified certain rod blocks were expected to occur.

### (3) Emergency Diesel Generator (EDG) Starts

- ~~The licensee provided an LER describing an event in which the~~ An EDG automatically started when a technician inadvertently caused a short circuit that de-energized an essential bus during a calibration. An ENS notification and LER are required because the EDG auto-start (~~ESF actuation at this plant~~) was not identified at the step in the calibration procedure being used. The actuation was valid because an essential bus was de-energized.
- ~~The licensee provided an LER describing an event in which,~~ After an automatic EDG start, and for unknown reasons, the emergency bus feeder breaker from the EDG did not close when power was lost on the bus. An ENS notification and LER are required because the actuation logic for the EDG start (~~ESF actuation at this plant~~) was completed, even though the diesel generator did not power the safety buses.

### (4) Preplanned Manual Scram

During a normal reactor shutdown, the reactor shutdown procedure required that reactor power be reduced to a low power at which point the control rods were to be inserted by a

manual reactor scram. The rods were manually scrammed.

This event is not reportable because the manual scram results from and is, by procedure, part of a preplanned sequence of reactor operation. However, if conditions develop during the process of shutting down that require an unplanned reactor scram, the RPS actuation (whether manually or automatically produced) is reportable via ENS notification and LER.

(5) Actuation of Wrong Component During Testing

During surveillance testing of the main steam isolation valves (MSIVs), an operator incorrectly closed MSIV "D" when the procedure specified closing MSIV "C."

This event is not reportable because the event is an inadvertent actuation of a single component of an ESF system rather than a train level actuation (and the purpose of the actuation was not to mitigate the consequences of an event).

~~(6) Control Room Ventilation System (CRVS) Isolation~~

~~— While the CRVS was in service with no testing or maintenance in progress, a voltage transient caused spiking of a radiation monitor resulting in isolation of the CRVS, as designed.~~

~~— This event is not reportable under this criterion because the event is due to an invalid signal and involves one of the four excepted systems (CRVS).~~

~~(7) Reactor Water Cleanup (RWCU) Isolations~~

~~— ● The RWCU isolation valves closed in response to high water temperature, as designed. This is a common operational occurrence not indicative of a significant event; the initiation signal for this isolation is a non-ESF signal. As discussed above, this is an invalid actuation because it originates from a non-ESF signal and the event is not reportable because it is an invalid actuation of one of the four excepted systems.~~

- ~~● An RWCU primary containment isolation (ESF actuation) occurred on pressurization between the RWCU suction containment isolation valves during the restoration of the RWCU system after a maintenance outage. An ENS notification and LER are required because a valid ESF signal initiated the RWCU isolation and the actuation was not part of a planned procedure.~~

#### (6) Manual Actuation of ESF Component in Response to Actual Plant Condition

At a PWR, maintenance personnel inadvertently pulled an instrument line out of a compression fitting connection at a pressure transmitter. The resultant reactor coolant system (RCS) leak was estimated at between 70 and 80 g.p.m. Charging flow increased due to automatic control system action. The operations staff recognized the symptoms of an RCS leak and entered the appropriate off-normal procedure. The procedure directed the operations staff to start a second charging pump and flow was manually increased to raise pressurizer level. Based on the response of the pressurizer level, the operations staff determined that a reactor scram and safety injection were not necessary. Maintenance personnel still at the transmitter closed the instrument block and root valves terminating the event.

The staff considers the manual start of the charging pump (which also serves as an ECCS pump, but with a different valve lineup) in response to dropping pressurizer level to be an intentional manual actuation of an ESF in response to equipment failure or human error and reportable because it constitutes deliberate manual actuation of a single component of an ESF, in response to plant conditions, to mitigate the consequences of an event. ~~As indicated in the Statements of Considerations for the rules~~ [As discussed previously in this](#)

section, actuations that need not be reported are those that are initiated for reasons other than to mitigate the consequences of an event (e.g., at the discretion of the licensee as part of a planned procedure or evolution).

#### (7) ESF-Actuation During Maintenance Activity

At a BWR, a maintenance activity was under way involving placement of a jumper to avoid-ESF unintended actuations. The maintenance staff recognized that there was a high potential for a loss of contact with the jumper and consequent ESF-actuation. This potential was explicitly stated in the maintenance work request and on a risk evaluation sheet. The operating staff was briefed on the potential ESF-actuations prior to start of work. During the event, a loss of continuity did occur and the ESF-actuations occurred, involving isolation, standby gas treatment start, closing of some valves in the primary containment isolation system (recirculation pump seal mini-purge valve, nitrogen supply to drywell valve, and containment atmospheric monitoring valve)-occurred.

~~The staff has concluded that the event would not be reportable if the event were described in appropriate documentation as definitely expected to occur. However, since the event was not listed as definitely expected to occur and was not an intended result of the planned procedure, the event is reportable.~~ The event is not reportable under §50.72(b)(2)(iv) because the actuations were not valid. It is reportable under §50.73(a)(2)(iv) because the actuations were not listed as (and were not) definitely expected to occur.

Table 2. Example Systems

Emergency Core Cooling Systems (ECCS) for Pressurized Water Reactors (PWRs):

- reactor coolant system accumulators
- boron injection system
- high-, intermediate-, and low-head injection systems, including systems for charging using centrifugal charging pumps, safety injection systems, and residual (decay) heat removal systems

ECCS for Boiling Water Reactors (BWRs):

- high- and low-pressure core spray systems
- high-pressure coolant injection system, feedwater coolant injection system, residual heat removal system (low pressure injection portion)
- isolation condenser system, reactor core isolation cooling system
- automatic depressurization system

### Containment Systems

- containment and reactor vessel isolation system
- containment heat removal and depressurization systems, including the containment spray and additive system and the fan-cooler system
- containment air purification and cleanup systems
- containment combustible gas control systems, including hydrogen recombiners, igniters, and containment atmospheric dilution systems
- BWR standby gas treatment systems

### Electrical Systems

- emergency ac electrical power systems, including emergency diesel generators (EDGs) and their associated support systems and BWR dedicated Division 3 EDGs and their associated support systems
- actuation and control systems

### Heating, Ventilating and Air Conditioning (HVAC) Systems for Control Room and Fuel Handling Areas

### Anticipated Transient Without Scram (ATWS) Mitigating Systems

### PWR Auxiliary Feedwater Systems

### 3.2.7 Event or Condition That Could Prevent Fulfillment of a Safety Function

**§50.72(b)(2)(iii-v)**

Licensees shall report: "Any event or condition that ~~alone~~ at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to:

- (A) Shut down the reactor and maintain it in a safe shutdown condition;
- (B) Remove residual heat;
- (C) Control the release of radioactive material; or
- (D) Mitigate the consequences of an accident."

~~10 CFR~~ **§50.72(b)(2)(vi)**

~~[The Statements of Consideration for 10 CFR 50.72 contain wording similar to those of §50.73(a)(2)(vi).]~~

"Events covered in paragraph (b)(2)(v) of this section may include one or more procedural errors, equipment failures, and/or

**§50.73(a)(2)(v)**

Licensees shall report: "Any event or condition occurring within three years of the date of discovery that ~~alone~~ could have prevented the fulfillment of the safety function of structures or systems that are needed to:

- (A) Shut down the reactor and maintain it in a safe shutdown condition;
- (B) Remove residual heat;
- (C) Control the release of radioactive material; or
- (D) Mitigate the consequences of an accident."

**§50.73(a)(2)(vi)**

"Events covered in paragraph (a)(2)(v) of this section may include one or more personnel errors, equipment failures, and/or discovery

If not reported under §50.72(a) or (b)(1), licensees shall notify the NRC via the ENS as soon as practical and in all cases within 8 hours of discovery of the event or condition and submit an LER within 60 days.

### Discussion

The level of judgment for reporting an event or condition under this criterion is a reasonable expectation of preventing fulfillment of a safety function. In the discussions which follow, many of which are taken from ~~the Statement of Considerations or from~~ previous NUREG guidance, several different expressions such as "would have," "could have," "alone could have," and "reasonable doubt" are used to characterize this standard. In the staff's view, all of these should be judged on the basis of a reasonable expectation of preventing fulfillment of the safety function.

~~As indicated in the Statement of Considerations,~~ The intent of these criteria is to capture those events where there would have been a failure of a safety system to properly complete a safety function, regardless of ~~when the failures were discovered or whether the system was needed at the time.~~<sup>27</sup> For example, if the high pressure safety injection system (both trains) failed, the event would be reportable even if there was no demand for the system's safety function.

If the event or condition could prevent fulfillment of the safety function at the time of discovery, it would be reportable under §50.72(b)(2)(v) (ENS notification). If it could have prevented fulfillment of the safety function at any time within three years of the date of discovery, it would

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<sup>27</sup> ~~48 FR 33854, July 28, 1983.~~

be reportable under §50.73(b)(2)(v) (written LER).

These criteria cover an event or condition where structures, components, or trains of a safety system could have failed to perform their intended function because of: one or more personnel errors, including procedure violations; equipment failures; inadequate maintenance; or design, analysis, fabrication, equipment qualification, construction, or procedural deficiencies. The event must be reported regardless of whether or not an alternate safety system could have been used to perform the safety function ~~(e.g., high pressure core cooling failed, but feed-and-bleed or low pressure core cooling were available to provide the safety function of core cooling).~~

For example, if the onsite power system failed the event would be reportable, even if the offsite power system remained available and capable of performing the required safety function.

The definition of the systems included in the scope of these criteria is provided in the rules themselves. It includes systems required by the TS to be operable to perform one of the four functions (A) through (D) specified in the rule. It is not determined by the phrases "safety-related," "important to safety," or "ESF."

In determining the reportability of an event or condition that affects a system, it is not necessary to assume an additional random single failure in that system; however, it is necessary to consider other existing plant conditions. (See Example [4] below).

The term "safety function" refers to any of the four functions (A through D) listed in these reporting criteria that are required during any plant mode or accident situation as described or relied on in the plant safety analysis report or required by the regulations.

A system must operate long enough to complete its intended safety function as defined in the safety analysis report. Reasonable operator actions to correct minor problems may be considered; however, heroic actions and unusually perceptive diagnoses, particularly during stressful situations, should not be assumed. If a potentially serious human error is made that could have prevented fulfillment of a safety function, but recovery factors resulted in the error being corrected, the error is still reportable.

Both offsite electrical power (transmission lines) and onsite emergency power (usually diesel generators) are considered to be separate functions by GDC 17. If either offsite power or onsite emergency power is unavailable to the plant, it is reportable regardless of whether the other system is available. GDC 17 defines the safety function of each system as providing sufficient capacity and capability, etc., assuming that the other system is not available. Loss of offsite power should be determined at the essential switchgear busses.

~~As indicated in the Statement of Considerations: "The Commission recognizes that the application of this and other paragraphs of this section involves~~ The application of these and other reporting criteria involves the use of engineering judgment. In this case, a technical judgment must be made whether a failure or operator action that did actually disable one train of a safety system, could have, but did not, affect a redundant train within the system. If so, this would constitute an event that "could have prevented" the fulfillment of a safety function, and, accordingly, must be reported.

If a component fails by an apparently random mechanism it may or may not be reportable if the functionally redundant component could fail by the same mechanism. Reporting is required if the failure constitutes a condition where there is reasonable doubt that the functionally

redundant train or channel would remain operational until it completed its safety function or is repaired. For example, if a pump in one train of an ESF system fails because of improper lubrication, and engineering judgment indicates that there is a reasonable expectation that the functionally redundant pump in the other train, which was also improperly lubricated, would have also failed before it completed its safety function, then the actual failure is reportable and the potential failure of the functionally redundant pump must be discussed in the LER.

For systems that include three or more trains, the failure of two or more trains should be reported if, in the judgment of the licensee, the functional capability of the overall system was jeopardized.<sup>28</sup>

~~"Finally, the Commission recognizes that~~ The licensee may also use engineering judgment to decide when personnel actions could have prevented fulfillment of a safety function. For example, when an individual improperly operates or maintains a component, he might conceivably have made the same error for all of the functionally redundant components (e.g., if he incorrectly calibrates one bistable amplifier in the Reactor Protection System, he could conceivably incorrectly calibrate all bistable amplifiers). However, for an event to be reportable it is necessary that the actions actually affect or involve components in more than one train or channel of a safety system, and the result of the actions must be undesirable from the perspective of protecting the health and safety of the public. The components can be functionally redundant (e.g., two pumps in different trains) or not functionally redundant (e.g., the operator correctly stops a pump in Train "A" and instead of shutting the pump discharge

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<sup>28</sup> ~~48 FR 33854 and 48 FR 33858, July 26, 1983.~~

valve in Train "A," he mistakenly shuts the pump discharge valve in Train "B").<sup>29</sup>

~~Any time a system did not or could not have performed its safety function because of a single failure, common-mode failure, or combination of independent failures it is reportable under these criteria. These reporting requirements apply to the system level, rather than the train or component level.~~

- ~~Single Failure~~

~~—These reporting criteria are not meant to require reporting of a single, independent (i.e., random) component failure that makes only one functionally redundant train inoperative unless it is indicative of a generic problem (i.e., has common-mode failure implications).~~

As indicated in Paragraph 50.73(a)(2)(vi) "...individual component failures need not be reported pursuant to this paragraph if redundant equipment in the same system was operable and available to perform the required safety function."

The staff considers application of this principle to include cases where one train of a two train system is:

- failed, or;
- otherwise incapable of performing its function because of factors such as operator error or design, analysis, fabrication, construction and/or procedural inadequacies, or;
- in the case of a train which should be running, otherwise not performing its function

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~~—<sup>29</sup> 48 FR 33854 and 48 FR 33858, July 26, 1983.~~

because of factors such as operator error or design, analysis, fabrication, construction and/or procedural inadequacies, or;

- otherwise subject to a reasonable expectation of being prevented from fulfilling its safety function

The staff believes that the conditions necessary to consider the redundant train operable and available, for this purpose, should include the following:

- in cases where the redundant train should operate automatically, it is capable of timely and correct automatic operation, or in cases where the redundant train should be operated manually, the operators would detect<sup>30</sup> the need for its operation and initiate such operation, using established procedures for which they are trained, within the needed time frame, without the need for troubleshooting and repair, and;
- the redundant train is capable of performing its safety function for the duration required, and;
- there is not a reasonable expectation of preventing fulfillment of the safety function by the redundant train.<sup>31</sup>

A single failure that defeats the safety function of a redundant system is reportable even if the

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<sup>30</sup> For example, conditions that would indicate a need for operation of the redundant train are regularly monitored and instrumentation used to monitor these conditions is capable and available.

<sup>31</sup> For example, this means that the exclusion from reporting single component failures under this criterion (i.e., Paragraphs 50.72(b)(2)(vi), and 50.73(a)(2)(vi)) should not apply when there is a reasonable expectation of failure of the redundant train as a result of the same cause. Application of this principle is illustrated in several parts of this section, including: (1) the immediately preceding quotations from 48 FR 33854 and 48 FR 33858; (2) the immediately following discussion of common cause failures, and; (3) the discussions in Examples 12 and 13. As indicated in the first paragraph of this section, the event should be reported under this criterion if there is a reasonable expectation of preventing fulfillment of the safety function.

design of the system, which allows such a single failure to defeat the function of the system, has been found acceptable. For example, if a single RHR suction line valve should fail in such a way that RHR cooling cannot be initiated, the event would be reportable.

~~As discussed in the Statement of Considerations,~~ There are a limited number of single-train systems that perform safety functions (e.g., the High Pressure Coolant Injection System in BWRs). For such systems, loss of the single train would prevent the fulfillment of the safety function of that system and, therefore, is reportable even though the plant technical specifications may allow such a condition to exist for a limited time.<sup>32</sup>

- ~~● Common-Cause Failures~~ The following conditions are Reportable conditions under these criteria include the following:
  - an event or condition that disabled multiple trains of a system because of a single cause
  - an event or condition where one train of a system is disabled; in addition, (1) the underlying cause that disabled one train of a system could have failed a redundant train and (2) there is reasonable expectation that the second train would not complete its safety function if called upon
  - an observed or identified event or condition that alone could have prevented fulfillment of the safety function
  
- ~~● Multiple equipment inoperability or unavailability~~ Whenever an event or condition exists where the system could have been prevented from fulfilling its safety function because of one or more reasons for equipment inoperability or unavailability, it is reportable under

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<sup>32</sup> ~~48 FR 33854, July 26, 1983.~~

these criteria. This would include cases where one train is disabled and a second train fails a surveillance test.

~~Reportability of any of the above type failures (single, common-mode, or multiple) under both 10 CFR 50.72 and 50.73 is independent of power or plant mode. It also is independent of whether:~~

- ~~• the system or structure was demanded at the time of discovery~~
- ~~• the system or structure was required to be operable at the time of discovery~~
- ~~• the cause of a potential failure of the system was corrected before an actual demand for the safety function could occur~~
- ~~• other systems or structures were available that could have or did perform the safety function~~
- ~~• the entire system or structure is specified as ESF or safety related~~
- ~~• the problem occurs in a non-safety portion of a system~~

The following types of events or conditions generally are not reportable under these criteria:

- failures that affect inputs or services to systems that have no safety function (unless it could prevent the performance of a safety function of an adjacent or interfacing system)
- a ~~single~~ defective component that was delivered, but not installed
- removal of a system or part of a system from service as part of a planned evolution for maintenance or surveillance testing when done in accordance with an approved procedure and the plant's TS (unless a condition is discovered that could have prevented the system from performing its function)
- independent failure of a single component (unless it is indicative of a generic problem, which alone could have caused failure of a redundant safety system failure, or it is in a

single-train-system)

- a procedure error that could have resulted in defeating the system function but was discovered before procedure approval ~~and the error could have resulted in defeating the system function~~
- a failure of a system used only to warn the operator where no credit is taken for it in any safety analysis and it does not directly control any of the safety functions in the criteria
- a single stuck control rod that alone would not have prevented the fulfillment of a reactor shutdown
- unrelated component failures in several different safety systems

The applicability of these criteria includes those safety systems designed to mitigate the consequences of an accident (e.g., containment isolation, emergency filtration). Hence, minor operational events involving a specific component such as valve packing leaks, which could be considered a lack of control of radioactive material, should not be reported under ~~this paragraph~~ these criteria. System leaks or other similar events may, however, be reportable under other sections of the rules criteria.<sup>33</sup>

A design or analysis defect or deviation is reportable under this criterion if it could prevent fulfillment of the safety function of structures or systems defined in the rules. Reportability of a design or analysis defect or deviation under this criterion should be judged on the same basis that is used for other conditions, such as operator errors and equipment failures. That is, the condition is reportable if there is a reasonable expectation of preventing fulfillment of the safety function. Alternatively stated, the condition is reportable if there was reasonable doubt that the

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<sup>33</sup> 48 FR 33854, July 26, 1983.

safety function would have been fulfilled if the structure or system had been called upon to perform it.

## Examples

### Single Train Systems

#### (1) Failure of a Single-Train System Preventing Accident Mitigation and Residual Heat Removal

When the licensee was preparing to run a surveillance test, a high-pressure coolant injection (HPCI) flow controller was found inoperable; therefore, the licensee declared the HPCI system inoperable. The plant entered a technical specification requiring that the automatic depressurization, low-pressure coolant injection, core spray, and isolation condenser systems remain operable during the 7-day LCO or the plant had to be shut down.

The licensee made an ENS notification within 28 minutes and a followup call after the amplifier on the HPCI flow transmitter was fixed and the HPCI returned to operability. As discussed above, the loss of a single train safety system such as BWR HPCI is reportable.

#### (2) Failure of a Single-Train Non-Safety System

Question:

If RCIC is not a "safety system" in that no credit for its operation is taken in the safety

analysis, are failures and unavailability of this system reportable?

Answer:

If the plant's safety analysis considered RCIC as a system needed to ~~remove residual heat~~ mitigate a rod ejection accident (e.g., it is included in the Technical Specifications) then its failure is reportable under this criterion; otherwise, it is not reportable under this section of the rule.

### (3) Failure of a Single-Train Environmental System

Question:

There are a number of environmental systems in a plant dealing with such things as low level waste (e.g., gaseous radwaste tanks). Many of these systems are not required to meet the single failure criterion so a single failure results in the loss of function of the system. Are all of these systems covered within the scope of the LER rule?

Answer:

If such systems are required by Technical Specifications to be operational and the system is needed to fulfill one of the safety functions identified in this section of the rule then system level failures are reportable. If the system is not covered by Technical Specifications and is not required to meet the single failure criterion, then failures of the system are not reportable under this criterion.

## Loss of Two Trains

### (4) Loss of Onsite Emergency Power by Multiple Equipment Inoperability and Unavailability

During refueling, one emergency diesel generator (EDG) in a two train system was out of service for maintenance. The second EDG was declared inoperable when it failed its surveillance test.

An ENS notification is required and an LER is required. As addressed in the Discussion section above, loss of either the onsite power system or the offsite power system is reportable under this criterion.

### (5) Procedure Error Prevents Reactor Shutdown Function

The unit was in mode 5 (95°F and 0 psig ; before initial criticality) and a post-modification test was in progress on the train A reactor protection system (RPS), when the operator observed that both train A and B source range detectors were disabled. During post-modification testing on train A RPS, instrumentation personnel placed the train B input error inhibit switch in the inhibit position. With both trains' input error inhibit switches in the inhibit position, source range detector voltage was disabled. The input error inhibit switch was immediately returned to the normal position and a caution was added to appropriate plant instructions.

This event is reportable because disabling the source range detectors could have prevented fulfillment of the safety function to shut down the reactor.

(6) Failure of the Overpressurization Mitigation System

The RCS was overpressurized on two occasions during startup following a refueling outage because the overpressure mitigation system (OMS) failed to operate. The reason that the OMS failed to operate was that one train was out of service for maintenance and a pressure transmitter was isolated and a summator failed in the actuation circuit on the other train.

The event is reportable because the OMS failed to perform its safety function.

(7) Loss of Salt Water Cooling System and Flooding in Saltwater Pump Bay

During maintenance activities on the south saltwater pump, the licensee was removing the pump internals from the casing when flooding of the pump area occurred. The north saltwater pump was secured to prevent pump damage.

The event is reportable because of the failure of the saltwater cooling system, which is the ultimate heat sink for the facility, to perform its safety function.

(8) Maintenance Affecting Two Trains

Question:

Some clarification is needed for events or conditions that ~~alone~~ "could have" prevented the fulfillment of a system safety function.

Answer:

With regard to maintenance problems, "events or conditions" generally involve operator actions and/or component failures that could have prevented the functioning of a safety system. For example, assume that a surveillance test is run on a standby pump and it seizes. The pump is disassembled and found to contain the wrong lubricant. The redundant pump is disassembled and it also has the same wrong lubricant. Thus, it is reasonable to assume that the second pump would have failed if it had been challenged. However, the second pump and, therefore, the system did not actually fail because the second pump was never challenged. Thus, in this case, because of the use of the wrong lubricant, the system "could have" or "would have" failed.

### Loss of One Train

#### (9) Oversized Breaker Wiring Lugs

Situation:

During testing of 480 volt safety-related breakers, one breaker would not trip electrically. Investigation revealed that one wire of the pigtail on the trip coil, although still in its lug, was so loose that there was no electrical connection. The loose connection was due to the fact that the pigtail lug was too large (No. 14-16 AWG), whereas the pigtail wire was No. 20 AWG. A No. 18-22 lug is the acceptable industry standard for a No. 20 AWG wire.

Since the trip coils were supplied pre-wired, all safety-related breakers utilizing the trip coil

were inspected. All other breakers inspected had No. 14-16 AWG lugs. No lugs were found with loose electrical connections. Nevertheless, all No. 14-16 AWG lugs were replaced with acceptable industry Standard No. 18-22 AWG lugs.

Comment:

The event is reportable because the incompatible pigtails and lugs could have caused one or more safety systems to fail to perform their intended function [[50.72\(b\)\(2\)\(v\)](#) and [50.73\(b\)\(2\)\(v\)](#)].

(10) Contaminated Hydraulic Fluid Degrades MSIV Operation

Situation:

During a routine shutdown, the operator noted that the #11 MSIV closing time appeared to be excessive. A subsequent test revealed the #11 MSIV shut within the required time, however, the #12 MSIV closing time exceeded the maximum at 7.4 sec. Contamination of the hydraulic fluid in the valve actuation system had caused the system's check valves to stick and delay the transmission of hydraulic pressure to the actuator. Three more filters will be purchased providing supplemental filtering for each MSIV. Finer filters will be used in pump suction filters to remove the fine contaminants. The #12 MSIV was repaired and returned to service. Since the valves were not required for operation at the time of discovery, the safety of the public was not affected.

Comments:

The event is reportable under 50.73(a)(2)(v) because a ~~single~~ the condition could have prevented fulfillment of a safety function [~~50.73(a)(2)(v)~~]. ~~The fact that the condition was discovered when the valves were not required for operation does not affect the reportability of the condition.~~ The event is not reportable under 50.72(b)(2)(v) because, at the time of discovery, the plant was shutdown and the MSIV's were not required to be operable.

(11) Diesel Generator Lube Oil Fire Hazard

Situation:

While performing a routine surveillance test of the emergency diesel generator, a small fire started due to lubricating oil leakage from the exhaust manifold. The manufacturer reviewed the incident and determined that the oil was accumulating in the exhaust manifold due to leakage originating from above the upper pistons of this vertically opposed piston engine. The oil remaining above the upper pistons after shutdown leaked slowly down past the piston rings, into the combustion space, past the lower piston rings, through the exhaust ports, and into the exhaust manifolds. The exhaust manifolds became pressurized during the subsequent startup which forced the oil out through leaks in the exhaust manifold gaskets where it was ignited.

Similar events occurred previously at this plant. In these previous cases, fuel oil accumulated in the exhaust manifold due to extended operation under "no load" conditions. Operation under loaded conditions was therefore required before shutdown in order to burn off any accumulated oil.

Comments:

The event is not reportable if the fire did not pose a threat to the plant (e.g., it did not significantly hamper site personnel [50.73(a)(2)(ix)].

The event would be reportable if it demonstrates a design, procedural, or equipment deficiency that could have prevented the fulfillment of a safety function (i.e., if the redundant diesels are of similar design and, therefore, susceptible to the same problem) [50.73(a)(2)(vi)].

(12) Single Failures

Question:

~~I notice that loss of relief/safety valve capability is reportable. Does this mean that an LER is required when one valve is inoperative? In addition, Suppose you have one pump in a cooling water system (e.g., chilled water) supplying water to both trains of a safety system, but there is another pump in standby; is the loss of the one operating pump reportable?~~

Answer:

No. Single, independent (i.e., random) component failures are not reportable as LERs if the redundant component in the same system did or would have fulfilled the safety function. However, if such failures have generic implications, then an LER is to be submitted. ~~(See the discussion under the heading "Single Failures" for further discussion of reporting the~~

~~loss of one train.)~~

(13) Generic Setpoint Drift

- Situation:

With the plant in steady state operation at 2170 MWt and while performing a Main Steam Line Pressure Instrument Functional Test and Calibration, a switch was found to actuate at 853 psig. The Tech Specs limit is 825 +15 psig. The redundant switches were operable. The cause of the occurrence was setpoint drift. The switch was recalibrated and tested successfully per HNP-2-5279, Barksdale Pressure Switch Calibration, and returned to service.

This is a repetitive event as reported in one previous LER. A generic review revealed that these type switches are used on other safety systems and that this type switch is subject to drift. An investigation will continue as to why these switches drift, and if necessary, they will be replaced.

Comments:

The event is not reportable due to the drift of a single pressure switch.

The event is reportable if it is indicative of a generic and/or repetitive problem with this type of switch which is used in several safety systems [50.73(a)(2)(vi) or (vii)].

- Question:

Are setpoint drift problems with a particular switch to be reported if they are experienced more than once?

Answer:

The independent failure (e.g., excessive setpoint drift) of a single pressure switch is not reportable unless it alone could have caused a system to fail to fulfill its safety function, or is indicative of a generic problem that could have resulted in the failure of more than one switch and thereby cause one or more systems to fail to fulfill their safety function.

(14) Maintenance Affecting Only One Train

Question:

Suppose the wrong lubricant was installed in one pump, but the pump in the other train was correctly lubricated. Is this reportable?

Answer:

Engineering judgement is required to decide if the lubricant could have been used on the other pump, and, therefore, the system function would have been lost. If the procedure called for testing of the first pump before maintenance was performed on the second pump and testing clearly identified the error, then the error would not be reportable. However, if

the procedure called for the wrong lubricant and eventually both pumps would have been improperly lubricated, and the problem was only discovered when the first pump was actually challenged and failed, then the error would be reportable.

### Other Conditions

#### (15) Conditions Observed While System Out of Service

Question:

Suppose during shutdown we are doing maintenance on both SI pumps, which are not required to be operational. Is this reportable? While shutdown, suppose I identify or observe something that would cause the SI pumps not to be operational at power. Is this reportable?

Answer:

Removing both SI pumps from service to do maintenance is not reportable if the resulting system configuration is not prohibited by the plant's technical specifications. However, if a situation is discovered during maintenance that could have caused both pumps to fail, (e.g., they are both improperly lubricated) then that condition is reportable even though the pumps were not required to be operational at the time that the condition was discovered. As another example, suppose the scram breakers were tested during shutdown conditions, and it was found that for more than one breaker, opening times were in excess of those specified, or that UV trip attachments were inoperative. Such potential generic problems

are reportable in an LER.

(16) Diesel Generator Bearing Problems

During the annual inspection of one standby diesel generator, the lower crankshaft thrust bearing and adjacent main bearing were found wiped on the journal surface. The thrust bearing was also found to have a small crack from the main oil supply line across the journal surface to the thrust surface. Inspection of the second, redundant standby diesel generator annual inspection revealed similar problems. It was judged that extended operation without corrective action could have resulted in bearing failure.

The event is reportable because there was reasonable doubt that the diesels would have completed an extended run under load, as required, if called upon.

(17) Multiple Control Rod Failures *[moved from Section 2.7 and modified as indicated]*

There have been cases in which licensees have erroneously concluded that ~~not reported~~ ~~multiple,~~ sequentially discovered failures of systems or components occurring during planned testing are not reportable. This situation was identified as a generic concern on April 13, 1985, in NRC Information Notice (IN) 85-27, "Notifications to the NRC Operations Center and Reporting Events in Licensee Event Reports," regarding the reportability of multiple events in accordance with §§50.72(b)(2)(iii~~v~~) and 50.73(a)(2)(v) (event or condition that ~~alone~~ could prevent fulfillment of a safety function). (This reporting criterion is discussed in Section 3.3.3 of this report.)

IN 85-27 described multiple failures of a reactor protection system during control rod insertion testing of a reactor at power. One of the control rods stuck. Subsequent testing identified 3 additional rods that would not insert (scram) into the core and 11 control rods that had an initial hesitation before insertion. The licensee considered each failure as a single random failure; thus each was determined not to be reportable. Subsequent assessments indicated that the instrument air system, which was to be oil-free, was contaminated with oil that was causing the scram solenoid valves to fail. While the failure of a single rod to insert may not cause a reasonable doubt ~~that~~ about the ability of other rods ~~would fail to insert~~, the failure of more than one rod does cause a reasonable doubt ~~that other rods could be affected, thus affecting the safety function of the rods.~~

As indicated in IN 85-27, multiple failures of redundant components of a safety system are sufficient reason to expect that the failure mechanism, even though not known, could prevent the fulfillment of the safety function.

(17) Potential Loss of High Pressure Coolant Injection

During normal refueling leak testing of the upstream containment isolation check valve on the High Pressure Coolant Injection (HPCI) steam exhaust, the disc of the non-containment isolation check valve was found lodged in downstream piping. This might have prevented HPCI from functioning if the disc had blocked the line. The event was caused by fatigue failure of a disc pin.

Following evaluation of the condition, the event was determined to be reportable because the HPCI could have been prevented from performing its safety function if the disc had

blocked the line. In addition, the event is reportable if the fatigue failure is indicative of a common-mode failure.

~~(18) Defective Component Delivered but not Installed~~

~~Question:~~

~~How should a plant report a defective component that was delivered, but not installed?~~

~~Answer:~~

~~A single defective component would not generally be reportable (assuming that the problem has no generic implications). A generic problem or a number of defective components would probably constitute a condition that could have prevented fulfillment of a safety function, and, if so, would be reportable. Engineering judgment is required to determine if the defects could have escaped detection prior to installation and operation. As a minimum, any generic problem may be reported as a voluntary LER. In addition, such a condition may be reportable under 10 CFR Part 21.~~

(18) Operator Inaction or Wrong Action

Question: In some systems used to control the release of radioactivity, a detector controls certain equipment. In other systems, a monitor is present and the operator is required to initiate action under certain conditions. The operator is not "wired" in. Are failures of the operator to act reportable?

Answer: Yes. The operator may be viewed as a "component" that is an integral, and frequently essential, part of a "system." Thus, if an event or condition meets the reporting criterion specified in 50.73 for reporting, it is to be reported regardless of the initiating cause. (i.e., whether an equipment, procedure, or personnel error is involved).

(19) Results of Analysis

Question: A number of criteria indicate that they apply to actual situations only and not to potential situations identified as a result of analysis; yet, other criteria address "could have." When do the results of analysis have to be reported?

Answer: The results need only to be reported if the applicable criterion requires the reporting of conditions that "could have" caused a problem. However, others have a need to know about potential problems that are not reportable; thus, such items may be reported as a voluntary LER.

(20) System Interactions

Question: Utilities are not required to analyze for system interactions, yet the rule requires the reporting of events that "could have" happened but did not. Are we to initiate a design activity to determine "could have" system interactions?

Answer: No. Report system interactions that you find as a result of ongoing routine activities (e.g., the analysis of operating events).

### 3.2.8 Common-cause Failures of Independent Trains or Channels

10 CFR 50.72	§50.73(a)(2)(vii)
[No corresponding Part 50.72 requirement.]	<p>Licensees shall report: "Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to:</p> <ul style="list-style-type: none"> <li>(A) Shut down the reactor and maintain it in a safe shutdown condition;</li> <li>(B) Remove residual heat;</li> <li>(C) Control the release of radioactive material; or</li> <li>(D) Mitigate the consequences of an accident." </li></ul>

Licensees are required to report a common-cause failure as an LER within ~~30~~60 days.

#### Discussion

This criterion requires those events to be reported where a single cause or condition caused independent trains or channels to become inoperable. Common-causes may include such factors as high ambient temperatures, heatup from energization, inadequate preventive maintenance, oil contamination of air systems, incorrect lubrication, use of non-qualified components or manufacturing or design flaws. The event is reportable if the independent trains or channels were inoperable at the same time, regardless of whether or not they were

discovered at the same time. (Example (2) below illustrates a case where the second failure was discovered 3 days later than the first.)

An event or failure that results in or involves the failure of independent portions of more than one train or channel in the same or different systems is reportable. For example, if a cause or condition caused components in Train "A" and "B" of a single system to become inoperable, even if additional trains (e.g., Train "C") were still available, the event must be reported. In addition, if the cause or condition caused components in Train "A" of one system and in Train "B" of another system (i.e., train that is assumed in the safety analysis to be independent) to become inoperable, the event must be reported. However, if a cause or condition caused components in Train "A" of one system and Train "A" of another system (i.e., trains that are not assumed in the safety analysis to be independent), the event need not be reported unless it meets one or more of the other reporting criteria.

Trains or channels for reportability purposes are defined as those redundant, independent trains or channels designed to provide protection against single failures. Many engineered safety systems containing active components are designed with at least a two-train system. Each independent train in a two-train system can normally satisfy all the safety system requirements to safely shut down the plant or satisfy those criteria that have to be met following an accident.

This criterion does not include those cases where one train of a system or a component was removed from service as part of a planned evolution, in accordance with an approved procedure, and in accordance with the plant's technical specifications. For example, if the licensee removes part of a system from service to perform maintenance, and the Technical

Specifications permit the resulting configuration, and the system or component is returned to service within the time limit specified in the Technical Specifications, the action need not be reported under this paragraph. However, if, while the train or component is out of service, the licensee identifies a condition that could have prevented the whole system from performing its intended function (e.g., the licensee finds a set of relays that is wired incorrectly), that condition must be reported.

Analysis of events reported under this part of the rule may identify previously unrecognized common-cause (or dependent) failures and system interactions. Such failures can be simultaneous failures that occur because of a single initiating cause (i.e., the single cause or mechanism serves as a common input to the failures); or the failures can be sequential (i.e., cascading failures), such as the case where a single component failure results in the failure of one or more additional components.

### Examples

#### (1) Incorrect Lubrication Degrades Main Steam Isolation Valve Operation

During monthly operability tests, the licensee found that the Unit 2B inboard MSIV did not stroke properly as a result of a solenoid-operated valve (SOV) failure. Both units were shut down from 100-percent power, and the SOVs piloting all 16 MSIVs were inspected. The licensee found that the SOVs on all 16 MSIVs were damaged. The three-way and four-way valves and solenoid pilot valves on all 16 MSIVs had a hardened, sticky substance in their ports and on their O-rings. As a result, motion of all the SOVs was impaired, resulting in instrument air leakage and the inability to operate all of the MSIVs satisfactorily. The

licensee also examined unused spares in the warehouse and found that the lubricant had dried out in those valves, leaving a residue. Several of the warehouse spares were bench tested. They were found to be degraded and also leaked. The root cause of the event was use of an incorrect lubricant.

The event is reportable (a) because a single cause or condition caused multiple independent trains of the main steam isolation system (a system designed to control the release of radioactive material and mitigate the consequences of an accident) to become inoperable [§50.73(a)(2)(vii)(C and D)] and (b) because a single condition could have prevented fulfillment of a safety function [§50.73(a)(2)(v)].

(2) Marine Growth Causing Emergency Service Water To Become Inoperable (Common-Mode Failure Mechanism)

With Unit 1 at 74 percent power and Unit 2 at 100 percent power, ESW pump 1A was declared inoperable because its flow rate was too low to meet acceptance criteria. Three days later, with both units at the same conditions, ESW pump 1C was declared inoperable for the same reason. The ESW pumps provide the source of water from the intake canal during a design-basis accident. In both cases, the cause was marine growth of hydroids and barnacles on the impeller and suction of the pumps. Following maintenance, both pumps passed their performance tests and were placed in service. Pump testing frequency was increased to more closely monitor pump performance.

This event is reportable because a single cause or condition caused two independent trains to become inoperable in a single system designed to mitigate the consequences of an

accident [§50.73(a)(2)(vii)(D)].

### (3) Testing Indicated Several Inoperable Snubbers

The licensee found 11 inoperable snubbers during periodic testing. All the snubbers failed to lock up in tension and/or compression. These failures did not render their respective systems inoperable, but rendered trains inoperable. Improper lockup settings and/or excessive seal bypass caused these snubbers to malfunction. These snubbers were designed for low probability seismic events. Numerous previous similar events have been reported by this licensee.

This condition is reportable because the condition indicated a generic common-mode problem that caused numerous multiple independent trains in one or more safety systems to become inoperable. The potential existed for numerous snubbers in several systems to fail following a seismic event rendering several trains inoperable. [§ 50.73(a)(2)(vii)]

### (4) Stuck High-Pressure Injection (HPI) System Check Valves as a Result of Corroded Flappers

The licensee reported that check valves in three of four HPI lines were stuck closed. The unit had been shut down for refueling and maintenance.

A special test of the check valves revealed that three 2½-inch stop check valves remained closed when 130 pounds per square inch (psi) of differential pressure was applied to the valve. An additional test revealed that the valve failed to open when 400 psi of differential

pressure (the capacity of the pump) was applied to the valve. Further review showed that the common cause of valve failure was the flappers corroding shut.

The event is reportable because a single cause or condition caused at least two independent trains of the HPI system to become inoperable. This system is designed to remove residual heat and mitigate the consequences of an accident. The condition is therefore reportable under 50.73(a)(2)(vii)(B and D), common cause failure in systems designed to remove residual heat and mitigate accidents.

### 3.2.9 Airborne or Liquid Effluent Release

**§50.72(b)(2)(iv-viii)**

Licensees shall report:

"(A) Any airborne radioactive release that, when averaged over a time period of 1 hour, results in concentrations in an unrestricted area that exceed 20 times the applicable concentration specified in Appendix B to Part 20, Table 2, Column 1.

(B) Any liquid effluent release that, when averaged over a time period of 1 hour, exceeds 20 times the applicable concentration specified in Appendix B to Part 20, Table 2, Column 2, at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases. ~~Immediate notifications made under this paragraph also satisfy the requirements of §20.2202 of this chapter.~~"

**§50.73(a)(2)(viii)**

Licensees shall report:

"(A) Any airborne radioactivity release that, when averaged over a time period of 1 hour, resulted in airborne radionuclide concentrations in an unrestricted area that exceeded 20 times the applicable concentration limits specified in Appendix B to Part 20, Table 2, Column 1.

(B) Any liquid effluent release that, when averaged over a time period of 1 hour, exceeds 20 times the applicable concentrations specified in Appendix B to Part 20, Table 2, Column 2, at the point of entry into the receiving waters (i.e., unrestricted area) for all radionuclides except tritium and dissolved noble gases.

~~—————~~ **§50.73(a)(2)(ix)**

~~Reports submitted to the Commission in accordance with paragraph (a)(2)(viii) of this section also meet the effluent release~~



If not reported under §50.72(a) or (b)(1), licensees are required to report such airborne or liquid effluent releases as defined in the regulations above to the NRC via the ENS as soon as practical and in all cases within 4-8 hours of the event. Licensees are required to submit an LER within 30-60 days.

### Discussion

Although similar to 10 CFR 20.2202 and 20.2203, these criteria place a lower threshold for reporting events at commercial power reactors because the significance of the breakdown of the licensee's program that allowed such a release is the primary concern, rather than the significance of the effect of the actual release. In contrast, however, the time limit for reporting under 10 CFR 20.2202 and 20.2203 is more restrictive.

For a release that takes less than 1 hour, normalize the release to 1 hour (e.g., if the release lasted 15 minutes, divide by 4). For releases that lasted more than 1 hour, use the highest release for any continuous 60-minute period (i.e., comparable to a moving average).

Annual average meteorological data should be used for determining offsite airborne concentrations of radioactivity to maintain consistency with the technical specifications (TS) for reportability thresholds.

The location used as the point of release for calculation purposes should be determined using the expanded definition of an unrestricted area as specified in NUREG-0133 ("Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants," October 1978) to maintain consistency with the TS.

If estimates determine that the release has exceeded the reporting criterion, an ENS notification is required, followed up by a more precise estimate in the LER. If it is later determined that the release was less than this criterion, the ENS notification may be retracted.

As indicated in Generic Letter 85-19, September 27, 1985, "Reporting Requirements on Primary Coolant Iodine Spikes," primary coolant iodine spike releases need not be reported on a short term basis.

### Examples

#### (1) Unmonitored Release of Contaminated Steam Through Auxiliary Boiler Atmospheric Vent

An unmonitored release of contaminated steam resulted from a combination of a tube leak, improper venting of an auxiliary boiler system, and inadequate procedures. This combination resulted in a release path from a liquid waste concentrator to the atmosphere via the auxiliary boiler system steam drum vent.

Because of rain at the site, the steam release to the atmosphere was condensed and deposited onto plant buildings and yard areas. This contamination was washed via a storm drain into a lake. The release was later confirmed to be  $2.6 \text{ E-5 } \mu\text{Ci/ml}$  of Cs-137 at the point of entry into the receiving water.

An ENS notification is required as a liquid radioactive material release because the unmonitored release exceeded 20 times the applicable concentrations specified in Table 2, Column 2 of Appendix B to 10 CFR Part 20, averaged over 1 hour at the site boundary. An LER is required.

## (2) Unplanned Gaseous Release

During routine scheduled maintenance on a pressure actuated valve in the gaseous waste system, an unplanned radioactive release to the environment was detected by a main stack high radiation alarm. The release occurred when an isolation valve, required to be closed on the station tagout sheet, was inadvertently left open. This allowed radioactive gas from the waste gas decay tank to escape through a pressure gage connection that had been opened to vent the system. Operator error was the root cause of this release, with ambiguous valve tag numbers as a contributing factor. The concentration in the unrestricted area, averaged over 1 hour, was estimated by the licensee to be  $1 \text{ E-5 } \mu\text{Ci/ml}$  of Kr-85 and  $5 \text{ E-6 } \mu\text{Ci/ml}$  of Xe-133.

The event was reportable via ENS and LER because the sum of the ratios of the concentration of each airborne radionuclide in the restricted area when averaged over a period of 1 hour, to its respective concentration specified in Table 2, Column 1 of Appendix B to 10 CFR 20, exceeds 20.

### 3.2.10 Internal Threat to Plant Safety

<b>§50.72(b)(2)(ix)</b>	<b>§50.73(a)(2)(ix)</b>
<p>Licensees shall report: "Any event that poses an actual threat to the safety of the nuclear power plant or significantly hampers site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases."</p>	<p>Licensees shall report: "Any event that posed an actual threat to the safety of the nuclear power plant or significantly hampered site personnel in the performance of duties necessary for the safe operation of the nuclear power plant including fires, toxic gas releases, or radioactive releases."</p>

If not reported as an emergency under §50.72(a), licensees are required to report such an event or condition to the NRC via the ENS as soon as practical and in all cases within **8 hours**. Licensees are required to submit an LER within ~~30~~**60** days.

#### Discussion

These criteria pertain to internal threats. The criteria for external threats, §50.72(b)(2)(iii) and §50.73(a)(2)(iii), are described in Section 3.2.5.

This provision requires reporting events, particularly those caused by acts of personnel, which endanger the safety of the plant or interfere with personnel in the performance of duties necessary for safe plant operations.

The licensee must exercise some judgment in reporting under this rule. For example, a small

fire on site that did not endanger any plant equipment and did not and could not reasonably be expected to endanger the plant is not reportable.

The phrase "significantly hampers site personnel" applies narrowly, i.e. only to those events which significantly hamper the ability of site personnel to perform safety-related activities affecting plant safety.

In addition, the staff considers the following standards appropriate in this regard:

- The significant hampering criterion is pertinent to "the performance of duties necessary for safe operation of the nuclear power plant." One way to evaluate this is to ask if one could seal the room in question (or disable the function in question) for a substantial period of time and still operate the plant safely. For example, if a switchgear room is unavailable for a time, but it is normally not necessary to enter the room for safe operation, and no need to enter the room arises while it is unavailable, the event is not reportable under this criterion.
- Significant hampering includes hindering or interfering (such as with protective clothing or radiation work permits) provided that the interference or delay is sufficient to significantly threaten the safe operation of the plant.
- Actions such as room evacuations that are precautionary would not constitute significant hampering if the necessary actions can still be performed in a timely manner.

Plant mode may be considered in determining if there is an actual internal threat to a plant.

However, licensees should not incorrectly assume that everything that happens while a plant is

shut down is unimportant and not reportable.

In-plant releases must be reported if they require evacuation of rooms or buildings and, as a result, the ability of the operators to perform necessary duties is significantly hampered.

Events such as minor spills, small gaseous waste releases, or the disturbance of contaminated particulate matter (e.g., dust) that require temporary evacuation of an individual room until the airborne concentrations decrease or until respiratory protection devices are used, are not reportable unless the ability of site personnel to perform necessary safety functions is significantly hampered.

No LER is required for precautionary evacuations of rooms and buildings that subsequent evaluation determines were not required. Even if an evacuation affects a major part of the facility, the test for reportability is whether an actual threat to plant safety occurred or whether site personnel were significantly hampered in carrying out their safety responsibilities.

In most cases, fires result in ENS notification because there is a declaration of an emergency class, which is reportable under §50.72(a)(1)(ii) as discussed in Section 3.1.1 of this report.<sup>34</sup> If there is an actual threat or significant hampering, an LER is also required. With regard to control room fires, the staff generally considers a control room fire to constitute an actual threat

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<sup>34</sup> As indicated in NUREG-0654, Rev. 1, Information Notice 88-64 and Regulatory Guide 1.101, Rev. 3 (which endorses NUMARC/NESP-007, Rev. 2), a fire that lasts longer than 10 or 15 minutes or which affects plant equipment important for safe operation would result in declaration of an emergency class.

and significant hampering.<sup>35</sup>

### Examples

#### (1) Fires

- Question:

If we have a fire in the refueling bridge and we are not moving fuel, would the fire be reportable?

Answer:

No. If the plant is not moving fuel and the fire does not otherwise threaten other safety equipment and does not hamper site personnel, the fire is not reportable. If the plant is moving fuel, the fire is reportable.

- Question:

If we have a fire in the reactor building that forces contractor personnel who are doing a safety related modification to leave, but the fire did not hamper operations personnel or equipment, would that fire be reportable?

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<sup>35</sup> It is theoretically possible to have a control room fire which is discovered and extinguished quickly and, even in this location, does not significantly hamper the operators and does not threaten plant safety. Examples could include small paper fires in ash trays or trash cans, or cigarette burns of furniture or upholstery.

Answer:

No. The fire would not be reportable if the fire was not severe enough that it posed an actual threat to the plant and the delay in completing the modification did not significantly threaten the safe operation of the plant.

### 3.2.11 Contaminated Person Requiring Transport Offsite

<b>§50.72(b)(2)(x)</b>	<b>10 CFR 50.73</b>
Licensees shall report: "Any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment."	[No corresponding Part 50.73 requirement.]

If not reported under §50.72(a) or (b)(1), licensees are required to notify the NRC via the ENS of any such transport as soon as practical and in all cases within ~~4~~8 hours of the event necessitating the offsite transport.

#### Discussion

The phrase "radioactively contaminated" refers to either radioactively contaminated clothing and/or person. If there is a potential for contamination (e.g., an initial onsite survey for radioactive contamination is required but has not been completed before transport of the

person off site for medical treatment) the licensee should make an ENS notification. See the example.

No LER is required for transporting a radioactively contaminated person to an offsite medical facility for treatment.

### Example

#### (1) Radioactively Contaminated Person Transported Offsite for Medical Treatment

A contract worker experienced a back injury lifting a tool while working in the reactor containment and was considered potentially contaminated because his back could not be surveyed. Health physics (HP) technicians accompanied the worker to the hospital. The licensee made an ENS notification immediately and an update notification after clothing, but not the individual, was found to be contaminated. The HP technicians returned to the plant with the contaminated protective clothing worn by the worker.

If not reported under §50.72(a)(1) as a declared Unusual Event per the licensee's emergency plan, an ENS notification is required because of the transport of a radioactively contaminated person to an offsite medical facility for treatment.

#### 3.2.12 News Release or Other Government Notifications

<b>§50.72(b)(2)(xi)</b>	<b>10 CFR 50.73</b>
Licensees shall report: "Any event or situation, related to the health and safety of the public or on-site personnel, or protection of the environment, for which a news release is planned or notification to other government agencies has been or will be made. Such an event may include an on-site fatality or inadvertent release of radioactively contaminated materials."	[No corresponding Part 50.73 requirement.]

If not reported under §50.72(a) or (b)(1), licensees are required to notify the NRC via the ENS as soon as practical and in all cases within 4-8 hours of the event, or the decision to prepare a news release, or the decision to notify (or actual notification of) other government agencies.

#### Discussion

The purpose of this criterion is to ensure the NRC is made aware of issues that will cause heightened public or government concern related to the radiological health and safety of the public or on-site personnel or protection of the environment.

Licensees typically issue press releases or notify local, county, State or Federal agencies on a wide range of topics that are of interest to the general public. The NRC Operations Center does not need to be made aware of every press release made by a licensee. The following clarifications are intended to set a reporting threshold that ensures necessary reporting, while

minimizing unnecessary reporting.

Examples of events likely to be reportable under this criterion include

- release of radioactively contaminated tools or equipment to public areas
- unusual or abnormal releases of radioactive effluents
- onsite fatality

Licensees generally do not have to report media and government interactions unless they are related to the radiological health and safety of the public or onsite personnel, or protection of the environment. For example, the NRC does not generally need to be informed under this criterion of:

- minor deviations from sewage or chlorine effluent limits
- minor non-radioactive, onsite chemical spills
- minor oil spills
- problems with plant stack or water tower aviation lighting
- peaceful demonstrations
- routine reports of effluent releases to other agencies
- releases of water from dams associated with the plant

### Press Release

The NRC has an obligation to inform the public about issues within the NRC's purview that affect or raise a concern about the public health and safety. Thus, the NRC needs accurate,

detailed information in a timely manner regarding such situations. The NRC should be aware of information that is available for the press or other government agencies.

However, the NRC need not be notified of every press release a licensee issues. The field of NRC interest is narrowed by the phrase "related to the health and safety of the public or onsite personnel, or protection of the environment," in order to exclude administrative matters or those events of no safety significance.

Routine radiation releases are not specifically reportable under this criterion. However, if a release receives media attention, the release is reportable under this criterion.

If possible, licensees should make an ENS notification before issuing a press release because news media representatives will usually contact the NRC public affairs officer shortly after its issuance for verification, explanation, or interpretation of the facts.

#### Other Government Notifications

For reporting purposes, "other government agencies" refers to local, State or other Federal agencies.

Notifying another Federal agency does not relieve the licensee of the requirement to report to the NRC.

For those plants which provide a State incident response facility with alarm indication coincident with control room alarms, e.g., an effluent radiation monitor alarm, but the actual radiation

release is less than the criteria in §50.72(b)(2)(viii), the NRC does not consider these alarm indications as a notification to the State by the licensee. An alarm received at a State facility is in itself not a requirement for notifying the NRC. In so far as this reporting criterion is concerned, the licensee need only notify the NRC when the licensee determines that a reportable release has occurred, or believes a real potential exists for interest on the part of the State, the media, or the public, or a press release is being planned.

### Examples

#### (1) Onsite Drowning Government Notifications and Press Release

A boy fell into the discharge canal while fishing and failed to resurface. The licensee notified the local sheriff, State Police, U.S. Coast Guard and State emergency agencies. Local news agencies were granted onsite access for coverage of the event. The licensee notified the NRC resident inspector.

As ENS notification is needed because of the fatality on-site, the other government notifications made, and media involvement.

#### (2) Licensee Media Inquiries Regarding NRC Findings

As a result of a local newspaper article regarding the findings of an NRC regional inspection of the 10 CFR Part 50, Appendix R, Fire Protection Program, a licensee representative was interviewed on local television and radio stations. The licensee notified State officials and the NRC resident inspector.

The staff does not consider an ENS notification to be needed because the subject of the radio and TV interviews was an NRC inspection.

### (3) County Government Notification

The licensee informed county governments and other organizations of a spurious actuation of several emergency response sirens in a county (for about 5 minutes according to county residents). The licensee also planned to issue a press release.

An ENS notification is needed because county agencies were notified regarding the inadvertent actuation of part of the public notification system. Such an event also would be reportable if the county informs the licensee of the problem because of the concern of the public for their radiological health and safety.

### (4) State Notification of Unscheduled Radiation Release

The licensee reported to the State that they were going to release about 50 curies of gaseous radioactivity to the atmosphere while filling and venting the pressurizer. The licensee then revised their estimate of the release to 153 curies. However, since the licensee had not informed the State within 24 hours of making the release, they had to reclassify the release as "unscheduled" per their agreement with the State. The licensee notified the State and the NRC resident inspector.

An ENS notification is needed because of the State notification of an "unscheduled" release of gaseous radioactivity. The initial notification to the State of the scheduled release does

not need an ENS notification because it is considered as a routine notification.

#### (5) State Notification of Improper Dumping of Radioactive Waste

The licensee transported two secondary side filters to the city dump as nonradioactive waste but later determined they were radioactive. The dump site was closed and the filters retrieved. The licensee notified the appropriate State agency and the NRC resident inspector.

An ENS notification is needed because of the notification to the State agency of the inadvertent release of radioactively contaminated material off site, which affects the radiological health and safety of the public and environment.

#### (6) Reports Regarding Endangered Species

The licensee notified the U.S. Fish & Wildlife Service and a State agency that an endangered species of sea turtle was found in their circulating water structure trash bar. No press release was issued.

An ENS notification is required because of the notification of state and federal agencies regarding the taking of an endangered species. (The NRC has statutory responsibilities regarding protection of endangered species.)

#### (7) Routine Agency Notifications

A licensee notified the U.S. Environmental Protection Agency (EPA) that the circulation water temperature rise exceeded the release permit allowable. This event was caused by the unexpected loss of a circulating water pump while operating at 92-percent power. The licensee reduced power to 73 percent so that the circulating water temperature would decrease to within the allowable limits until the pump could be repaired.

A licensee notified the Federal Aviation Agency that it removed part of its auxiliary boiler stack aviation lighting from service to replace a faulty relay.

A licensee notified the State, EPA, U.S. Coast Guard and Department of Transportation that 5 gallons of diesel fuel oil had spilled onto gravel-covered ground inside the protected area. The spill was cleaned up by removing the gravel and dirt.

The staff does not consider an ENS notification to be needed because these events are routine and have little significance.

### 3.2.13 Loss of Emergency Preparedness Capabilities

<b>§50.72(b)(2)(xii)</b>	<b>10 CFR 50.73</b>
Licensees shall report: "Any event that results in a major loss of emergency assessment capability, offsite response capability, or <b>offsite</b> communications capability (e.g., significant portion of control room indication, Emergency Notification System, or offsite notification system)."	[No corresponding Part 50.73 requirement.]

If not reported as an emergency under 50.72(a), licensees are required to notify the NRC of a major loss of their emergency assessment, offsite response, or communications capability as soon as practical and in all cases within **8 hours**.

#### Discussion

This reporting requirement pertains to events that would impair a licensee's ability to deal with an accident or emergency. Notifying the NRC of these events may permit the NRC to take some compensating measures and to more completely assess the consequences of such a loss should it occur during an accident or emergency.

Examples of events that this criterion is intended to cover are those in which any of the following is not available:

- Safety parameter display system (SPDS)

- Emergency response facilities (ERFs)
- Emergency communications facilities and equipment including the emergency notification system (ENS)
- Public prompt notification system including sirens
- Plant monitors necessary for accident assessment

These and other situations should be evaluated for reportability as discussed below.

#### Loss of Emergency Assessment Capability

A major loss of emergency assessment capability would include those events that significantly impair the licensee's safety assessment capability. Some engineering judgment is needed to determine the significance of the loss of particular equipment, e.g., loss of only the SPDS for a

short period of time need not be reported, but loss of SPDS and other assessment equipment at the same time may be reportable.

The staff considers the loss of a significant portion of control room indication including annunciators or monitors, or the loss of all plant vent stack radiation monitors, as examples of a major loss of emergency assessment capability which should be evaluated for reportability.

#### Loss of Offsite Response Capability

A major loss of offsite response capability includes those events that would significantly impair the fulfillment of the licensee's approved emergency plan for other than a short time. Loss of offsite response capability may typically include the loss of plant access, emergency offsite response facilities<sup>36</sup>, or public prompt notification system, including sirens and other alerting systems.

If a significant natural hazard (e.g., earthquake, hurricane, tornado, flood, etc.) or other event causes evacuation routes to be impassible or other parts of the response infrastructure to be impaired to the extent that the State and local governments are rendered incapable of fulfilling their responsibilities in the emergency plan for the plant, then the NRC must be notified. This does not apply in the case of routine traffic impediments such as fog, snow and ice which do not render the state and local governments incapable of fulfilling their responsibilities. It is intended to apply to more significant cases such as the conditions around the Turkey Point plant after Hurricane Andrew struck in 1992 or the conditions around the Cooper station during

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<sup>36</sup> Performing preventive maintenance on an offsite emergency response facility is not reportable if the facility can be returned to service promptly in the event of an accident.

the Midwest floods of 1993.

If the alert systems, e.g., sirens, are owned and/or maintained by others, the licensee should take reasonable measures to remain informed and must notify the NRC if a large number of sirens fail. Although the loss of a single siren for a short time is not a major loss of offsite response capability, the loss of a large number of sirens, other alerting systems (e.g., tone alert radios), or more importantly, the lost capability to alert a large segment of the population for 1 hour would warrant an immediate notification.

#### Loss of Communications Capability

A major loss of communications capability may include the loss of ENS and/or other offsite communication systems. The other offsite communication systems may include a dedicated telephone communication link to a State or a local government agency and emergency offsite response facilities, in-plant paging and radio systems required for safe plant operation, or commercial telephone lines.

Should either or both of the emergency communications subsystems (ENS and HPN) fail, the NRC Operations Center should be so informed over normal commercial telephone lines. When notifying the NRC Operations Center, licensees should use the backup commercial telephone numbers provided. This satisfies the guidance provided in previous Information Notices 85-44 "Emergency Communication System Monthly Test," dated May 30, 1985 and 86-97 "Emergency Communications System," dated November 28, 1986, to test the backup means of communication when the primary system is unavailable as well as the reporting requirements of §50.72(b)(2)(xii). If the Operations Center notifies the licensee that an ENS line is inoperable,

there is no need for a subsequent licensee notification. Loss of either ENS or HPN does not generate an event report. The Operations Center contacts the appropriate repair organization.

In a similar manner, if the NRC supplied telephone line or modem used for the emergency response data system is inoperable, the NRC operations center should be informed so that repairs can be ordered. However, this does not generate an event report.

### Examples

#### (1) Plant Access Roads Closed by Storm

The local sheriff notified the licensee that all roads to and from the plant were closed because of a snow storm. The licensee had two full-shift crews on site to support plant operations and no emergency declaration was made. The licensee notified State and local authorities of the situation and made an ENS notification. The licensee deactivated its station isolation procedures after the storm passed and the roads were passable.

An ENS notification was made because the licensee determined that the road closing constituted a major loss of emergency offsite response capability. No LER is required.

#### (2) Loss of Public Prompt Notification System

ENS notifications of the loss of the emergency sirens or tone alert radios vary according to the licensee's locale and interpretations of "major loss" and have included:

- 12 of 40 county alert sirens disabled because of loss of power as a result of severe weather.
  
- 28 of 54 alert sirens were reported out of service as a result of a local ice storm.
  
- All offsite emergency sirens were:
  - found inoperable during a monthly test.
  - taken out of service for repair.
  - inoperable because control panel power was lost.
  - inoperable because the county radio transmitter failed.

An ENS notification is required because of the major loss of offsite response capability, i.e., the public prompt notification system. However, licensees may use engineering judgment in determining reportability (i.e., a "major loss") based upon such factors as the percent of the population not covered by emergency sirens and the existence of procedures or practices to compensate for the lost emergency sirens. An LER is not required because there are no corresponding 10 CFR 50.73 requirements.

### (3) Loss of ENS and Commercial Telephone System

The licensee determined that ENS and commercial telecommunications capability was lost to the control room when a fiber optic cable was severed during maintenance. A communications link was established and maintained between the site and the load dispatcher via microwave transmission. Both the ENS and commercial communications

capability were restored approximately 90 minutes later.

An ENS notification is required because of the major loss of communications capability.

Although the microwave link to the site was established and maintained during the telephone outage, this in itself does not fully compensate for the loss of communication that would be required in the event of an emergency at the plant. No LER is required because there are no corresponding 10 CFR 50.73 requirements.

#### (4) Loss of Direct Communication Line to Police

The licensee contacted the State Police via commercial telephone lines and reported to the NRC Operations Center that the direct telephone line to the State Police was inoperable for over 1 hour. The licensee notified the NRC Operations Center in a followup ENS call that the line was restored to operability.

An ENS notification would be required if the loss of the direct telephone line(s) to various police, local, or State emergency or regulatory agencies is not compensated for by other readily available offsite communications systems. In this example, no ENS notification is required since commercial telephone lines to the State Police were available. No LER is required because there are no corresponding 10 CFR 50.73 requirements.

### 3.3 Followup Notification

This section addresses §50.72(c), "Followup Notification." These notifications are in addition to making the required initial telephone notifications under §50.72(a) or (b). Reporting under this paragraph is intended to provide the NRC with timely notification when an event becomes more serious or additional information or new analysis clarify an event. The paragraph also authorizes the NRC to maintain a continuous communications channel for acquiring necessary followup information.

<b>§50.72(c)</b>	<b>10 CFR 50.73</b>
<p>"<i>Followup Notification</i>. With respect to the telephone notifications made under paragraphs (a) and (b) of this section, in addition to making the required initial notification, each licensee shall, during the course of the event:</p> <p>(1) <i>Immediately report</i></p> <p style="padding-left: 40px;">(i) any further degradation in the level of safety of the plant or other worsening plant conditions, including those that require the declaration of any of the Emergency Classes, if such a declaration has not been previously made, or</p> <p style="padding-left: 40px;">(ii) any change from one Emergency Class to another, or</p> <p style="padding-left: 40px;">(iii) a termination of the Emergency Class.</p> <p>(2) <i>Immediately report</i></p> <p style="padding-left: 40px;">(i) the results of ensuing evaluations or assessments of plant conditions,</p> <p style="padding-left: 40px;">(ii) the effectiveness of response or protective measures taken, and</p> <p style="padding-left: 40px;">(iii) information related to plant behavior that is not understood.</p> <p>(3) Maintain an open, continuous communication</p>	<p>[No corresponding Part 50.73 requirement.]</p>

## Discussion

These criteria are intended to provide the NRC with timely notification when an event becomes more serious or additional information or new analyses clarify an event. They also permit the NRC to maintain a continuous communications channel because of the need for continuing followup information or because of telecommunications problems.

With regard to the open, continuous communications channel, licensees have a responsibility to provide enough on-shift personnel, knowledgeable about plant operations and emergency plan implementation, to enable timely, accurate, and reliable reporting of operating events without interfering with plant operation as discussed in the Statement of Considerations for the rule and Information Notice 85-80, "Timely Declaration of an Emergency Class, Implementation of an Emergency Plan, and Emergency Notifications."

## 4 EMERGENCY NOTIFICATION SYSTEM REPORTING

This section describes the ENS referenced in 10 CFR 50.72 and provides general and specific guidelines for ENS reporting.

### 4.1 Emergency Notification System

The NRC Operations Center is the nucleus of the ENS and has the capability to handle emergency communication needs. The NRC's response to both emergencies and non-emergencies is coordinated in this communication center. The key NRC emergency communications personnel, the emergency officer (EO), regional duty officer (RDO), and the headquarters operations officer (HOO), are trained to notify appropriate NRC personnel and to focus appropriate NRC management attention on any significant event.

#### (1) ENS Telephones

Each commercial nuclear power reactor facility has ENS telephones. These telephones are located in each licensee's control room, technical support center (TSC), and emergency operations facility (EOF). A separate ENS line is installed at EOF's which are not onsite.

The ENS is part of the Federal Telecommunications System (FTS). This FTS ENS replaces the dedicated ENS ringdown telephones used previously to provide a reliable communications pathway for event reporting.

#### (2) Health Physics Network Telephones

The health physics network (HPN) is designed to provide health physics and environmental information to the NRC Operations Center in the event of an ongoing emergency.

These telephones are installed in each licensee's TSC and EOF and, like the ENS, they are now part of the FTS.

#### (3) Tape Recording

The NRC tape-records all conversations with the NRC Operations Center. The tape is saved for a month in case there is a public or private inquiry.

#### (4) Facsimile Transmission (Fax)

Licensees occasionally fax an event notification into the NRC Operations Center on a commercial telephone line in conjunction with making an ENS notification. However, §50.72 requires that licensees notify the NRC Operations Center via the ENS; therefore, licensees also must make an ENS notification.

### 4.2 General ENS Notification

#### 4.2.1 Timeliness

The required timing for ENS reporting is spelled out in §§50.72(a)(3), (b)(1), (b)(2), (c)(1), (c)(2), as "immediate" and "as soon as practical and in all cases within one (or ~~four~~ **eight**) hour(s)" of the occurrence of an event (depending on its significance). The intent is to require licensees to make and act on reportability decisions in a timely manner so that ENS notifications are made to the NRC as soon as practical, keeping in mind the safety of the plant. See Section 2.11 for further discussion of reporting timeliness.

#### 4.2.2 Voluntary Notifications

Licensees may make voluntary or courtesy ENS notifications about events or conditions in which the NRC may be interested. The NRC responds to any voluntary notification of an event or condition as its safety significance warrants, regardless of the licensee's classification of the reporting requirement. If it is determined later that the event is reportable, the licensee can change the ENS notification to a required notification under the appropriate 10 CFR 50.72 reporting criterion.

#### 4.2.3 ENS Notification Retraction

If a licensee makes a 10 CFR 50.72 ENS notification and later determines that the event or condition was not reportable, the licensee should call the NRC Operations Center on the ENS telephone to retract the notification and explain the rationale for that decision. There is no set time limit for ENS telephone retractions. However, since most retractions occur following completion of engineering and/or management review, it is expected that retractions would

occur shortly after such review. See section 2.10 for further discussion of retractions.

#### 4.2.4 ENS Event Notification Worksheet (NRC Form 361)

The ENS Event Notification Worksheet (NRC Form 361) is an attachment to Information Notice 89-89, dated December 26, 1989, subject: Event Notification Worksheets. The worksheet provides the usual order of questions and discussion for easier communication and its use often enables a licensee to prepare answers for a more clear and complete notification. A clear ENS notification helps the HOO to understand the safety significance of the event. Licensees may obtain an event number and notification time from the HOO when the ENS notification is made. If an LER is required, the licensee may include this information in the LER to provide a cross reference to the ENS notification, making the event easier to trace.

Licensees should use proper names for systems and components, as well as their alphanumeric identifications during ENS notifications. Licensees should avoid using local jargon for plant components, areas, operations, and the like so that the HOO can quickly understand the situation and have fewer questions. In addition, others not familiar with the plant can more readily understand the situation.

### 4.3 Typical ENS Reporting Issues

At the time of an ENS notification, the NRC must independently assess the status of the reactor to determine if it is in a safe condition and expected to remain so. The HOO needs to understand the safety significance of each event to brief NRC management or initiate an NRC response. The HOO will be primarily concerned about the safety significance of the event, the current condition of the plant, and the possible near-term effects the event could have on plant safety. The HOO will attempt to obtain as complete a description as is available at the time of the notification of the event or condition, its causes, and its effects. Depending upon the licensee's description of the event, the HOO may be concerned about other related issues. The questions that the licensees typically may be asked to discuss do not represent a requirement for reporting. These questions are of a nature to allow the HOO information to more fully understand the event and its safety significance and are not meant in any way to distract the licensee from more important issues.

The licensee's first responsibility during a transient is to stabilize the plant and keep it safe. However, licensees should not delay declaring an emergency class when conditions warrant because delaying the declaration can defeat the appropriate response to an emergency. Because of the safety significance of a declared emergency, time is of the essence. The NRC needs to become aware of the situation as soon as practical to activate the NRC Operations Center and the appropriate NRC regional incident response center, as necessary, and to notify other Federal agencies.

The effectiveness of the NRC response during an event depends largely on complete and accurate reporting from the licensee. During an emergency, the appropriate regional incident

response center and the NRC Operations Center become focal points for NRC action. Licensee actions during an emergency are monitored by the NRC to ensure that appropriate action is being taken to protect the health and safety of the public. When required, the NRC supports the licensee with technical analysis and coordinates logistics support. The NRC keeps other Federal agencies informed of the status of an incident and provides information to the media. In addition, the NRC assesses and, if necessary, confirms the appropriateness of actions recommended by the licensee to local and State authorities.

Information Notice 85-80, "Timely Declaration of an Emergency Class, Implementation of an Emergency Plan, and Emergency Notification," dated October 15, 1985, indicates that it is the licensee's responsibility to ensure that adequate personnel, knowledge about plant conditions and emergency plan implementing procedures, are available on shift to assist the shift supervisor to classify an emergency and activate the emergency plan, including making appropriate notifications, without interfering with plant operation. When 10 CFR 50.72 was published, the NRC made clear its intent in the Statements of Consideration that notifications on the ENS to the NRC Operations Center should be made by those knowledgeable of the event. If the description of any emergency is to be sufficiently accurate and timely to meet the intent of the NRC's regulations, the personnel responsible for notification must be properly trained and sufficiently knowledgeable of the event to report it correctly. The NRC did not intend that notifications made pursuant to 10 CFR 50.72 would be made by those who did not understand the event that they are reporting.

ENS reportability evaluations should be concluded and the ENS notification made as soon as practical and in all cases within 1 hour or ~~4~~8 hours to meet 10 CFR 50.72. The Statement of Considerations noted that the 1-hour deadline is necessary if the NRC is to fulfill its responsibilities during and following the most serious events occurring at operating nuclear power plants without interfering with the operator's ability to deal with an accident or transient in the first few critical minutes (48 FR 39041, August 29, 1983).

## 5 LICENSEE EVENT REPORTS

This section discusses the guidelines for preparing and submitting LERs. Section 5.1 addresses administrative requirements and provides guidelines for submittal; Section 5.2 addresses the requirements and guidelines for the LER content. Portions of the rule are quoted, followed by explanation, if necessary. A copy of the required LER form (NRC Form 366), LER Text Continuation form (NRC Form 366A), and LER Failure Continuation form (NRC Form 366B), are shown at the end of this section. The use of LER information and the review programs associated with LERs are explained in Appendix C.

### 5.1 LER Reporting Guidelines

This section addresses administrative requirements and provides guidelines for submittal. Topics addressed include submission of reports, forwarding letters, cancellation of LERs, report legibility, reporting exemptions, reports other than LERs that use LER forms, supplemental information, revised reports, and general instructions for completing LER forms.

#### 5.1.1 Submission of LERs

### **§50.73(d)**

"Licensee Event Reports must be prepared on Form NRC 366 and submitted within ~~30~~60 days of discovery of a reportable event or situation to the U.S. Nuclear Regulatory Commission, as specified in §50.4."

An LER is to be submitted (mailed) within ~~30~~60 days of the discovery date. If a ~~30~~60-day period ends on a Saturday, Sunday, or holiday, reports submitted on the first working day following the end of the ~~30~~60 days are acceptable. If a licensee knows that a report will be late or needs an additional day or so to complete the report, the situation should be discussed with the appropriate NRC regional office. See Section 2.11 for further discussion of discovery date.

#### 5.1.2 LER Forwarding Letter and Cancellations

The cover letter forwarding an LER to the NRC should be signed by a responsible official. There is no prescribed format for the letter. The date the letter is issued and the report date should be the same. Licensees are encouraged to include the NRC resident inspector and the Institute of Nuclear Power Operations (INPO) in their distribution. Multiple LERs can be forwarded by one forwarding letter.

Cancellations of LERs submitted should be made by letter. The bases for the cancellation should be explained so that the staff can understand and review the reasons supporting the determination. The notice of cancellation will be filed and stored with the LER and acknowledgement made in various automated data systems.

### 5.1.3 Report Legibility

**§50.73(e)**

"The reports and copies that licensees are required to submit to the Commission under the provisions of this section must be of sufficient quality to permit legible reproduction and micrographic processing."

No further explanation is necessary.

### 5.1.4 Voluntary LERs

Indicate information-type LERS (i.e., voluntary LERs) by checking the "Other" block in Item 11 of the LER form and type "Voluntary Report" in the space immediately below the block. Also give a sequential LER number to the voluntary report as noted in Section 5.2.4(5). Because not all requirements of §50.73(b), "Contents," may pertain to some voluntary reports, licensees should develop the content of such reports to best present the information associated with the situation being reported.

See Section 2.9 for additional discussion of voluntary LERs.

### 5.1.5 Supplemental Information and Revised LERs

#### **§50.73(c)**

"The Commission may require the licensee to submit specific additional information beyond that required by paragraph (b) of this section if the Commission finds that supplemental material is necessary for complete understanding of any unusually complex or significant event. These requests for supplemental information will be made in writing and the licensee shall submit, as specified in §50.4, the requested information as a supplement to the initial LER."

This provision authorizes the NRC staff to require the licensee to submit specific supplemental information.

If an LER is incomplete at the time of original submittal or if it contains significant incorrect information of a technical nature, the licensee should use a revised report to provide the additional information or to correct technical errors discovered in the LER. Identify the revision to the original LER in the LER number as described in Section 5.2.4(5).

The revision should be complete and should not contain only supplementary or revised information to the previous LER because the revised LER will replace the previous report in the computer file. In addition, indicate in the text on the LER form the revised or supplementary information by placing a vertical line in the margin.

If an LER mentions that an engineering study was being conducted, report the results of the study in a revised LER only if it would significantly change the reader's perception of the course, significance, implications, or consequences of the event or if it results in substantial changes in the corrective action planned by the licensee.

Use revisions only to provide additional or corrected information about a reported event. Do not use a revision to report subsequent failures of the same or like component, except as permitted in 10 CFR 50.73. Some licensees have incorrectly used revisions to report new events that were discovered months after the original event because they were loosely related to the original event. These revisions had different event dates and discussed new, although similar, events. Report events of this type as new LERs and not as revisions to previous LERs.

#### 5.1.6 Special Reports

There are a number of requirements in various sections of the technical specifications that require reporting of operating experience that is not covered by 10 CFR 50.73. If LER forms are used to submit special reports, check the "Other" block in item 11 of the form and type "Special Report" in the space immediately below the block. The provisions of §50.73(b) may not be applicable or appropriate in a special report. Develop the content of the report to best present the information associated with the situation being reported. In addition, if the LER form is used to submit a special report, use a report number from the sequence used for LERs.

If an event is reportable both under 10 CFR 50.73 and as a special report, check the block in Item 11 for the applicable section of 50.73 as well as the "Other" block for a special report. The content of the report should depend on the reportable situation.

### 5.1.7 Appendix J Reports (Containment Leak Rate Test Reports)

A licensee must perform containment integrated and local leak rate testing and report the results as required by Appendix J to 10 CFR Part 50. When the leak rate test identifies a 10 CFR 50.73 reportable situation (see Section 3.2.4 or 3.3.1 of this report), submit an LER and include the results in an Appendix J report by reference, if desired. The LER should address only the reportable situation, not the entire leak rate test.

### 5.1.8 10 CFR Part 21 Reports

10 CFR Part 21, "Reporting of Defects and Noncompliance," as amended during 1991, encourages licensees of operating nuclear power plants to reduce duplicate evaluation and reporting effort by evaluating deviations in basic components under the 10 CFR 50.72, 50.73, and 73.71 reporting criteria. As indicated in 10 CFR 21.2(c) "For persons licensed to operate a nuclear power plant under Part 50 of this chapter, evaluation of potential defects and appropriate reporting of defects under §§ 50.72, 50.73. or § 73.71 of this chapter satisfies each person's evaluation, notification, and reporting obligation to report defects under this part ...." As discussed in the Statement of Considerations for 10 CFR 21<sup>37</sup>, the only case where a defect in a basic component of an operating reactor might be reportable under Part 21, but not under §§ 50.72, 50.73, or 73.71 would involve Part(s) on the shelf. This type of defect, if it does not represent a condition reportable under §§ 50.72 or 50.73, might still represent a condition reportable under 10 CFR Part 21.

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<sup>37</sup> 56 FR 36081, July 31, 1991.

For an LER, if the defect meets one of the criteria of 10 CFR 50.73, check the applicable paragraph in Item 11 of NRC Form 366 (LER Form). Licensees are also encouraged to check the "Other" block and indicate "Part 21" in the space immediately below if the defect in a basic component could create a substantial safety hazard. The wording in Item 16 ("Abstract") and Item 17 ("Text") should state that the report constitutes a Part 21 notification. If the defect is applicable to other facilities at a multi-unit site, a single LER may be used by indicating the other involved facilities in Item 8 on the LER Form.

#### 5.1.9 Section 73.71 Reports

Submit events or conditions that are reportable under 10 CFR 73.71 using the LER forms with the appropriate blocks in Item 11 checked. If the report contains safeguards information as defined in 10 CFR 73.21, the LER forms may still be used, but should be appropriately marked in accordance with 10 CFR 73.21. Include safeguards and security information only in the narrative and not in the abstract. In addition, the text should clearly indicate the information that is safeguards or security information. Finally, the requirements of §73.21(g) must be met when transmitting safeguards information. For additional guidelines on 10 CFR 73.71 reporting, see Regulatory Guide 5.62, Revision 1, "Reporting of Safeguards Events," November 1987; NUREG-1304, "Reporting of Safeguards Events," February 1988; and Generic Letter 91-03, "Reporting of Safeguards Events," March 6, 1991.

If the LER contains proprietary information, mark it appropriately in Item 17 (text) on of the LER form. Include proprietary information only in the narrative and not in the abstract. In addition, indicate clearly in the narrative the information that is proprietary. Finally, the requirements of §2.790(b) must be met when transmitting proprietary information.

#### 5.1.10 Availability of LER Forms

The NRC will provide LER forms (i.e., NRC Forms 366, 366A, and 366B) free of charge.

Copies may be obtained by writing to the NRC Information and Records Management Branch, Office of the Chief Information Officer, US Nuclear Regulatory Commission, Washington, DC 20555. Electronic versions are also available. Licensees are encouraged to use these forms to assist the NRC's processing of the reports.

#### 5.2 LER Content Requirements and Preparation Guidance

Licensees are required to prepare an LER for those events or conditions that meet one or more of the criteria contained in §50.73(a). Paragraph 50.73(b), "Contents," specifies the information that an LER should contain with further explanation when appropriate.

In 1986, the NRC decided to use an optical character reader (OCR) to read LER abstracts into NRC LER data bases (IE Information Notice No. 86-08, "Licensee Event Report (LER) Format Modification," February 3, 1986). At that time, licensees were asked to help reduce the number of errors incurred by the OCR as a result of incompatible print styles by using OCR-compatible typography for preparing LERs. Therefore, certain limitations have been placed on the use of type styles and symbols for the abstract and text of the LERs. These limitations are listed below. (See the Information Notice for details.)

It is suggested that output be on typewriter or formed character (letter-quality or near letter-quality) printer (e.g., daisy wheel, laser, ink-jet).

It is suggested that output have an uneven right margin (i.e., we suggest that you not right justify output).

It is suggested that text of the abstract be kept at least ½-inch inside the border on all sides of the area designated for the abstract on the LER form. Text running into the border can interfere with scanning the document.

It is suggested that you do not use underscore, do not use bold print, do not use Italic print style, do not end any lines with a hyphen and do not use paragraph indents. Instead, print copy single space with a blank line between paragraphs.

Limitations on the use of symbols in the textual areas:

- Spell out the word "degree."
- Use  $\leq$  for "less than or equal to."
- Use  $\geq$  for "greater than or equal to."
- Use  $\pm$  for "plus or minus."
- Spell out all Greek letters.

Do not use exponents. A number should either be expressed as a decimal, spelled out, or preferably designated in terms of "E" (E field format). For example,  $4.2 \times 10^{-6}$  could be

expressed as 4.2E-6, 0.0000042, or  $4.2 \times 10^{-6}$ ).

Define all abbreviations and acronyms in both the text and the abstract and explain all component designators the first time they are used (e.g., the emergency service water pump 1-SW-P-1A).

#### 5.2.1 Narrative Description or Text (NRC Form 366A, Item 17)

##### (1) General

#### **§50.73(b)(2)(i)**

The LER shall contain: "A clear, specific, narrative description of what occurred so that knowledgeable readers conversant with the design of commercial nuclear power plants, but not familiar with the details of a particular plant, can understand the complete event."

There is no prescribed format for the LER text; write the narrative in a format that most clearly describes the event. After the narrative is written, however, review the appropriate sections of §50.73(b) to make sure that applicable subjects have been adequately addressed. It is helpful to use headings to improve readability. For example, some LERs employ major headings such as event description, safety consequences, corrective actions, and previous similar events and subheadings such as initial conditions, dates and times, event classification, systems status, event or condition causes, failure modes, method of discovery, component information, immediate corrective actions, and actions to prevent recurrence.

Explain exactly what happened during the entire event or condition, including how systems, components, and operating personnel performed. Do not cover specific hardware problems in excessive detail. Describe unique characteristics of a plant as well as other characteristics that influenced the event (favorably or unfavorably). Avoid using plant-unique terms and abbreviations, or, as a minimum, clearly define them. The audience for LERs is large and does not necessarily know the details of each plant.

Include the root causes, the plant status before the event, and the sequence of occurrences. Describe the event from the perspective of the operator (i.e., what the operator saw, did, perceived, understood, or misunderstood). Specific information that should be included, as appropriate, is described in paragraphs 50.73(b)(2)(ii), (b)(3), (b)(4), and (b)(5) of the rule and separately in the following sections.

If several systems actuate during an event, describe all aspects of the complete event, including all actuations sequentially, and those aspects that by themselves would not be reportable. For example, if a single component failure (generally not reportable) occurs following a reactor scram (reportable), describe the component failure in the narrative of the LER for the reactor scram. It is necessary to discuss the performance and status of equipment important for defining and understanding what happened and for determining the potential implications of the event.

Paraphrase pertinent sections of the latest submitted safety analysis report (SAR) rather than referencing them because not all organizations or individuals have access to SARs. Extensive cross-referencing would be excessively time consuming considering the large number of LERs and large number of reviewers that read each LER. Ensure that each applicable component's

safety-significant effect on the event or condition is clearly and completely described.

Do not use statements such as "this event is not significant with respect to the health and safety of the public" without explaining the basis for the conclusion.

**§50.73(b)(2)(ii)(A)**

The narrative description must include: "Plant operating conditions before the event."

Describe the plant operating conditions such as power level or, if not at power, describe mode, temperature, and pressure that existed before the event.

**§50.73(b)(2)(ii)(B)**

The narrative description must include: "Status of structures, components, or systems that were inoperable at the start of the event and that contributed to the event."

If there were no structures, systems, or components that were inoperable at the start of the event and contributed to the event, so state. Otherwise, identify SSCs that were inoperable and contributed to the initiation or limited the mitigation of the event. This should include alternative mitigating SSCs that are a part of normal or emergency operating procedures that were or could have been used to mitigate, reduce the consequences of, or limit the safety implications of the event. Include the impact of support systems on mitigating systems that could have been

used.

**§50.73(b)(2)(ii)(C)**

The narrative description must include: "Dates and approximate times of occurrences."

For a transient or ESF actuation event, the event date and time are the date and time the event actually occurred. If the event is a discovered condition for which the occurrence date is not known, the event date should be specified as the discovery date. However, a discussion of the best estimate of the event date and its basis should be provided in the narrative. For example, if a design deficiency was identified on March 27, 1997 that involved a component installed during refueling in the spring of 1986, and only the discovery date is known with certainty, the event date should be specified as the discovery date. A discussion should be provided that describes, based on the best information available, the most likely time that the design flaw was introduced into the component (e.g., by manufacturer or by plant engineering prior to procurement). The length of time that the component was in service should also be provided (i.e., when it was installed).

Discuss both the discovery date and the event date if they differ. If an LER is not submitted within ~~30~~ 60 days from the event date, explain the relationship between the event date, discovery date, and report date in the narrative. See Section 2.11 for further discussion of discovery date.

Give dates and approximate times for all major occurrences discussed in the LER (e.g., discoveries; immediate corrective actions; systems, components, or trains declared inoperable or operable; reactor trip; actuation and termination of equipment operation; and stable conditions achieved). In particular, for standby pumps and emergency generators, indicate the length of time of operation and any intermittent periods of shutdown or inoperability during the event. Include an estimate of the time and date of failure of systems, components, or trains if different from the time and date of discovery. A chronology may be used to clarify the timing of personnel and equipment actions.

For equipment that was inoperable at the start of the event, provide an estimate of the time the equipment became inoperable and the last time the equipment was known to be operable. Indicate the basis for this conclusion (e.g., a test was successfully run or the equipment was operating). For equipment that failed, provide the failure time and the last time the equipment was known to be operable. Also provide the basis for the last time known operable.

Components such as valves and snubbers may be tested over a period of several weeks. During this period, a number of inoperable similar components may be discovered.<sup>38</sup> In such cases, similar failures that are reportable and that are discovered during a single test program within the ~~30~~-60 days of discovery of the first failure may be reported as one LER. For similar failures that are reportable under Section 50.73 criteria and that are discovered during a single test program or activity, report all failures that occurred within the first ~~30~~-60 days of discovery of the first failure on one LER. However, the ~~30~~-60-day clock starts when the first reportable event is discovered. State in the LER text (and code the information in Items 14 and 15) that a supplement to the LER will be submitted when the test is completed. Submit a revision to the original LER when the test is completed. Include all the failures, including those reported in the original LER, in the revised LER (i.e., the revised LER should stand alone).

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<sup>38</sup> Note that inoperable similar components might indicate common cause failures of independent trains or channels, which are reportable under §50.73(a)(2)(vii); see Section 3.3.4 for further discussion.

(3) Failures and Errors

**§50.73(b)(2)(ii)(D)**

The narrative description must include: "The cause of each component or system failure or personnel error, if known."

Include the root cause(s) identified for each component or system failure (or fault) or personnel error. Contributing factors may be discussed as appropriate. For example, a valve stem breaking could have been caused by a limit switch that had been improperly adjusted during maintenance; in this case, the root cause might be determined to be personnel error and additional discussion could focus on the limit switch adjustment. If the personnel error is determined to have been caused by deficient procedures or inadequate personnel training, this should be explained.

If the cause of a failure cannot be readily determined and the investigation is continuing, the LER should indicate what additional investigation is planned. A supplemental LER should be submitted following the additional investigation if substantial information is identified that would significantly change a reader's perception of the course or consequences of the event, or if there are substantial changes in the corrective actions planned by the licensee.

**§50.73(b)(2)(ii)(E)**

The narrative description must include: "The failure mode, mechanism, and effect of each failed component, if known."

Include the failure mode, mechanism (immediate cause), and effect of each failed component in the narrative. The effect of the failure on safety systems and functions should be fully described. Identify the specific piece part that failed and the specific trains and systems rendered inoperable or degraded. Identify all dependent systems rendered inoperable or degraded. Indicate whether redundant trains were operable and available.

If the equipment is degraded, but not failed, describe the degradation and its effects and indicate why the equipment would still perform its intended function.

**§50.73(b)(2)(ii)(F)**

The narrative description must include: "The Energy Industry Identification System component function identifier and system name of each component or system referred to in the LER.

(1) The Energy Industry Identification System is defined in: IEEE Std 803-1983 (May 16, 1983) Recommended Practice for Unique Identification in Power Plants and Related Facilities--Principles and Definitions.

(2) IEEE Std 803-1983 has been approved for incorporation by reference by the Director of the Federal Register.

A notice of any changes made to the material incorporated by reference will be published in the *Federal Register*. Copies may be obtained from the Institute of Electrical and Electronics Engineers, 345 East 47th Street, New York, NY 10017. IEEE Std 803-1983 is available for inspection at the NRC's Technical Library, which is located in the Phillips

~~Building, 7920 Norfolk Avenue, Bethesda,~~ **Two White Flint North building, 11545 Rockville Pike, Rockville,** Maryland; and at the Office of the Federal Register, 1100 L Street, NW, Washington, DC."

~~Note: The NRC library is now located in the Two White Flint North building, 11545 Rockville Pike, Rockville, Maryland.~~

The system name may be either the full name (e.g., reactor coolant system) or the two-letter system code (such as AB for the reactor coolant system). However, when the name is long (e.g., low-pressure coolant injection system), the system code (e.g., BO) should be used. If the full names are used, The Energy Industry Identification System (EIIS) component function identifier and/or system identifier (i.e., the two letter code) should be included in parentheses following the first reference to a component or system in the narrative. The component function identifiers and system identifiers need not be repeated with each subsequent reference to the same component or system.

If a component within the scope of the Equipment Performance and Information Exchange (EPIX) System is involved, the system and train designation should be consistent with the EIIS used in EPIX.

**§50.73(b)(2)(ii)(G)**

The narrative description must include the following specific information as appropriate for the particular event: "For failures of components with multiple functions, include a list of systems or secondary functions that were also affected."

No further explanation is necessary.

**§50.73(b)(2)(ii)(H)**

The narrative description must include: "For failure that rendered a train of a safety system inoperable, an estimate of the elapsed time from the discovery of the failure until the train was returned to service."

No further explanation is necessary.

**§50.73(b)(2)(ii)(I)**

The narrative description must include: "The method of discovery of each component or system failure or procedural error."

Explain how each component failure, system failure, personnel error, or procedural deficiency was discovered. Examples include reviewing surveillance procedures or results of surveillance tests, pre-startup valve lineup check, performing quarterly maintenance, plant walkdown, etc.

**§50.73(b)(2)(ii)(J)**

The narrative description must include the following specific information as appropriate for the particular event:

~~"(1) Operator actions that affected the course of the event, including operator errors, procedural deficiencies, or both, that contributed to the event.~~

~~—(2) For each personnel error~~ human performance related problem that contributed to the event. the licensee shall discuss:

~~—(i) Whether the error was a cognitive error (e.g., failure to recognize the actual plant condition, failure to realize which systems should be functioning, failure to recognize the true nature of the event) or a procedural error;~~

~~—(ii) Whether the error was contrary to an approved procedure, was a direct result of an error in an approved procedure, or was associated with an activity or task that was not covered by an approved procedure;~~

~~—(iii) Any unusual characteristics of the work location (e.g., heat, noise) that directly contributed to the error; and~~

~~—(iv) The type of personnel involved (i.e., contractor personnel, utility-licensed operator, utility non-licensed operator, other utility personnel)."~~ the cause(s) and circumstances.

Human performance often influences the outcome of nuclear power plant events. Human error is known to contribute to more than half of the LERs. The LER rule identifies the types of reactor events and problems that are believed to be significant and useful to the NRC in its effort to identify and resolve threats to public safety. It is designed to provide the information necessary for engineering studies of operational anomalies and trends and patterns analysis of

~~operational occurrences including human performance.~~

Generally, the criteria of Section 50.73(b)(2)(i) require a clear, specific narrative so that knowledgeable readers can understand the complete event. Further, for each human performance related problem that contributed to the event, the criteria of Section 50.73(b)(2)(ii)(J) require a description of ~~(1) operator actions that affected the course of the event and (2) for each personnel error, additional specific information as detailed in the rule.~~ the cause(s) and circumstances. In order to support an understanding of human performance issues related to the event, the narrative should address the factors discussed below to the extent they apply to human performance related problem(s) that contributed to the event.

~~For example, if an operator error that affected the course of the event was due to a procedural problem, indicate the nature of the procedural problem such as missing procedure, procedure inadequate due to technical deficiency, etc.~~

~~Personnel errors and human performance related issues may be in the areas of procedures, training, communication, human engineering, management, and supervision. For example, in the area of procedures, errors might be due to missing procedures, procedures which are inadequate due to technical or human factors deficiencies, or which have not been maintained current. In the area of training, errors may be the result of a failure to provide training, having provided inadequate training, or as the result of training (such as simulator training or on-the-job training) that does not provide an environment comparable to that in the plant. Communications errors may be due to inadequate, untimely, misunderstood, or missing communication or due to the quality of the communication equipment. Human engineering issues include those related to the interface or lack thereof between the human and the~~

machine (such as size, shape, location, function or content of displays, controls, equipment or labels) as well as environmental issues such as lighting, temperature, noise, radiation and work area layout. Management errors might be due to management expectations, corrective actions, root cause determinations, or audits which are inadequate, untimely or missing. In the area of supervision, errors may be the result of a lack of supervision, inadequate supervision, job staffing, overtime, scheduling and planning, work practices (such as briefings, logs, work packages, team work, decision making, and housekeeping) or because of inadequate verification, awareness or self-checking.

(1) The cause(s), including any relation to the areas of:

(a) Procedures, where errors may be due to missing procedures, procedures which are inadequate due to technical or human factors deficiencies, or which have not been maintained current.

(b) Training, where errors may be the result of a failure to provide training, having provided inadequate training, or as the result of training (such as simulator training or on-the-job training) that does not provide an environment comparable to that in the plant.

(c) Communications, where errors may be due to inadequate, untimely, misunderstood, or missing communication or be due to the quality of the communication equipment.

(d) Human-system interface, such as size, shape, location, function or content of displays, controls, equipment or labels, as well as environmental issues such as lighting, temperature, noise, radiation and work area layout.

(e) Supervision and oversight, where errors may be the result of inadequate command and control, work control, corrective actions or self-evaluation.

(f) Staffing, task allocation, overtime, and schedule design.

(g) Work practices such as briefings, logs, work packages, team work, decision making, housekeeping, verification, awareness or attention.

(2) The circumstances, including:

(a) The personnel involved, whether they are contractor or utility personnel, whether or not they are licensed, and the department for which they work.

(b) The work activity being performed and whether or not there were any time or situational pressures present.

**§50.73(b)(2)(ii)(K)**

The narrative description must include: "Automatically and manually initiated safety system responses."

The LER should include a discussion of each specific system that actuated or failed to actuate.

Do not limit the discussion to ESFs. Indicate whether or not the equipment operated

successfully. For some systems such as HPCI, RCIC, RHR, and AFW, the type of actuation

may not be obvious. In those cases indicate the specific equipment that actuated or should have actuated, by train, compatible with EPIX train definitions (e.g., AFW Train B). **Indicate the mode of operation such as injecting into the reactor vessel, recirculation, pressure control, and any subsequent mode of operation during the event.**

**§50.73(b)(2)(ii)(L)**

The narrative description must include: "The manufacturer and model number (or other identification) of each component that failed during the event."

The manufacturer and model number (or other identification, such as type, size, or manufacture date) also should be given for each component found failed during the course of the event. An example of other identification could be (for a pipe rupture) size, schedule, or material composition.

(3) Assessment of Safety Consequences

**§50.73(b)(3)**

The LER shall contain: "An assessment of the safety consequences and implications of the event. This assessment must include the availability of other systems or components that:

- (x) Could have performed the same function as the components and systems that failed during the event," or
- (xi) Are included in emergency or operating procedures and could have been used to recover from the event in case of an additional failure in the systems used for recovery.

Give a summary assessment of the actual and potential safety consequences and implications of the event, including the basis for submitting the report. Evaluate the event to the extent necessary to fully assess the safety consequences and safety margins associated with the event.

Include an assessment of the event under alternative conditions if the incident would have been more severe (e.g., the plant would have been in a condition not analyzed in its latest SAR) under reasonable and credible alternative conditions, such as a different operating mode. For example, if an event occurred while the plant was at low power and the same event could have occurred at full power, which would have resulted in considerably more serious consequences, this alternative condition should be assessed and the consequences reported.

Reasonable and credible alternative conditions may include normal plant operating conditions,

potential accident conditions, or additional component failures, depending on the event. Normal alternative operating conditions and off-normal conditions expected to occur during the life of the plant should be considered. The intent of this section is to obtain the result of the considerations that are typical in the conduct of routine operations, such as event reviews, not to require extraordinary studies.

(4) Corrective Actions

**§50.73(b)(4)**

The LER shall contain: "A description of any corrective actions planned as a result of the event, including those to reduce the probability of similar events occurring in the future."

Include whether the corrective action was or is planned to be implemented. Discuss repair or replacement actions as well as actions that will reduce the probability of a similar event occurring in the future. For example, "the pump was repaired and a discussion of the event was included in the training lectures." Another example, "although no modification to the instrument was deemed necessary, a caution note was placed in the calibration procedure for the instrument before the step in which the event was initiated."

In addition to a description of any corrective actions planned as a result of the event, describe corrective actions on similar or related components that were done, or are planned, as a direct result of the event. For example, if pump 1 failed during an event and required corrective maintenance and that same maintenance also was done on pump 2, so state.

If a study was conducted, and results are not available within the ~~30~~-60-day period, report the results of the study in a revised LER if they result in substantial changes in the corrective action planned. (See Section 5.1.6 for further discussion of submitting revised LERs.)

(5) Previous Occurrences

**§50.73(b)(5)**

The LER shall contain: "Reference to any previous similar events at the same plant that are known to the licensee."

The term "previous occurrences" should include previous events or conditions that involved the same underlying concern or reason as this event, such as the same root cause, failure, or sequence of events. For infrequent events such as fires, a rather broad interpretation should be used (e.g., all fires and, certainly, all fires in the same building should be considered previous occurrences). For more frequent events such as ESF actuations, a narrower definition may be used (e.g., only those scrams with the same root cause). The intent of the rule is to identify generic or recurring problems.

The licensee should use engineering judgment to decide how far back in time to go to present a reasonably complete picture of the current problem. The intent is to be able to see a pattern in recurring events, rather than to get a complete 10- or 20-year history of the system. If the event was a high-frequency type of event, 2 years back may be more than sufficient.

Include the LER number(s), if any, of previous similar events. Previous similar events are not necessarily limited to events reported in LERs. If no previous similar events are known, so state. If any earlier events, in retrospect, were significant in relation to the subject event, discuss why prior corrective action did not prevent recurrence.

(6) LER Text Continuation Sheet (NRC Form 366A)

Use one or more additional text continuation sheets of the LER Form 366A to continue the narrative, if necessary. There is no limit on the number of continuation sheets that may be included.

Drawings, figures, tables, photographs, and other aids may be included with the narrative to help readers understand the event. If possible, provide the aids on the LER form (i.e., NRC Form 366A). In addition, care should be taken to ensure that drawings and photographs are of sufficient quality to permit legible reproduction and micrographic processing. Avoid oversized drawings (i.e., larger than 8 ½ x 11).

## 5.2.2 Abstract (NRC Form 366, Item 16)

### **§50.73(b)(1)**

The LER shall contain: "A brief abstract describing the major occurrences during the event, including all component or system failures that contributed to the event and significant corrective action taken or planned to prevent recurrence."

Provide a brief abstract describing the major occurrences during the event, including all actual component or system failures that contributed to the event, all relevant operator errors or violations of procedures, the root cause(s) of the major occurrence(s), and the corrective action taken or planned for each root cause. If space does not permit describing failures, at least indicate whether or not failures occurred. Limit the abstract to 1400 characters (including spaces), which is approximately 15 lines of single-spaced typewritten text. Do not use EISS component function identifiers or the two-letter codes for system names in the abstract.

The abstract is generally included in the LER data base to give users a brief description of the event to identify events of interest. Therefore, if space permits, provide the numbers of other LERs that reference similar events in the abstract.

As noted in Section 5.1.10, do not include safeguards, security, or proprietary information in the abstract.

## 5.2.3 Other Fields on the LER Form

(1) Facility Name (NRC Form 366, Item 1)

Enter the name of the facility (e.g., Indian Point, Unit 1) at which the event occurred. If the event involved more than one unit at a station, enter the name of the nuclear facility with the lowest nuclear unit number (e.g., Three Mile Island, Unit 1).

(2) Docket Number (NRC Form 366, Item 2)

Enter the docket number (in 8-digit format) assigned to the unit. For example, the docket number for Yankee-Rowe is 05000029. Note the use of zeros in this example.

(3) Page Number (NRC Form 366, Item 3)

Enter the total number of pages included (including figures and tables that are attached to Item 17 Text) in the LER package. For continuation sheets, number the pages consecutively beginning with page 2. The LER form, including the abstract and other data is pre-numbered on the form as page 1 of \_.

(4) Title (NRC Form 366, Item 4)

The title should include a concise description of the principal problem or issue associated with the event, the root cause, the result (why the event was required to be reported), and the link between them, if possible. It is often easier to form the title after writing the assessment of the event because the information is clearly at hand.

"Licensee Event Report" should not be used as a title. The title "Reactor Trip" is considered inadequate, because the root cause and the link between the root cause and the result are missing. The title "Personnel Error Causes Reactor Trip" is considered inadequate because of the innumerable ways in which a person could cause a reactor trip. "Technician Inadvertently Injected Signal Resulting in a Reactor Trip" would be a better title.

(5) Event Date (NRC Form 366, Item 5)

Enter the date on which the event occurred in the eight spaces provided. There are two spaces for the month, two for the day, and four for the year, in that order. Use leading zeros in the first and third spaces when appropriate. For example, June 1, 1987, would be properly entered as 06011987.

If the date on which the event occurred cannot be clearly defined, use the discovery date. See Section 2.11 of this report for further discussion of discovery date.

(6) Report Number (NRC Form 366, Item 6)

The LER number consists of three parts: (a) the four digits of the event year (based on event date), (b) the sequential report number, and (c) a revision number. The numbering system is shown in the diagram below; the event occurred in the year 1991, it was the 45th event of that year, and the submittal was the 1st revision to the original LER for that event.

Event	Sequential	Revision
<u>Year</u>	<u>Report Number</u>	<u>Number</u>

1991 - 045 - 01

Event Year: Enter the four digits. The event year should be based on the event date (Item 4).

Sequential Report Number: As each reportable event is reported for a unit during the year, it is assigned a sequential number. For example, for the 15th and 33rd events to be reported in a given year at a given unit, enter 015 and 033, respectively, in the spaces provided. Follow the guidelines below to ensure consistency in the sequential numbering of reports.

- Each unit should have its own set of sequential report numbers. Units at multi-unit sites should not share a set of sequential report numbers.
- The sequential number should begin with 001 for the first event that occurred in each calendar year, using leading zeros for sequential numbers less than 100.
- For an event common to all units of a multi-unit site, assign the sequential number to the lowest numbered nuclear unit.

- If a sequential number was assigned to an event, and it was subsequently determined that the event was not reportable, a "hole" in the series of LER numbers would result. The NRC would prefer that licensees reuse a sequential number rather than leave holes in the sequence. A sequential LER number may be reused even if the event date was later than subsequent reports.

If the licensee chooses not to reuse the number, write a brief letter to the NRC noting that "LER number xxx for docket 50000XXX will not be used."

Revision Number: The revision number of the original LER submitted is 00. The revision number for the first revision submitted should be 01. Subsequent revisions should be numbered sequentially (i.e., 02, 03, 04).

(7) Report Date (NRC Form 366, Item 7)

Enter the date the LER is submitted to the NRC in the eight spaces provided, as described in Section 5.2.4(4) above.

(8) Other Facilities (NRC Form 366, Item 8)

When a situation is discovered at one unit of a facility that applies to more than the one unit, submit a single LER. LER form items 1, 2, 6, 9, and 10 should refer to the unit primarily affected, or, if both units were affected approximately equally, to the lowest numbered nuclear unit.

The intent of the requirement is to name the facility in which the primary event occurred, whether or not that facility is the lowest numbered of the facilities involved. The automatic use of the lowest number should only apply to cases where both units are affected approximately equally. Item 8 only should indicate the other unit(s) affected. The abstract and the text should describe how the event affected all units.

Enter the facility name and unit number and docket number (see Sections 5.2.4(1) and 5.2.4(2) for format) of any other units at that site that were directly affected by the event (e.g., the event included shared components, the LER described a tornado that threatened both units of a two-unit plant).

(9) Operating Mode (NRC Form 366, Item 9)

Enter the operating mode of the unit at the time of the event as defined in the plant's technical specifications in the single space provided. For plants that have operating modes such as hot shutdown, cold shutdown, and operating, but do not have numerical operating modes (e.g., Mode 5), place the letter N in Item 9 and describe the operating mode in the text.

(10) Power Level (NRC Form 366, Item 10)

Enter the percent of licensed thermal power at which the reactor was operating when the event occurred. For shutdown conditions, enter 000. For all other operating conditions, enter the correct numerical value (estimate power level if it is not known precisely), using leading zeros as appropriate (e.g., 009 for 9-percent power). Significant deviations in the operating power in the balance of plant should be clarified in the text.

(11) Reporting Requirements (NRC Form 366, Item 11)

Check one or more blocks according to the reporting requirements that apply to the event. A single event can meet more than one reporting criterion. For example: if as a result of sabotage, reportable under §73.71(b), a safety system failed to function, reportable under §50.73(a)(2)(v), and the net result was a release of radioactive material in a restricted area that exceeded the applicable license limit, reportable under §20.2203(a)(3)(i), prepare a single LER and check the three boxes for paragraphs 73.71(b), 50.73(a)(2)(v), and 20.2203(a)(3)(i).

In addition, an event can be reportable as an LER even if it does not meet any of the criteria of 10 CFR 50.73. For example, a case of attempted sabotage (§73.71(b)) that does not result in any consequences that meet the criteria in 50.73 can be reported using the "Other" block. Use the "Other" block if a reporting requirement other than those specified in item 11 was met. Specifically describe this other reporting requirement in the space provided below the "Other" block and in the abstract and text.

(12) Licensee Contact (NRC Form 366, Item 12)

**§50.73(b)(6)**

The LER shall contain: "The name and telephone number of a person within the licensee's organization who is knowledgeable about the event and can provide additional information concerning the event and the plant's characteristics."

Enter the name, position title, and work telephone number (including area code) of a person who can provide additional information and clarification for the event described in the LER.

(13) Component Failures (NRC Form 366, Item 13)

Enter the appropriate data for each component failure described in the event.

A failure is defined as the termination of the ability of a component to perform its required function. Unannounced failures are not detected until the next test; announced failures are detected by any number of methods at the instant of occurrence.

If multiple components of the same type failed and all of the information required in Item 13 (i.e., cause, system, component, etc.) was the same for each component, then only a single entry is required in Item 13. Clearly define the number of components that failed in the abstract and text.

The component information elements of this item are discussed below.

Cause: Enter the cause code as shown below. If more than one cause code is applicable, enter the cause code that most closely describes the root cause of the failure.

Cause

Code      Classification and Definition

A      Personnel Error is assigned to failures attributed to human errors. Classify errors made

because written procedures were not followed or because personnel did not perform in accordance with accepted or approved practice as personnel errors. Do not include errors made as a result of following incorrect written procedures in this classification.

B Design, Manufacturing, Construction/Installation is assigned to failures reasonably attributed to design, manufacture, construction, or installation of a system, component, or structure. For example, include failures that were traced to defective materials or components otherwise unable to meet the specified functional requirements or performance specifications in this classification.

C External Cause is assigned to failures attributed to natural phenomena. A typical example would be a failure resulting from a lightning strike, tornado, or flood. Also assign this classification to man-made external causes that originate off site (e.g., an industrial accident at a nearby industrial facility).

D Defective Procedure is assigned to failures caused by inadequate or incomplete written procedures or instructions.

E Management/Quality Assurance Deficiency is assigned to failures caused by inadequate management oversight or management systems (e.g., major breakdowns in the licensee's administrative controls, preventive maintenance program, surveillance program, or quality assurance controls, inadequate root cause determination, inadequate corrective action).

X Other is assigned to failures for which the proximate cause cannot be identified or which

cannot be assigned to one of the other classifications.

System: Enter the two-letter system code from Institute of Electrical and Electronics Engineers (IEEE) Standard 805-1984, "IEEE Recommended Practice for System Identification in Nuclear Power Plants and Related Facilities," March 27, 1984. Copies may be obtained from the Institute of Electrical and Electronics Engineers, 345 East 47th Street, New York, NY 10017.

Component: Enter the applicable component code from IEEE Standard 803A-1983, "IEEE Recommended Practice for Unique Identification in Power Plants and Related Facilities - Component Function Identifiers."

Component Manufacturer: Enter the four character alphanumeric reference code. If the manufacturer is one used in EPIX, use the manufacturer name as it appears in EPIX.

Reportable to EPIX: Enter a "Y" if the failure is reportable to EPIX and an "N" if it is not reportable.

Include in the LER text and in item 13 of the LER Form any component failure involved in the event, not just components within the scope of EPIX or EIIS.

Failure Continuation Sheet (NRC Form 366B): If more than four failures need to be coded, use one or more of the failure continuation sheets (NRC Form 366B). Code the entries in Items 1, 2, 3, and 6 of the failure continuation sheet to match entries of these items on the initial page of the LER. Complete item 13 in the same manner as item 13

on the basic LER form. Do not repeat failures coded on the basic LER form on the failure continuation sheet. Place any failure continuation sheets after any text continuation sheets and include those sheets in the total number of pages for the LER.

(14) Supplemental Report (NRC Form 366, Item 14)

Check the "Yes" block if the licensee plans to submit a followup report. For example, if a failed component had been returned to the manufacturer for additional testing and the results of the test were not yet available when the LER was submitted, a followup report would be submitted.

(15) Expected Submission Date of Supplemental Report (NRC Form 366, Item 15)

Enter the expected date of submission of the supplemental LER, if applicable. See Section 5.2.4(4) for the proper date format. The expected submission date is a target/planning date; it is not a regulatory commitment.

[INSERT NRC FORM 366, LER]

[INSERT NRC FORM 366, SECOND PAGE  
"REQUIRED NUMBER OF DIGITS ..."]

[INSERT NRC FORM 366A, LER TEXT CONTINUATION]

[INSERT NRC FORM 366B, LER FAILURE CONTINUATION]

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Draft Public Announcement

**OPA**

**D R A F T**

***NRC PROPOSES CHANGES TO REPORTING REQUIREMENTS  
FOR NUCLEAR POWER PLANTS***

The Nuclear Regulatory Commission is proposing to amend its regulations on reporting requirements for nuclear power plants.

The NRC staff believes that the proposed changes would not eliminate reporting for significant events that the NRC needs to review in its efforts to identify and resolve safety issues. However, the changes would reduce or eliminate the unnecessary reporting burden associated with events of little or no safety significance.

The amendments would also revise the requirements based on importance to risk and extend the reporting times consistent with the need for prompt NRC action. For those events requiring immediate NRC action, such as emergency declarations, reports would continue to be

required within one hour.

For example, the proposed amendments would require a report to NRC within eight hours if an event or condition occurred that could keep a structure or system from fulfilling its safety function if the plant is in a mode where the structure or system is required to be operable. Currently such events or conditions must be reported within four hours. Written licensee event reports would be due within 60 days after discovery of a reportable event or condition, instead of within 30 days as is currently required.

The NRC previously discussed the proposed changes to reporting requirements in an advanced notice of proposed rulemaking published last summer in the Federal Register and at three public meetings held last year. The proposed changes to NRC reporting requirements incorporate suggestions and concerns expressed by members of the public during those forums and in 21 written comments submitted by members of industry and the public.

Details of the proposed rule changes and a draft report, NUREG-1022, Revision 2, "Event Reporting Guidelines 10CFR 50.72 and 50.73" will be published in an upcoming edition of the *Federal Register* and posted to the NRC's homepage at: <http://www.nrc.gov>. Interested persons are invited to submit written comments on both the proposed rule and the NUREG document within 75 days of publication of the *Federal Register* notice. Comments should be sent to the Secretary, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, Attention: Rulemakings and Adjudications Staff. Comments may also be submitted electronically via the NRC's interactive rulemaking web site at <http://ruleforum.llnl.gov>.

Because the proposed rule contains information collection requirements that are subject to

review by the Office of Management and Budget (OMB), NRC plans to submit a review package to OMB in the near future. NRC also will hold a public workshop to discuss the proposed rule changes at a date to be announced.

##

Draft Congressional Letters

The Honorable Joe L. Barton, Chairman  
Subcommittee on Energy and Power  
Committee on Commerce  
United States House of Representatives  
Washington, DC 20515

Dear Mr. Chairman:

The NRC has sent to the Office of the Federal Register for publication the enclosed proposed rulemaking to modify reporting requirements for nuclear power reactors. The proposed amendments would modify the event reporting requirements in 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors," and 50.73, "Licensee event report system." They are intended to better align the reporting requirements with the NRC's current reporting needs. For example, the required initial reporting times would be extended, consistent with the need for timely NRC action. The proposed amendments would also reduce the reporting burden associated with events of little or no safety significance and clarify the reporting requirements where needed.

Sincerely,

Dennis K. Rathbun, Director  
Office of Congressional Affairs

Enclosure: As stated

cc w/encl.: Representative Ralph M. Hall

The Honorable James M. Inhofe, Chairman  
Subcommittee on Clean Air, Wetlands, Private  
Property and Nuclear Safety  
Committee on Environment and Public Works  
United States Senate  
Washington, DC 20510

Dear Mr. Chairman:

The NRC has sent to the Office of the Federal Register for publication the enclosed proposed rulemaking to modify reporting requirements for nuclear power reactors. The proposed amendments would modify the event reporting requirements in 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors," and 50.73, "Licensee event report system." They are intended to better align the reporting requirements with the NRC's current reporting needs. For example, the required initial reporting times would be extended, consistent with the need for timely NRC action. The proposed amendments would also reduce the reporting burden associated with events of little or no safety significance and clarify the reporting requirements where needed.

Sincerely,

Dennis K. Rathbun, Director  
Office of Congressional Affairs

Enclosure: As stated

cc w/encl.: Senator Bob Graham

Letter Providing ACRS Recommendations

March 23, 1999

Dr. William D. Travers  
Executive Director for Operations  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Dr. Travers:

SUBJECT: PROPOSED AMENDMENT TO 10 CFR 50.72, IMMEDIATE NOTIFICATION  
AND 50.73, LICENSEE EVENT REPORTING SYSTEM

During the 460th meeting of the Advisory Committee on Reactor Safeguards, March 10-13, 1999, we reviewed the proposed amendment to 10 CFR 50.72 and 50.73. During our review, we had the benefit of discussions with representatives of the NRC staff and the Nuclear Energy Institute (NEI), and of the document referenced.

#### CONCLUSIONS AND RECOMMENDATIONS

The proposed amendment is a significant improvement over the current rule and should be issued for public comment.

As noted by the staff, reports of equipment surveillance tests that are performed late are not needed provided that the equipment passes the test. The staff should amend the rule to this effect and not just revise the associated regulatory guide.

We endorse the staff proposal to eliminate the requirement to report an unanalyzed condition that compromises plant safety because such a condition would be reported in accordance with other requirements.

The staff should examine comprehensively the NRC reporting requirements to ensure that no unnecessary duplications or inconsistencies exist.

We fully support the staff's position that licensees should report the actuation of risk-significant systems. Lists of such systems should be plant-specific and should be developed on the basis of probabilistic risk assessment (PRA) insights and individual plant designs. These lists should not be included in the rule.

#### DISCUSSION

While remaining consistent with the agency's reporting needs, the proposed amendment would reduce the reporting burden on licensees by modifying or eliminating requirements that do not provide needed data or that require data which are available through other reporting requirements. In the case of licensee event reports (LERs), extending the reporting due date from 30 to 60 days should enable licensees to complete a root-cause analysis and develop appropriate corrective actions. This change alone would reduce the number of supplemental LERs and thereby reduce the burden on both the NRC staff and licensees.

The staff has indicated that reports on events other than those classified as emergencies would be made within 8 hours. This class of reports would capture events where NRC actions may be required within the next 24 hours, such as initiating a special inspection or contacting a licensee to obtain a better understanding of the event. An advantage of this change is that it provides licensees the opportunity to submit a more detailed description of the event.

The staff has proposed eliminating the requirement to report an unanalyzed condition that significantly compromises plant safety because such a condition would be reported in accordance with other requirements. We agree that this requirement should be dropped.

The staff has proposed eliminating reports about equipment surveillance tests that are performed late, provided that the equipment passes the test when it is performed. This is an improvement to the rule because these reports are not significant since the equipment remains operable during the period of time involved. The NRC's responses to excessively late surveillance testing and to repeated instances of late surveillance testing are covered by other regulations. The staff should amend the rule to effect this proposed change instead of revising the associated regulatory guide.

Reporting requirements for safety system actuations would be changed. Instead of relying on the term "engineered safety feature," the rule would contain a list of specific risk-significant systems. The staff has developed such a list utilizing insights from a small sample of representative PRAs consisting of three pressurized water reactors and two boiling water reactors. NEI noted that the proposed list would result in new reporting requirements for some licensees. We fully support the staff's position that licensees should report the actuation of risk-significant systems. Plant-specific lists of such systems should be developed on the basis of PRA insights and individual plant designs. These lists should not be included in the rule. The stakeholders' workshop being planned by the NRC staff will provide an opportunity to discuss how to develop and document these lists.

The changes contained in the proposed amendment may affect reporting requirements in other regulations. The staff has not completed a systematic review of all the regulations that have reporting requirements and has not assessed whether the various requirements satisfy the needs of the agency. For example, the staff must resolve the difference between the proposed 8 hour reporting requirement and the existing 4 hour reporting requirement in 10 CFR Part 20 regarding radioactive releases.

We have no objection to issuing the proposed amendment for public comment and would like the opportunity to review the proposed final amendment after reconciliation of public comments.

Sincerely,

/s/

Dana A. Powers  
Chairman

Reference:

Memorandum dated February 19, 1999, from David B. Matthews, Office of Nuclear Reactor Regulation, to NRC Office Directors and Regional Administrators, Subject: Office Review and Concurrence on a Proposed Rule to Modify the Event Reporting Requirements for Power Reactors in 10 CFR 50.72 and 50.73.

Memorandum Responding to ACRS Recommendations

MEMORANDUM TO: Dana A. Powers, Chairman  
Advisory Committee on Reactor Safeguards

FROM: William D. Travers  
Executive Director for Operations

SUBJECT: PROPOSED RULEMAKING TO MODIFY THE REACTOR EVENT  
REPORTING REQUIREMENTS IN 10 CFR 50.72 AND 50.73

This is to provide the staff's response to the recommendations of the Advisory Committee on Reactor Safeguard (ACRS) on the subject rulemaking. The Committee recommendations were provided in your letter of March 23, 1999. The staff's responses are provided below.

1. ACRS Recommendation:

The proposed amendment is a significant improvement over the current rule and should be issued for public comment.

Response:

The staff agrees and will recommend publication to the Commission.

2. ACRS Recommendation:

As noted by the staff, reports of equipment surveillance tests that are performed late are not needed provided that the equipment passes the test. The staff should amend the rule to this effect and not just revise the associated regulatory guide.

Response:

The staff agrees and the proposed rule would include this change.

3. ACRS Recommendation:

We endorse the staff proposal to eliminate the requirement to report an unanalyzed condition that compromises plant safety because such a condition would be reported in accordance with other requirements.

Response:

When the staff briefed the ACRS, the draft rule would have eliminated the requirement to report an unanalyzed condition that significantly compromises plant safety on the grounds that other criteria would capture events of interest. However, subsequent to the ACRS briefing, the staff reconsidered this approach and identified several types of reports for which this criterion is needed. Therefore, the proposed rules would retain this criterion (in a slightly modified form). Examples of events that would be reportable under this criterion would include:

- (1) The accumulation of voids that could inhibit the ability to adequately remove heat from the reactor core, particularly under natural circulation conditions.
  - b. Voiding in instrument lines that results in an erroneous indication causing the operator to misunderstand the true condition of the plant.
  - c. Discovery that a system that is required to meet the single failure criterion does not do so.
  - d. Discovery that fire barriers are missing, such that there would be no safe shutdown train available in case of a fire.
- d. ACRS Recommendation:

The staff should examine comprehensively the NRC reporting requirements to ensure that no unnecessary duplications or inconsistencies exist.

Response:

The staff has reviewed other reporting requirements and has not identified unnecessary duplications or inconsistencies beyond those previously identified. The proposed rule will be modified to eliminate any identified cases of conflict or redundancy. In the longer term, changes to other reporting requirements, beyond 10 CFR 50.72 and 50.73, will be addressed as discussed in SECY-97-022 and its associated Staff Requirements Memorandum.

- e. ACRS Recommendation:

We fully support the staff's position that licensees should report the actuation of risk-significant systems. Lists of such systems should be plant-specific and should be developed on the basis of probabilistic risk assessment (PRA) insights and individual plant designs. These lists should not be included in the rule.

Response:

CONTACT:  
Dennis P. Allison, NRR/DRIP/RGEB  
(301) 415-6835

W. Travers

- 3 -

The rulemaking package will be revised to specifically invite public comment on alternatives to the proposed rule, including the approach recommended by the Committee.

Please let me know if the Committee has any further questions or comments on the proposed rule.

W. Travers

- 4 -

Please let me know if the Committee has any further questions or comments on the proposed rule.