DRAFT REGULATORY ANALYSIS

EVENT REPORTING GUIDELINES: 10 CFR 50.72 and 50.73

(Proposed Revision 3 to NUREG-1022, Revision 2, issued October 2000)

Statement of the Problem

NUREG-1022, Revision 2, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," issued October 2000, contains guidelines that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable for use in meeting the reporting requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," and 10 CFR 50.73, "Licensee Event Report System." Some of the guidance in NUREG-1022 is unclear and, therefore, can potentially result in events or conditions not being reported to the NRC under 10 CFR 50.72 and 10 CFR 50.73.

Objective

The objective of this regulatory action is to update NRC guidance and provide applicants with a method to demonstrate compliance with the requirements for event reporting in 10 CFR 50.72 and 50.73.

Alternative Approaches

The NRC staff considered the following alternative approaches:

- Do not revise NUREG-1022.
- Revise NUREG-1022.

Alternative 1: Do Not Revise NUREG-1022

Under this alternative, the NRC would not revise this document, and applicants would continue to use NUREG-1022, Revision 2. However, this alternative would cause conflicting guidance to remain in effect and could cause unnecessary confusion. This alternative is considered to be the baseline or "no action" alternative and, as such, involves no value or impact considerations.

Alternative 2: Revise NUREG-1022

Under this alternative, the NRC would revise NUREG-1022, taking into consideration the 10 CFR 50.72 and 50.73 rule itself, the associated Federal Register notices (FRNs), and existing and historic NUREG-1022 guidance. For areas of significant stakeholder interest, the staff's basis for changes can be found in Appendices A through G to "Discussion of Changes Associated with Draft NUREG-1022, Revision 3" (Agencywide Documents and Management System (ADAMS) Accession No. ML11068A030).

The benefit of this action is that it would ensure that significant events are reported for which NRC action may be needed to maintain or improve reactor safety or to respond to heightened public concern. None of these changes is considered to conflict with the actual wording found in 10 CFR 50.72 and 50.73.

With the exception of Appendix C to "Discussion of Changes Associated with Draft NUREG-1022, Revision 3," (on systems within scope for reporting under "Events or Conditions that Could Have Prevented Fulfillment of a Safety Function"), all other changes are based on aligning the NUREG-1022 guidance with staff positions found in the FRNs (48 FR 33850 published on July 26, 1983, 48 FR 39039 published on August 29, 1983, and 65 FR 63769 published on October 25, 2000). The impact to the NRC would be the costs associated with preparing and issuing the revision to NUREG-1022. The impact to stakeholders should be minimal because the regulatory requirements of 10 CFR 50.72 and 10 CFR 50.73 and staff positions found in the FRNs have not changed. The existing guidance is unclear, and reference to the rule and its associated FRNs is typically required.

The changes discussed in Appendix C to "Discussion of Changes Associated with Draft NUREG-1022, Revision 3," (on systems within scope for reporting under "Events or Conditions that Could Have Prevented Fulfillment of a Safety Function") are considered to be a change in staff position that differs from previous staff positions found in existing and historic NUREG-1022 guidance. The change clarifies ambiguities in the FRNs. As discussed in Appendix C, these changes would also supersede discussions in RIS 2001-14, "Position on Reportability Requirements for Reactor Core Isolation Cooling System Failure," dated July 19, 2001. 48 FR 33850 published on July 26, 1983 and 48 FR 39039 published on August 29, 1983 indicate that systems and structures within the scope of this criterion includes safety-related systems and structures that are intended to mitigate the consequences of an accident, as well as their support systems that are necessary for reliable or long-term operation. This revision clarifies that systems and structures within scope of criterion 10 CFR 50.72(b)(3)(v) and 10 CFR 50.73(a)(2)(v) include systems required by the technical specifications (TS) to be operable to perform one of the four functions (A) through (D) specified in the rule, as well as their support systems that are also retained in the TS. As a result, systems and structures within scope of this criterion also includes those systems and structures that may be risk significant or provide for defense in depth, as well as their support systems (if they can perform one of the four functions (A) through (D) specified in the rule).

The impact on the NRC of the changes discussed in Appendix C to "Discussion of Changes Associated with Draft NUREG-1022, Revision 3" would be the costs associated with preparing and issuing the revision to NUREG-1022. The impact to stakeholders is roughly estimated by evaluating the number of increased reports expected and the resources associated with those extra reports. As an example, residual heat removal in shutdown modes, the remote shutdown panel, reactor core isolation cooling (RCIC), pressurizer power-operated relief valves (PORVs), standby liquid control (SLC), and containment hydrogen ignitors are typically retained in the TS because they are considered to be risk significant systems. Inoperabilities of these systems for extended periods of time (i.e., inoperability exceeds stated completion times) are currently reportable under 10 CFR 50.73 as an "Operation or Condition Prohibited by Technical Specifications." With the proposed position, inoperabilities of these systems for any period of time would be reportable under 10 CFR 50.72 (if discovered at the time of occurrence) and

10 CFR 50.73 as an "Event or Condition that Could Have Prevented Fulfillment of a Safety Function." Therefore, as a rough estimate, the staff assumed that any reports previously submitted because of inoperabilities of these systems for extended periods of time would now warrant additional licensee reports for inoperabilities of any time length. In addition, a licensee may experience more instances of inoperabilities for shorter periods of time (i.e., the inoperability does not exceed the stated completion time) than for longer periods, so a correction factor would need to be factored in. A search of the licensee event report (LER) database for the following conditions yielded the following results:

- Search 1: Event Date: 1/23/02–7/31/11; Reportability: 50.73(a)(2)(i)(B), "Operation or Condition Prohibited by Technical Specifications"; Full Document Keywords: "RHR"; Operating Mode: Hot Shutdown, Cold Shutdown, Refueling; Result 1: 36 events

- Search 2: Event Date: 1/23/02–7/31/11; Reportability: 50.73(a)(2)(i)(B), "Operation or Condition Prohibited by Technical Specifications"; Full Document Keywords: "Remote Shutdown Panel"; Result 2: 10 events

- Search 3: Event Date: 1/23/02–7/31/11; Reportability: 50.73(a)(2)(i)(B), "Operation or Condition Prohibited by Technical Specifications"; Full Document Keywords: "RCIC"; Result 3: 41 events

- Search 4: Event Date: 1/23/02–7/31/11; Reportability: 50.73(a)(2)(i)(B), "Operation or Condition Prohibited by Technical Specifications"; Full Document Keywords: "PORV"; Result 4: 29 events

- Search 5: Event Date: 1/23/02–7/31/11; Reportability: 50.73(a)(2)(i)(B), "Operation or Condition Prohibited by Technical Specifications"; Full Document Keywords: "SLC."; Result 5: 11 events

- Search 6: Event Date: 1/23/02 – 7/31/11; Reportability: 50.73(a)(2)(i)(B), "Operation or Condition Prohibited by Technical Specifications"; Full Document Keywords: "Hydrogen Ignitor"; Result 6: 1 event

For the above searches, there may not have been an actual inoperability of the system in question (i.e., the results just indicate that the LER has a keyword within the text). In considering the impact to stakeholders, it can be conservatively assumed that every event was attributed to a system inoperability. As a result, the staff assumed that the above search yielded 128 events in which risk-significant systems were inoperable for extended periods of time. These events would also now be reportable as an "Event or Condition that Could Have Prevented Fulfillment of a Safety Function." In order to account for inoperabilities of shorter time periods that would now be reportable, a correction factor would need to be factored in. High-pressure coolant injection (HPCI) is currently required to be reportable if it is inoperable for any period of time. In order to obtain a rough correction factor, the staff evaluated HPCI long-term and short-term inoperabilities. A LER database search for the following conditions yielded the following results:

- Search 1: Event Date: 1/23/02–7/31/11; Reportability: 50.73(a)(2)(i)(B), "Operation or Condition Prohibited by Technical Specifications"; Full Document Keywords: "HPCI"; Result 1: 38 events

- Search 2: Event Date: 1/23/02–7/31/11; Reportability: 50.73(a)(2)(v), 50.73(a)(2)(v)(A) through 50.73(a)(2)(v)(D), "Event or Condition that Could Have Prevented Fulfillment of a Safety Function"; Full Document Keywords: "HPCI"; Result 2: 76 events

Again, for the above searches there may not have been an actual inoperability of the system in question (i.e., the results just indicate that the LER has a keyword within the text). In considering the impact to stakeholders, it can be conservatively assumed that every event was attributed to a system inoperability. As a result, the staff assumed that the above search yielded 38 events in which HPCI was inoperable for extended periods of time and 38 events in which HPCI was inoperable for shorter periods of time (i.e., search result 2 minus search result 1, because extended inoperabilities of HPCI are also reportable as an "Event or Condition that Could Have Prevented Fulfillment of a Safety Function"). As a result, is the staff assumed that the number of new reports for inoperabilities of risk-significant equipment for short time periods is equal to the number of reports currently received for extended losses. Therefore, it is assumed that roughly 15 more reports per year (128 events in 9 years divided by 9) would now be required for risk-significant system inoperabilities of shorter time periods. This does not take into account functional inoperabilities associated with the Reactor Protection System (RPS) or the Engineered Safety Feature Actuation System (ESFAS) channels or the inoperabilities of support equipment that are retained in the TS. It would be time consuming to search the LER database for these specific losses. As a result, it is assumed that these inoperabilities would comprise an additional 15 LER reports per year. This would bring the total number of new expected LER reports to 30 per year. If it is assumed that each "Event or Condition that Could Have Prevented Fulfillment of a Safety Function" that required an LER also required an event notification (EN), then 30 additional ENs would also be required per year. From January 1, 2010, through December 31, 2010, there were roughly 500 ENs and 250 LERs submitted by licensees. New reports would amount to roughly 6 percent more ENs and 12 percent more LERs per year.

In order to consider costs, the staff assumed that the labor cost to licensees is the average cost per professional NRC staff-hour (under 10 CFR Part 170, "Fees for Facilities, Materials, Import and Export Licenses, and Other Regulatory Services Under the Atomic Energy Act of 1954, as Amended"), which is $259 per hour. If it is assumed that it takes one full-time equivalent staff a week (40 hours) to process an extra EN and LER report for an event, then the total extra cost to licensees to process 30 extra EN and LER reports per year is roughly $310,000 per year.

Conclusion

The NRC intends to issue this revision to NUREG-1022 to change guidance associated with 10 CFR 50.72 and 50.73 reporting requirements. The staff has concluded that providing revised guidance can assure that significant events are reported for which NRC action may be needed to maintain or improve reactor safety or to respond to heightened public concern. None of the

changes are considered to conflict with the actual wording found in 10 CFR 50.72 and 50.73. The staff considers these benefits to outweigh the expected impacts to stakeholders.