U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

10 CFR 50.72 & 10 CFR 50.73 Event Reporting Overview

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General Information

- This presentation is provided for information only and is not intended to constitute new NRC positions or to form the basis for a program.
- The presentation is based on guidance found in NUREG-1022, Revision 3, and the statements of consideration associated with the rule.
- If any discrepancies are noted between the referenced material and this presentation, the referenced material takes precedence.

General Concepts

Engineering Judgment

- The reportability of many events and conditions is self evident (i.e. specific scenarios are described in NUREG-1022 as being reportable) – Engineering judgment is not afforded.
- However, the reportability of some events and conditions may not be readily apparent (i.e. NUREG-1022 does not describe specific scenario) – Engineering judgment is afforded in determining reportability.
- If an issue of concern exists, inspectors are encouraged to seek feedback from NRC technical & reporting leads in determining the appropriateness of a licensee's engineering judgment.

Events not On-going at Time of Discovery

- 10 CFR 50.72(a)(1)(ii) and 50.73(a)(1) require reports for events that occurred within 3 years of the date of discovery, even if the event was not ongoing at the time of discovery.
- Exception is Event Notifications (ENs) for "Events or Conditions that Could Have Prevented Fulfillment of a Safety Function." ENs are only required for on-going events since 50.72(b)(3)(v) uses the phrase "at the time of discovery."
- It is expected that most historical reporting under 10 CFR 50.72 will be due to the discovery, while in a shutdown mode, of a previously unknown Unanalyzed Condition.

Time Limits for Reporting

When Does Clock Start?

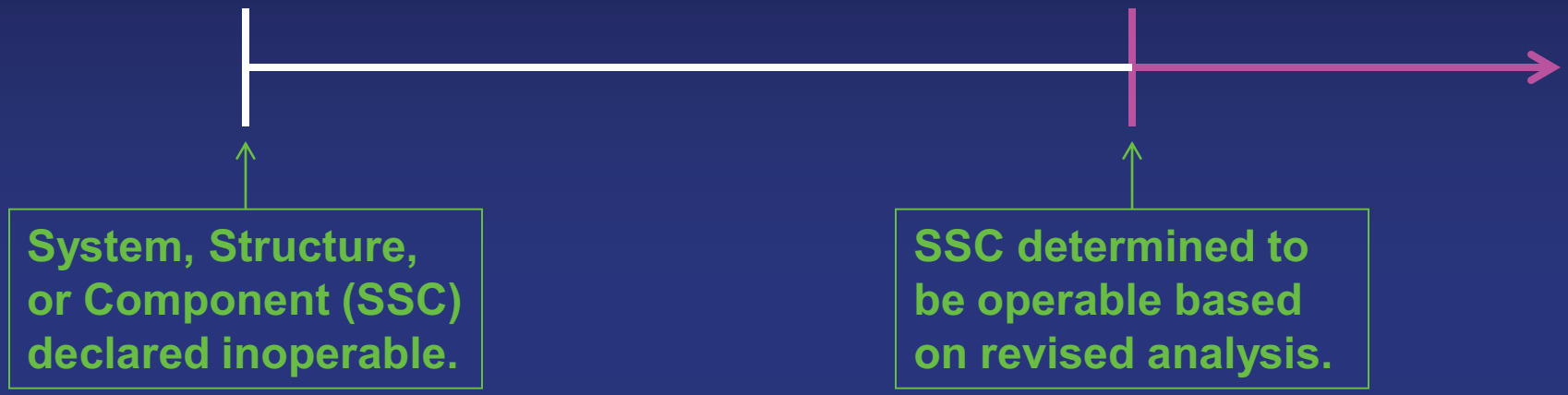
- Discussions in NUREG-1022, Revision 3, Section 2.5, "Time Limits for Reporting" use words like "generally" and "may" with regards to time of discovery. As a result, the specifics of each case need to be considered.
- The rule itself indicates that the reporting clock is tied to that date of discovery of a reportable event (i.e. one or more of the reporting criteria listed in the rule).
- The question to consider is when is it determined that enough information exists such that one could conclude a reporting criteria exists?
- The rule does not differentiate as to which member of a licensee's staff identifies a reportable event or condition (i.e. technician, operator, engineering, licensing, etc).

Retraction or Cancellation of Event Reports

- Retractions and cancellations are not discussed in either the rule itself or the associated Federal Register Notice (i.e. only discussed in NUREG-1022 guidance).
- Sound, logical bases for the withdrawal should be communicated with the retraction or cancellation.
  - Not a regulatory requirement.
  - However, insufficient information will likely result in follow-up questions.
- For reports that were submitted as a result of an operability determination:
  - Consider if the retraction or cancellation discusses why the operability determination was revised, as well as its impact on the associated reporting criteria.
  - Consideration should be given to Technical Specification (TS) rules and usage as well as operability determination guidance associated with Regulatory Issue Summary (RIS) 2005-20, Revision 1.

Retraction or Cancellation of Event Reports

Consideration



Question: Was SSC always operable?

Consideration found in Operability Determination guidance: "…it would not be appropriate to presume operability based on the future results of an analysis when there is not a reasonable expectation that the system can perform its specified safety function during the interim."

Specific Reporting Criteria

Declaration of an Emergency Class

Declaration of an Emergency Class

Rule Requirements

- 50.72(a)(1)(i) requires an Event Notification (EN) for the declaration of any of the Emergency Classes specified in the licensee's approved Emergency Plan.
- The EN shall by made 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.

Declaration of an Emergency Class

Primary References

- NUREG-1022, Revision 3: Pages 13-15

Plant Shutdown Required by Technical Specifications

Plant Shutdown Required by Technical Specifications

Rule Requirements

- 50.72(b)(2)(i) requires an Event Notification (EN) for the initiation of any nuclear plant shutdown required by the plant's Technical Specifications (TS).
- The EN shall by made as soon as practical, and in all cases, within four hours of occurrence.
- 50.73(a)(2)(i)(A) requires a Licensee Event Report (LER) for the completion of any nuclear plant shutdown required by the plant's TS.

Plant Shutdown Required by Technical Specifications

"Initiation of any nuclear plant shutdown"

- Refers to action taken to start reducing reactor power (i.e. negative reactivity is added).
- Does not include Mode changes required by TS if initiated after the plant is already in a shutdown condition.

Plant Shutdown Required by Technical Specifications

"Shutdown required by the plant's TS"

- Includes required entry into Conditions for which the Required Actions are to be in a shutdown condition or Limiting Conditions for Operation (LCO) 3.0.3.
- Also includes shutdowns due to "expected inability" to restore equipment prior to exceeding the LCO Completion Time.
- "Expected inability" is subject to engineering judgment.
- Early shutdowns that are made to facilitate repairs (i.e. equipment can not be repaired at power) do not necessarily constitute an "expected inability." Focus is on restoration of equipment within allotted time, not necessarily the manner in which the repairs are conducted.
- A reduction in power for other purposes is not a shutdown required by TS.

Plant Shutdown Required by Technical Specifications

"Completion of any nuclear plant shutdown"

- 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 (i.e. Hot Standby for PWR STS).
- A LER is not required if a failure was or "could have been" corrected before a plant has completed shutdown.
- "Could have been" is subject to engineering judgment.

Plant Shutdown Required by Technical Specifications

Primary References

- NUREG-1022, Revision 3: Pages 15-18
- 1983 Federal Register Notice:
  - 48 FR 33855 [third column]
- 1983 Federal Register Notice:
  - 48 FR 39041 [first column]
  - 48 FR 39042 [first column]

Operation or Condition Prohibited by Technical Specifications

Operation or Condition Prohibited by Technical Specifications

Rule Requirements

- There are no reporting requirements under 50.72.
- 50.73(a)(2)(i)(B) requires a LER for any operation or condition which was prohibited by the plant's TS except when:
  1) The TS is administrative in nature;
  2) The event consisted solely of a case of a late surveillance test where the oversight was corrected, the test was performed, and the equipment was found to be capable of performing its specified safety functions; or
  3) The TS was revised prior to discovery of the event such that the operation or condition was no longer prohibited at the time of discovery of the event.

Operation or Condition Prohibited by Technical Specifications

Definition as Used in Reporting

- Certain TS contain LCO statements that include action statements 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.
- An "Operation or Condition Prohibited by TS" exists and a LER is required if a condition existed for a time longer than permitted by the TS (i.e., the inoperability existed for a time period greater than the combined total allowed restoration and shutdown completion times).
- A LER is still required even if the inoperability was rectified immediately upon discovery but is determined that, from a historical perspective, the inoperability existed for a time period greater than that permitted by the TS.
- As a result, not necessarily tied to TS time of discovery and rules / usage (i.e. a TS violation may not exist but a report could still be required).

Operation or Condition Prohibited by Technical Specifications

Treatment of LCO 3.0.3 Entry

- Entry into LCO 3.0.3 is not necessarily reportable under this criterion.
- For the purposes of this reporting criterion, LCO 3.0.3 focus is on the stated shutdown completion times (i.e., be in Hot Standby in 7 hours, Hot Shutdown in 13 hours, Cold Shutdown in 37 hours, etc).
- A report is required under this criterion if any of the shutdown times were exceeded, even if the condition was not discovered until after the allowable time had elapsed and the condition was rectified immediately upon discovery.
- Other reportable conditions under 10 CFR 50.72 and 50.73 may apply.

Operation or Condition Prohibited by Technical Specifications

Estimating How Long Inoperabilities Existed (Surveillance Identified)

- For testing that is conducted within the required time (i.e., the surveillance interval plus any allowed extension), it should be assumed that the discrepancy occurred at the time of its discovery unless there is firm evidence to indicate that the discrepancy existed previously.
- For testing that is conducted later than the required time, it should be assumed that the discrepancy occurred at the time the testing was required unless there is firm evidence to indicate that it occurred at a different time.
- In determining if "firm evidence" exists, a review of relevant information such as the equipment history and the cause of failure should be conducted.

Operation or Condition Prohibited by Technical Specifications

Estimating How Long Inoperabilities Existed (Other Considerations)

- For inoperabilities identified during ASME Code testing, assumptions are similar to Surveillance identified inoperability assumptions.
- Inoperabilities due to a design or analysis defect or deviation are typically long lasting.
- Always go with “firm evidence” if it exists.

Operation or Condition Prohibited by Technical Specifications

Reporting Exceptions

- Reporting is not required for violations of TS Administrative Requirements that do not impact LCOs. If a LCO is impacted, it is still required to determine if an Operation or Condition Prohibited by TS exists.
- Reporting is not required if an 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.
- Reporting is not required for discovery of an operation or condition that occurred in the past and was prohibited at the time it occurred if, prior to the time of discovery, the TS were revised such that the operation or condition is no longer prohibited.

Operation or Condition Prohibited by Technical Specifications

Are TS Violations Reportable?

- Issue was identified, but not resolved, during NUREG-1022, Revision 3 process.
- Consider the following:
  - The draft 1982 rule indicates reports would be required for any condition in which a plant Technical Specification Action Statement is not met.
  - The final 1983 rule uses the term “prohibited by the plant's Technical Specifications.” The FRN for the rule indicates that the change accommodates plants that do not have requirements that are specifically defined as Action Statements.
  - NUREG-1022, Revision 0, Supplement 1, indicates that for the purpose of this criterion, an LER is not required unless the conditions of the LCO and its associated Action Statement are not met.

Operation or Condition Prohibited by Technical Specifications

Primary References

- NUREG-1022, Revision 3: Pages 18-24
- NUREG-1022, Revision 0, Supplement 1: Questions 2.1 & 2.9
- 1982 Federal Register Notice:
  - 47 FR 19546 [third column]
- 1983 Federal Register Notice:
  - 48 FR 33855 [third column]
- 2000 Federal Register Notice:
  - 65 FR 63777 [comment S]
  - 65 FR 63779 [third Column] through 65 FR 63780 [first column]

Deviation from Technical Specifications under 10 CFR 50.54(x)

Deviation from TS under 10 CFR 50.54(x)

Rule Requirements

- 50.72(b)(1) requires an EN for any deviation from the plant's TS authorized pursuant to 10 CFR 50.54(x).
- The EN shall by made as soon as practical, and in all cases, within one hour of the occurrence.
- 50.73(a)(2)(i)(C) requires a LER any deviation from the plant's TS authorized pursuant to 10 CFR 50.54(x).

Deviation from TS under 10 CFR 50.54(x)

What is 10 CFR 50.54(x)?

- 10 CFR 50.54(x) permits licensees to take reasonable action in an emergency even though the action departs from the license conditions or plant TS 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 TS is immediately apparent that can provide adequate or equivalent protection.
- Deviations from license conditions authorized under 10 CFR 50.54(x) are not reportable under this criterion.

Deviation from TS under 10 CFR 50.54(x)

Primary References

- NUREG-1022, Revision 3: Page 24
- 1983 Federal Register Notice:
  - 48 FR 33855 [third column]
- 1983 Federal Register Notice:
  - 48 FR 39042 [first column]
- 2000 Federal Register Notice:
  - 65 FR 63779 [second column]

Degraded or Unanalyzed Conditions

Degraded or Unanalyzed Conditions

50.72 Rule Requirements

- 50.72(b)(3)(ii) requires an Event Notification (EN) for 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 degrades plant safety.
- The EN shall by made as soon as practical, and in all cases, within eight hours of occurrence.

Degraded or Unanalyzed Conditions

50.73 Rule Requirements

- 50.73(a)(2)(ii) requires a Licensee Event Report (LER) for 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 degraded plant safety.

Degraded or Unanalyzed Conditions

Nuclear Power Plant, Including its Principal Safety Barriers, Being Seriously Degraded (also known as Degraded Conditions)

- 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).

- Abnormal degradation of a barrier may be indicated by the necessity of taking corrective action to restore the barrier's capability. Abnormal stress upon a barrier may result from an unplanned transient.

Degraded or Unanalyzed Conditions

Examples of Degraded Conditions

- 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.
- 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.”
- 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).
- 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.

Degraded or Unanalyzed Conditions

Examples of Degraded Conditions (cont)

- Serious steam generator tube degradation.
  - A licensee's plant-specific TS contain performance criteria for steam generator tube integrity, which includes structural integrity, accident induced leakage, and operational leakage.
  - Steam generator tube degradation is considered serious only if either the steam generator structural integrity or accident-induced leakage performance criteria are not met.
  - In addition, one or more steam generator tubes satisfying the tube repair criteria and not plugged or repaired in accordance with the steam generator program is not considered to be serious steam generator tube degradation, and therefore is not reportable under this criterion, as long as the structural integrity and accident-induced leakage performance criteria are both met.

Degraded or Unanalyzed Condition

Unanalyzed Condition that Significantly Affects Plant Safety (also known as Unanalyzed Conditions)

- Events that involve “functionally related components” or that “significantly compromise plant safety.”
- Terms are subject to engineering judgment, however some clear examples are provided by the Commission.
- Does not automatically include potential scenarios that are outside the licensing basis of the facility. Need to consider actual impact.
- It is not intended that this criteria apply to minor variations in individual parameters, or to problems concerning single pieces of equipment.
- It is also not intended that this criteria apply to trivial single failures or minor errors in performing surveillance tests that produce a situation in which two or more often unrelated, safety-grade components are out-of-service.

Degraded or Unanalyzed Condition

Examples of Unanalyzed Conditions

- The accumulation of voids that could inhibit the ability to adequately remove heat from the reactor core, particularly under natural circulation conditions.
- Voiding in instrument lines that results in an erroneous indication causing the operator to misunderstand the true condition of the plant.
- Discovery that a system required to meet the single failure criterion does not do so. Does not include single train inoperabilities in which it is known that single failure criterion may not be met for a limited time.
- Discovery that at least one safe shutdown train is not protected in the event of fire.
  - A report is required for missing fire barriers if the required degree of separation for redundant safe shutdown trains is lacking.
  - A report is not required for a missing fire wrap on one safe shutdown train if another safe shutdown train is available in a different fire area and protected such that the required separation for safe shutdown trains is still provided.

Degraded or Unanalyzed Conditions

Primary References

- NUREG-1022, Revision 3: Pages 25-28
- 1983 Federal Register Notice:
  - 48 FR 33855 [third column] through 33856 [second column]
- 1983 Federal Register Notice:
  - 48 FR 39041 [first column]
  - 48 FR 39042 [second column through third column]
- 2000 Federal Register Notice:
  - 65 FR 63776 [Comments M & O]
  - 65 FR 63777 [Comment Q]
  - 65 FR 63778 [Comment AA]
  - 65 FR 63780 [first column through third column]
  - 65 FR 63781 [first column]

External Threat or Hampering

External Threat or Hampering

Rule Requirements

- There are no reporting requirements under 50.72.
- 50.73(a)(2)(iii) requires that a Licensee Event Report (LER) be submitted for 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.

External Threat or Hampering

Scope

- This criterion applies 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 a separate criterion in 50.73(a)(2)(ix).

External Threat or Hampering

Discussion on "Actual Threats"

- The phrase "actual threat to safety of the nuclear power plant" covers those events involving:
  - An on-going external condition or natural phenomenon and;
  - "Challenges the ability" of the plant to continue to operate in a safe manner (including the orderly shutdown and maintenance of shutdown conditions).
- Monitoring, as well as preventive or responsive actions taken, do not automatically imply that an actual threat exits.
- Involves the use of engineering judgment.

External Threat or Hampering

Some Examples of "Actual Threats"

- Major forest fire, large-scale flood, or major earthquake that presents a clear threat to the plant should be reported.
- An industrial or transportation accident which occurs near the site, creating a plant safety concern, should be reported.
- 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.
- 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.

External Threat or Hampering

Primary References

- NUREG-1022, Revision 3: Pages 28-30
- 1983 Federal Register Notice:
  - 48 FR 33856 [second column]
- 1983 Federal Register Notice:
  - 48 FR 39042 [third column] through 39043 [first column]
- 2000 Federal Register Notice:
  - 65 FR 63782 [third column]

System Actuation

System Actuation

50.72 Rule Requirements

- 50.72(b)(2)(iv) requires an Event Notification (EN) for:
  - (A) 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 except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.
  - (B) Any event or condition that results in actuation of the reactor protection system (RPS) when the reactor is critical except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.
- The EN shall by made as soon as practical, and in all cases, within four hours of occurrence.

System Actuation

Unplanned Required ECCS Discharge

- Events involving ECCS discharge to the vessel due to actual plant conditions are considered serious events. Therefore, this reporting criterion is a 4-hour report.
- In addition, is reportable if demand due to an actual plant condition should have resulted in a discharge of the ECCS into the RCS, but did not due to some component that had failed or an operator action that was taken.
- For example, if a demand for ECCS was generated by actual plant conditions, and the operator put all ECCS pumps in pull-to-lock position, the event is reportable although no ECCS discharge occurred.

System Actuation

Unplanned Critical Reactor Scram

- Reporting criterion is a 4-hour report.
- Reports required for ALL unplanned critical reactor scrams, regardless of cause.

System Actuation

50.72 Additional Rule Requirements

- 50.72(b)(3)(iv)(A) requires an EN for any event or condition that results in valid actuation of any of the systems listed in 50.72(b)(3)(iv)(B) except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation.

- The EN shall by made as soon as practical, and in all cases, within eight hours of occurrence.

System Actuation

50.72 Additional Rule Requirements (continued)

- Systems listed under 50.72(b)(3)(iv)(B) include the:
  - (1) RPS including reactor scram and reactor trip.*
  - (2) General containment isolation signals affecting containment isolation valves in more than one system or multiple main steam isolation valves (MSIVs)
  - (3) 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.
  - (4) ECCS for boiling water reactors (BWRs) including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.
  - (5) BWR reactor core isolation cooling system; isolation condenser system; and feedwater coolant injection system.
  - (6) PWR auxiliary or emergency feedwater system.
  - (7) Containment heat removal and depressurization systems, including containment spray and fan cooler systems.
  - (8) Emergency ac electrical power systems, including: emergency diesel generators (EDGs); hydroelectric facilities used in lieu of EDGs at the Oconee Station; and BWR dedicated Division 3 EDGs.

*Actuation of the RPS when the reactor is critical is reportable under paragraph (b)(2)(iv) of this section.

System Actuation

50.73 Rule Requirements

- 50.73(a)(2)(iv)(A) may require either a Licensee Event Report (LER) or a NRC notification for any event or condition that resulted in manual or automatic actuation of any of the systems listed in paragraph 50.73(a)(2)(iv)(B) 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.

System Actuation

50.73 Rule Requirements (continued)

- Systems listed under 50.73(a)(2)(iv)(B) include the:
  - (1) RPS including reactor scram and reactor trip.
  - (2) General containment isolation signals affecting containment isolation valves in more than one system or multiple MSIVs
  - (3) ECCS for PWRs including: high-head, intermediate-head, and low-head injection systems and the low pressure injection function of residual (decay) heat removal systems.
  - (4) ECCS for BWRs including: high-pressure and low-pressure core spray systems; high-pressure coolant injection system; low pressure injection function of the residual heat removal system.
  - (5) BWR reactor core isolation cooling system; isolation condenser system; and feedwater coolant injection system.
  - (6) PWR auxiliary or emergency feedwater system.
  - (7) Containment heat removal and depressurization systems, including containment spray and fan cooler systems.
  - (8) Emergency ac electrical power systems, including: EDGs; hydroelectric facilities used in lieu of EDGs at the Oconee Station; and BWR dedicated Division 3 EDGs.
  - (9) Emergency service water systems that do not normally run and that serve as ultimate heat sinks.

System Actuation

Pre-planned Actuations

- Operation of a system as part of a planned test or operational evolution is not reportable.
- Preplanned actuations are those that are expected to actually occur due to preplanned activities covered by procedures.
  - Procedural step or other appropriate documentation indicates that the specific actuation 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.
- 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 (i.e. does not constitute a pre-planned actuation).

System Actuation

Pre-planned Actuations - Example

- The normal reactor shutdown procedure requires that the control rods be inserted by a manual reactor scram. As a result, a reactor scram during a normal shutdown is not reportable.
- However, if unanticipated conditions develop during the shutdown that warrant a reactor scram, then the reactor scram should be reported.

System Actuation

Did "System" Actuate?

- Actuation of multi-channel 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 a report is still required under these criteria if the system should have actuated in response to plant parameters, but did not.
- Train level actuations are considered to constitute a "system" actuation. EDG considered to be actuation of a train.
- Usually, the staff would not consider single-component actuations of complex systems reportable.

System Actuation

Valid Actuations

- "Valid 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 only those signals that are initiated in response to actual plant conditions or parameters satisfying the requirements for initiation of the system.
- "Intentional manual initiations" are those in which one or more system components are manually actuated in response to actual plant conditions resulting from equipment failure or human error.

System Actuation

Invalid 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.
- Invalid actuations can be caused by instrument drift, spurious signals, human error, jarring a cabinet, an error in use of jumpers of lifted leads, an error in actuation of switches or controls, equipment failure, or radio frequency interference.

System Actuation

Reportability of Invalid Actuations - Exceptions

- Unplanned invalid actuations are not reportable if:
  - The invalid actuation occurred when the system is already properly removed from service. This means all requirements of plant procedures for removing equipment from service have been met. It includes required clearance documentation, equipment and control board tagging, and properly positioned valves and power supply breakers.
  - The invalid actuation occurred after the safety function has already been completed. An example would be RPS actuation after the control rods have already been inserted into the core.

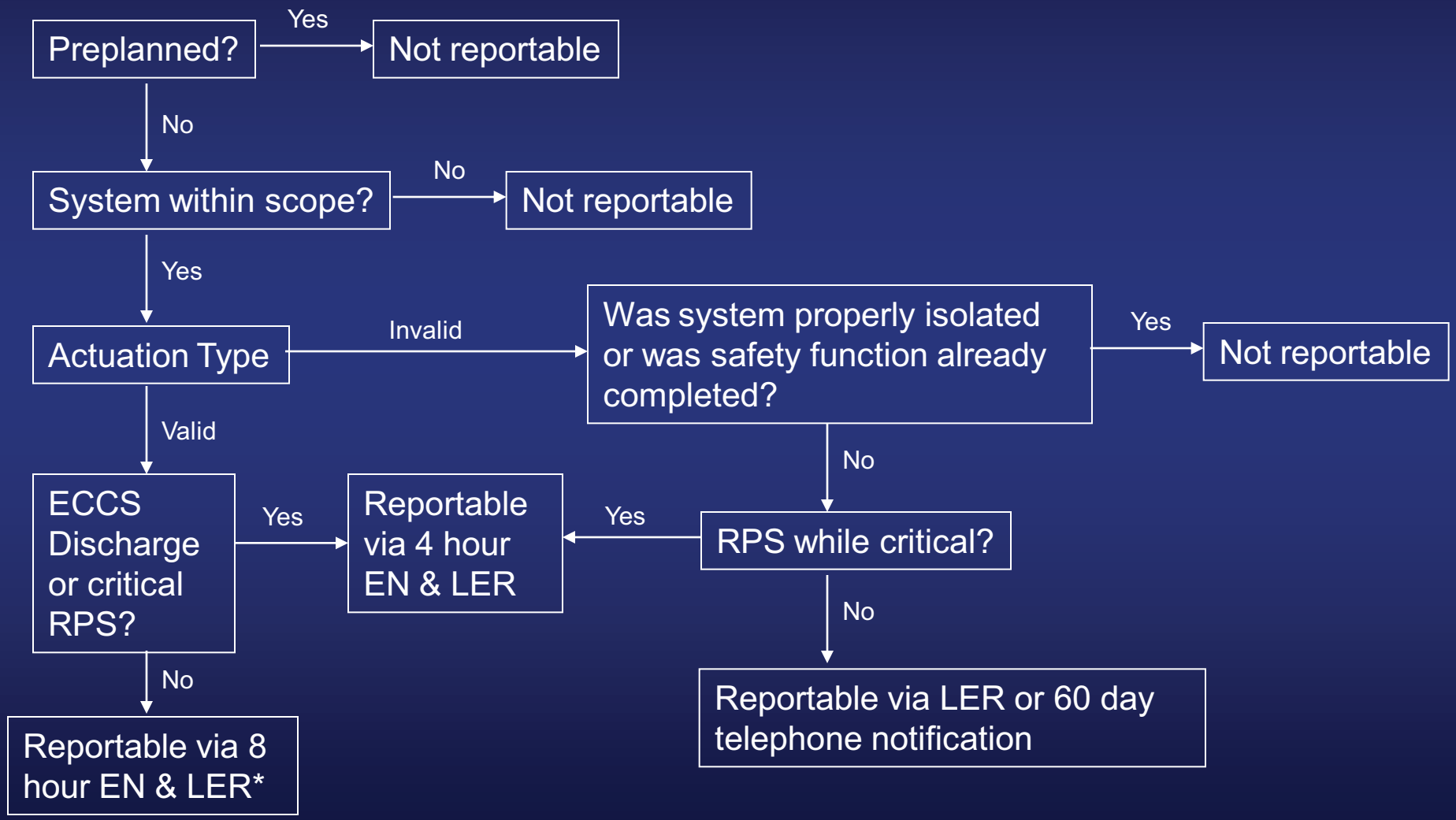
System Actuation

Considerations for Determining whether a LER or a NRC Notification is Required Under 50.73(a)(2)(iv)(A)

- A LER is typically required for reporting under 50.73(a)(2)(iv)(A).
- However, in the case of an invalid actuation, other than actuation of the RPS when the reactor is critical, the licensee may, at its option, provide a telephone notification to the NRC Operations Center within 60 days after discovery of the event instead of submitting a written LER.
- The telephone report:
  - (1) Is not considered a LER.
  - (2) Should identify that the report is being made under 50.73(a)(2)(iv)(A).
  - (3) Should provide the following information:
    - (a) The specific train(s) and system(s) that were actuated.
    - (b) Whether each train actuation was complete or partial.
    - (c) Whether or not the system started and functioned successfully.

System Actuation

Additional Guidance



*Emergency Service Water only requires LER

System Actuation

Current Issues

- There have recent generic issues regarding:
  - Definition of “System Actuation”
  - Classification of “Valid” vs. “Invalid” actuations
  - Impact of plant status on reportability
  - Impact of system classification on reportability
- The NRC plans on holding public meeting with stakeholders in late June 2013 to discuss.
- Possible outcome includes development of additional guidance.

System Actuation

Primary References

- NUREG-1022, Revision 3: Pages 31-38
- 1983 Federal Register Notice:
  - 48 FR 33852 [first column through second column]
  - 48 FR 33854 [first column through second column]
- 1983 Federal Register Notice:
  - 48 FR 39043 [first column]
  - 48 FR 39043 [third column] through 39044 [first column]
- 1992 Federal Register Notice:
  - 57 FR 41376 through 41381
- 2000 Federal Register Notice:
  - 65 FR 63770 [Comment B], 65 FR 63774 [Comment E], 65 FR 63775 [Comment H], 65 FR 63776 [Comment N], 65 FR 63777 [Comments T & U]
  - 65 FR 63782 [third column] through 63783 [second column]

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

50.72 Rule Requirements

- 50.72(b)(3)(v) requires an Event Notification (EN) for 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.
- 50.72(b)(3)(vi) states events covered in paragraph (b)(3)(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 paragraph (b)(3)(v) of this section if redundant equipment in the same system was operable and available to perform the required safety function.
- The EN shall by made as soon as practical, and in all cases, within eight hours of occurrence.

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

50.73 Rule Requirements

- 50.73(a)(2)(v) requires a Licensee Event Report (LER) for any event or condition 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.
- 50.73(a)(2)(vi) states 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 paragraph (a)(2)(v) of this section if redundant equipment in the same system was operable and available to perform the required safety function.

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

Main Difference Between 50.72 & 50.73 Requirements

- If the event or condition could have prevented fulfillment of the safety function at the time of discovery, an ENS notification and an LER are required.
- If the event or condition could have prevented fulfillment of the safety function at any time within 3 years of the date of discovery, but not at the time of discovery, only an LER is required.

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

Systems within Scope

- Systems, Structures, or Components (SSCs) within scope include only:

  1) Safety-related SSCs that are…

  2) Required by the TS to be operable, and…

  3) Are intended to mitigate the consequences of an accident as discussed in Chapters 6 and 15 of the Final Safety Analysis Report (or equivalent chapters).

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

Systems within Scope (cont)

- "…that are intended to mitigate the consequences of an accident …" was added since there may be scenarios in which safety-related SSCs are required to be operable per the TS but are not needed for accident mitigation, and are therefore not within scope. For example:
  - Non-credited defense in depth Reactor Protection System (RPS) instrumentation functions associated with a safety-related RPS card.
  - Safety-related SSCs in certain modes (i.e. Refueling) determined by the NRC to be required for defense in depth. TS associated with earlier Alternate Source Term amendments may have this scenario.
- It is not the intent of this discussion to allow for re-evaluation of the approved TS / design basis.
- Consider NRC Safety Evaluation of TS if needed.

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

"Could Have Prevented"

- For Structures, Systems, or Component (SSCs) that have been declared inoperable, the SSC capability is degraded to a point where it cannot perform with reasonable expectation or reliability, and therefore "could have prevented" fulfillment of a safety function.

- For SSCs within the scope of this criterion, a report is required when :

  1) there is a determination that the SSC is inoperable in a required mode or other specified condition in the Technical Specification (TS) Applicability;

  2) the inoperability is due to one or more personnel errors, including procedure violations; equipment failures; inadequate maintenance; or design, analysis, fabrication, equipment qualification, construction, or procedural deficiencies; and

  3) no redundant equipment in the same system was operable.

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

"Could Have Prevented" (cont)

- Unless a condition is discovered that would have resulted in the system being declared inoperable, reports are not required when:
  - Systems are declared inoperable as part of a planned evolution for maintenance or surveillance testing when done in accordance with an approved procedure and the plant's Technical Specifications (TS), or
  - Systems are declared inoperable solely as a result of Required Actions for which the bases is the assumption of an additional random single failure (i.e. Structures, Systems, or Components (SSCs) supported by an inoperable Diesel Generator declared inoperable when its redundant SSCs are inoperable).
- Inoperabilities declared as a result of the above are not due to one or more personnel errors, including procedure violations; equipment failures; inadequate maintenance; or design, analysis, fabrication, equipment qualification, construction, or procedural deficiencies.

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

"Planned" Evolutions

- Section 3.2.7 of NUREG-1022 does not define what constitutes a "planned" evolution for the purposes of this reporting criteria. As a result, may be potentially subject to engineering judgment.

- Section 3.2.6 for "System Actuations" does define what constitutes a preplanned activity. Given that discussion, for the purposes of this reporting criteria, the following may be considered in determining the appropriateness of a judgment call:
  - Is the preplanned inoperability covered by procedure?
  - Is there a procedural step or other appropriate documentation that indicates the specific inoperability is actually expected to occur?
  - Are control room personnel aware of the specific inoperability before its occurrence?

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

Single and Multi-Train Systems

- There are a limited number of single-train systems that perform safety functions (e.g., the HPCI system in BWRs). For such systems, inoperability of the single train is reportable even though the plant TS may allow such a condition to exist for a limited time.

- For systems that include three or more trains, the inoperability of two or more trains should be reported if, in the judgment of the licensee, the remaining operable trains could not mitigate the consequences of an accident.

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

Role of Alternate Systems

- The event must be reported regardless of whether or not an alternate safety system could have been used to perform the safety function.
- For example, if the onsite power system was declared inoperable due to equipment failures, the event would be reportable, even if the offsite power system remained operable.

Event or Condition that Could Have Prevented Fulfillment of a Safety Function

Primary References

- NUREG-1022, Revision 3: Pages 38 – 45
- 1983 Federal Register Notice:
  - 48 FR 33854 [second column] through 48 FR 33855 [first column]
- 1983 Federal Register Notice:
  - 48 FR 39044 [first through third column]
- 2000 Federal Register Notice:
  - 65 FR 63774 [comment F]
  - 65 FR 63775 [comment I]
  - 65 FR 63780 [third column]
  - 65 FR 63783 [second column through third column])

Common-cause Inoperability of Independent Trains or Channels

Common-cause Inoperability of Independent Trains or Channels

Rule Requirements

- There are no reporting requirements under 50.72.
- 50.73(a)(2)(vii) requires that a Licensee Event Report (LER) be submitted for 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

Common-cause Inoperability of Independent Trains or Channels

General Discussion

- This criterion requires those events to be reported in which a single cause or condition caused independent trains or channels to become inoperable.
- Pant specific licensing basis used to determine if trains or channels are independent with regards to failure mode.
- 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.

Common-cause Inoperability of Independent Trains or Channels

Failure Considerations

- Also includes 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 in which a single component failure results in the failure of one or more additional components.
- 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 nonqualified components, or manufacturing or design flaws.

Common-cause Inoperability of Independent Trains or Channels

Preplanned Evolutions

- This criterion does not include planned evolutions in accordance with an approved procedure and the plant's TS.
- However, the identification of pre-existing conditions must be evaluated for reportability under this criterion.

Common-cause Inoperability of Independent Trains or Channels

Primary References

- NUREG-1022, Revision 3: Pages 46 – 48
- 1983 Federal Register Notice:
  - 48 FR 33855 [first through third column]
- 2000 Federal Register Notice:
  - 65 FR 63781 [second column]

Radioactive Release

Radioactive Release

Rule Requirements

- There are no reporting requirements under 50.72.
- 50.73(a)(2)(viii) requires that a Licensee Event Report (LER) be submitted for:
  - (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.

Radioactive Release

Guidance on Estimating Releases

- 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.

Radioactive Release

Primary References

- NUREG-1022, Revision 3: Pages 48 – 50
- 1983 Federal Register Notice:
  - 48 FR 33856 [third column] through 33857 [first column]
- 1983 Federal Register Notice:
  - 48 FR 39044 [third column] through 39055 [first column]
- 2000 Federal Register Notice:
  - 65 FR 63783 [third column] through 63784 [first column]

Internal Threat or Hampering

Internal Threat or Hampering

Rule Requirements

- There are no reporting requirements under 50.72.
- 50.73(a)(2)(x) requires that a Licensee Event Report (LER) be submitted for 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.

Internal Threat or Hampering

Scope of Rule

- 50.73(a)(2)(x) pertains to internal threats.
- Applies narrowly only to those events that "significantly hamper" the ability of site personnel to perform safety-related activities affecting plant safety.
- Involves the use of engineering judgment.
- The criterion for external threats is described under 50.73(a)(2)(iii).

Internal Threat or Hampering

Considerations

- One way to evaluate if there is a "significant hampering" 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.
- "Significant hampering" includes hindering or interfering, provided that the interference or delay is sufficient to significantly threaten the safe operation of the plant.
- Actions such as precautionary room evacuations, or even evacuations that affect a major part of the facility, 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.

Internal Threat or Hampering

Examples

- 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.
- 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.
- 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 do not automatically constitute “significant hampering.”
- In general, control room fires constitute “significant hampering.” However, quickly discovered and extinguished control room fires may not constitute “significant hampering.”

Internal Threat or Hampering

Primary References

- NUREG-1022, Revision 3: Pages 50-52
- 1983 Federal Register Notice:
  - 48 FR 33853 [comment on building evacuation]
  - 48 FR 33856 [second column through third column]
- 1983 Federal Register Notice:
  - 48 FR 39041 [comment on building evacuation]
  - 48 FR 39043 [second column]
- 2000 Federal Register Notice:
  - 65 FR 63784 [first column]

Transport of a Contaminated Person Offsite

Transport of a Contaminated Person Offsite

Rule Requirements

- 50.72(b)(3)(xii) requires an Event Notification (EN) for any event requiring the transport of a radioactively contaminated person to an offsite medical facility for treatment.
- The EN shall by made as soon as practical, and in all cases, within eight hours of occurrence.
- There are no reporting requirements under 50.73.

Transport of a Contaminated Person Offsite

Discussion on "Radioactively Contaminated"

- 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 EN notification.

Transport of a Contaminated Person Offsite

Primary References

- NUREG-1022, Revision 3: Pages 52 – 53
- 1983 Federal Register Notice:
  - 48 FR 39045 [first column]

News Release or Notification of Other Government Agency

News Release or Notification of Other Government Agency

Rule Requirements

- 50.72(b)(2)(xi) requires an Event Notification (EN) for 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.
- The EN shall by made as soon as practical, and in all cases, within four hours of occurrence.
- There are no reporting requirements under 50.73.

News Release or Notification of Other Government Agency

When does Reporting Clock Start?

- For events or situations "related to the health and safety of the public or onsite personnel, or to protection of the environment," licensees are required to notify the NRC within 4 hours of whichever of the following occurs first:
  - A plan to report to either the press or another government agency is approved by an individual authorized to make the final decision, or
  - A report has actually been made to the press or another government agency.
- In the case of an event for which a news release is planned, it is requested (but not necessarily required) that the report be provided by the time the news release is issued.

News Release or Notification of Other Government Agency

Considerations

- Licensees 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.”
- Some examples are provided in NUREG-1022 for what does or does not constitute “related to the health and safety of the public or on-site personnel, or protection of the environment.”
- For scenarios in which no examples exist, the use of engineering judgment is afforded.

News Release or Notification of Other Government Agency

Examples

- Examples of events likely to be "related to the health and safety of the public or on-site personnel, or protection of the environment:"
  - Release of radioactively contaminated tools or equipment to public areas
  - Unusual or abnormal releases of radioactive effluents
  - Onsite fatality
- Examples of events not likely to be "related to the health and safety of the public or on-site personnel, or protection of the environment:"
  - 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

News Release or Notification of Other Government Agency

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 a requirement to report to the NRC.
- Some plants provide a State incident response facility with alarm indication coincident with control room alarms (e.g., an effluent radiation monitor alarm).
  - An alarm received at a State facility is in itself not a requirement for notifying the NRC under this criterion.
  - However, a release is reportable under this criterion if a press release is planned or a specific report (beyond the automatic alarm indication) has been or will be made to a State agency.

News Release or Notification of Other Government Agency

Primary References

- NUREG-1022, Revision 3: Pages 53 - 57
- 1983 Federal Register Notice:
  - 48 FR 39045 [first column]
- 2000 Federal Register Notice:
  - 65 FR 63733 [comment D]

Loss of Emergency Preparedness Capabilities

Loss of Emergency Preparedness Capabilities

Rule Requirements

- 50.72(b)(3)(xiii) requires an Event Notification (EN) for 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).
- The EN shall by made as soon as practical, and in all cases, within eight hours of occurrence.
- There are no reporting requirements under 50.73.

Loss of Emergency Preparedness Capabilities

Considerations

- This reporting requirement pertains to events that would result in a "major loss" of emergency assessment capability, offsite response capability, or offsite communications capabilities.
- The focus of this reporting requirement is in the loss of capabilities to perform functions identified in the respective emergency plan.
- Failures of individual systems or facilities that comprise these capabilities are reportable only to the extent that these failures meet the above threshold.
- Involves the use of engineering judgment. Consider feedback from NRC Emergency Planning staff on issues of concern.
- NEI 13-01, "Reportable Action Levels for Loss of Emergency Preparedness Capabilities" being developed to provide more specific guidance.

Loss of Emergency Preparedness Capabilities

Loss of Emergency Assessment Capability

- A "major loss" of emergency assessment capability includes those events that would "significantly impair" the licensee's emergency assessment capability if an emergency were to occur.
- With regards to display systems, indicators, and annunciators:
  - Only considers those relied upon in the emergency plan and the emergency plan implementing procedures addressing classification, assessment, or protective actions; and those relied upon in other station procedures that provide input to these activities.
  - Should consider indication remaining available in emergency plan.
- Only considers primary Emergency Response Facilities (ERF) by the emergency plan. Typically, these functions would be the technical support center (TSC) but may include the emergency operations facility (EOF).
- Involves the use of engineering judgment.
- Degradations are not reportable if the assessment capabilities ARE restored to service within the facility activation times specified in the emergency plan.

Loss of Emergency Preparedness Capabilities

Loss of Emergency Assessment Capability – Planned Maintenance

- Planned maintenance which impacts the accident assessment functions need not be reported if:

  1) A) The assessment capabilities COULD BE restored to service within the facility activation time specified in the emergency plan in the event of an accident

     OR

     B) The licensee had implemented "viable" compensatory actions

     AND

  2) The planned outage is not expected to, and subsequently did not, exceed 72 hours.

- A "viable" compensatory action (1) can restore the required function in a "reasonably comparable manner" and (2) is proceduralized prior to an event.

- "Reasonably comparable manner" involves the use of engineering judgment.

Loss of Emergency Preparedness Capabilities

Loss of Offsite Response Capability

- A “major loss” of offsite response capability includes those events that would “significantly impair” the ability of the licensee or offsite officials to implement the functions of their respective emergency plans if an emergency were to occur.
- Some examples are provided in NUREG-1022.
- For scenarios in which no examples exist, the use of engineering judgment is afforded.

Loss of Emergency Preparedness Capabilities

Loss of Offsite Response Capability – Example 1

- The occurrence of a significant natural hazard (e.g., earthquake, hurricane, tornado, flood, major winter storms) or other event that would do one or both of the following:
  - Prevent State and local jurisdictions from maintaining evacuation routes passable, or from maintaining other parts of the response infrastructure available, to the extent that these jurisdictions would be unable to implement the public protective measures called for in their emergency plan, if known by the licensee, or,
  - Restrict access to the licensee's site, or its offsite primary EOFs, such that the licensee would not be able to augment its on-shift staff or activate its ERFs as required by the emergency plan, or
  - Restrict access to the licensee's site, or its offsite primary EOFs, such that offsite response support relied upon in the emergency plan, such as fire departments, local law enforcement, and ambulance services, would not be able to access the site.
- Traffic impediments, such as fog, snow, and ice, should generally not be reported if they are within the respective capabilities of the licensee, State, or local officials to resolve or mitigate.

Loss of Emergency Preparedness Capabilities

Loss of Offsite Response Capability – Example 2

- Failures in the primary public alerting systems (e.g., sirens, tone alert radios), for whatever reason, that result in the loss of the capability to alert a "large segment of the population" in the emergency planning zone (EPZ) for more than 1 hour.
- The licensee should take reasonable measures to remain informed of the status of the primary public alerting system, regardless of who maintains the system.
- A planned outage of the primary public alerting system need not be reported if:
  1) The licensee had arranged for the implementation of Federal Emergency Management Agency (FEMA)-approved backup alerting methods should public alerting become necessary, AND
  2) The planned outage is not expected to, and subsequently did not, exceed 24 hours.
- "Large segment of the population" involves the use of engineering judgment.

Loss of Emergency Preparedness Capabilities

Loss of Communications Capability

- A “major loss” of communications capability include those events that would “significantly impair” the ability of the licensee to implement the functions of its emergency plans if an emergency were to occur.
- Intended to apply to serious conditions during which the communication requirements of the emergency plan can no longer be fulfilled.
  - NUREG-1022, Revision 3 (Page 59) inadvertently equates alternate methods (found in NRC approved plan) with compensatory actions (not found in emergency plan).
  - As a result, pre-approved, proceduralized, “reasonably comparable” compensatory actions outside of the emergency plan may be considered.
  - Will work with stakeholders in determining if issue can be resolved.
- Includes communication systems that enable a licensee to make notifications and provide follow-up information to Federal, State, and local officials located offsite.
- Includes communication capabilities between the site and licensee Emergency Response Organization (ERO) personnel assigned offsite.
- Involves the use of engineering judgment.

Loss of Emergency Preparedness Capabilities

Loss of Communications Capability – Planned Maintenance

- Planned maintenance which impacts the emergency communications capability need not be reported if:

  1) A) The communication system COULD BE restored to service "promptly" in the event of an accident

     OR

     B) The licensee had implemented "viable" compensatory actions

     AND

  2) The planned outage is not expected to, and subsequently did not, exceed 72 hours.

- "Promptly" means within the emergency plan requirements specified for the communication system. A loss of the ability to make initial notifications would need to be restored within 15 minutes, while a loss of the ability to communicate between ERFs would need to be restored within the facility activation time.

- A "viable" compensatory action (1) can restore the required function in a "reasonably comparable manner" and (2) is proceduralized prior to an event.

- "Reasonably comparable manner" involves the use of engineering judgment.

Loss of Emergency Preparedness Capabilities

Loss of Communications Capability – NRC Supplied Equipment

- The licensee should inform the NRC Operations Center of any failure of NRC-supplied communications equipment so that the NRC may arrange for repair.
- Unless a Loss of Communications Capability exists, such calls are not considered a 10 CFR 50.72(b)(3)(xiii) report.
- If the Operations Center (or the ERDS Data Center) notifies the licensee that an ENS, HPN, or ERDS line is out of service, there is no need for an additional call.

Loss of Emergency Preparedness Capabilities

Going Forward

- NUREG-1022, Revision 3 continues to contain discussions on reporting Loss of Emergency Preparedness that affords licensees engineering judgment .
- NEI 13-01, “Reportable Action Levels for Loss of Emergency Preparedness Capabilities” is being developed to provide more specific guidance. Will be submitted to the NRC for review and endorsement.
- In the meantime, if plant specific issues of concern arise, inspectors are highly encouraged to seek inputs from Regional and HQ Emergency Planning staff in making a determination on reportability.

Loss of Emergency Preparedness Capabilities

Primary References

- NUREG-1022, Revision 3: Pages 57 – 62
- 1983 Federal Register Notice:
  - 48 FR 39043 [first through second columns]
- 2000 Federal Register Notice:
  - 65 FR 63784 [first column]

Single Cause that Could Have Prevented Fulfillment of the Safety Functions of Trains or Channels in Different Systems

Single Cause that Could Have Prevented Fulfillment of the Safety Functions of Trains or Channels in Different Systems

Rule Requirements

- There are no reporting requirements under 50.72.
- 50.73(a)(2)(ix) requires that a Licensee Event Report (LER) be submitted for:
  - (A) Any event or condition that as a result of a single cause could have prevented the fulfillment of a safety function for two or more trains or channels in different systems that are needed to:
    - (1) Shut down the reactor and maintain it in a safe shutdown condition;
    - (2) Remove residual heat;
    - (3) Control the release of radioactive material; or
    - (4) Mitigate the consequences of an accident.
  - (B) Events covered in paragraph (ix)(A) of this section may include cases of procedural error, equipment failure, and/or discovery of a design, analysis, fabrication, construction, and/or procedural inadequacy. However, licensees are not required to report an event pursuant to paragraph (ix)(A) of this section if the event results from:
    - (1) A shared dependency among trains or channels that is a natural or expected consequence of the approved plant design; or
    - (2) Normal and expected wear or degradation.

Single Cause that Could Have Prevented Fulfillment of the Safety Functions of Trains or Channels in Different Systems

Intent of Rule & Impact

- The NRC staff may have been interested in non-routine, operable but degraded and nonconforming events and conditions in independent systems.
- However, the intent appears to conflict with passages found in the 2000 FRN and NUREG-1022, Revision 2 guidance that set the threshold for reporting as a "reasonable expectation of preventing fulfillment of the safety function."
- Per the Attachment to Regulatory Issue Summary (RIS) 2005-20, Revision 1, operable but nonconforming and degraded conditions are not considered events or conditions in which there is a reasonable expectation of preventing fulfillment of the safety function.
- NUREG-1022, Revision 3 guidance correlates reporting threshold to Technical Specification (TS) inoperability. However, independent inoperabilities of trains or channels in different systems are reported under 10 CFR 50.73(a)(2)(vii), "Common-cause Inoperability of Independent Trains or Channels."
- Consideration should be given as to whether or not a report required under 10 CFR 50.73(a)(2)(vii) was submitted.

Single Cause that Could Have Prevented Fulfillment of the Safety Functions of Trains or Channels in Different Systems

Primary References

- NUREG-1022, Revision 3: Pages 62 – 66
- 2000 Federal Register Notice:
  - 65 FR 63769 [comment A]
  - 65 FR 63781 [second column] through 63782 [third column])
- February 2000 Presentation to the Advisory Committee on Reactor Safeguards (ADAMS Accession Nos. ML003682560 and ML081830534)

Questions?