June 4, 2013

MEMORANDUM TO: Timothy J. Kobetz, Chief
Reactor Inspection Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

FROM: Aron Lewin, Reactor Operations Engineer **/RA/**
Reactor Inspection Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

SUBJECT: NOTICE OF PUBLIC MEETING TO DISCUSS EVENT REPORTING OF SYSTEM ACTUATIONS

DATE & TIME: Wednesday, June 26, 2013
1:00 p.m. - 4:00 p.m.

Meeting will end early if all agenda items are discussed ahead of schedule.

LOCATION: U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike, Room O-7B6
Rockville, MD

PURPOSE: The purpose of the meeting is to solicit comments on identified issues associated with the event reporting of system actuations.

CATEGORY 2*: This is a category 2 meeting. The public is invited to participate in this meeting by discussing regulatory issues with the NRC at designated points identified on the agenda.

Interested members of the public can participate in this meeting via a toll-free teleconference. For details, please call the NRC meeting contacts.

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* Commission's Policy Statement on "Enhancing Public Participation in NRC Meetings," (67 FR 36920) May 28, 2002.

PARTICIPANTS:	NRC	INDUSTRY
	A. Lewin, NRR	J. Slider, NEI
	Others, NRC	Others, Industry

Enclosures:
(1) Meeting Agenda
(2) Identified Issues

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DATE	06/3 /2013	06/3/2013

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MEETING AGENDA

I. Administration (1:00 p.m. - 1:30 p.m.)
   A. Introductions
   B. Agenda Review

II. NRC to solicit comments on identified issues associated with the event reporting of system actuations. Breaks as needed. (1:30 p.m. – 3:30 p.m.)

III. Public Comment Period (3:30 p.m. – 3:45 p.m.)

IV. Closing Comments (3:45 p.m. – 4:00 p.m.)

ENCLOSURE 1

10 CFR 50.72(b)(3)(iv) / 50.73(a)(2)(iv) System Actuation Issues

1. Is a system considered to actuate if the only components to change state are those channels enough to complete the minimum actuation logic?

   Background: Section 3.2.6, "System Actuation," of NUREG-1022, Revision 2 (ML003762595), states "Actuation of multichannel 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." This statement is found in the Federal Register Notice (FRN) associated with the original 1983 rule (48 FR 33850).

   The first scenario in Example 1 of Section 3.2.6, of NUREG-1022, Revision 2, indicates a valid actuation of RPS and containment isolation occurred due to signals generated as a result of actual plant conditions even though no components other than the logic may have changed position. This example first appears in Section 3.3.2, "Actuation of an Engineered Safety Feature (ESF) or the RPS," of NUREG-1022, Revision 1 (ML070530420).

2. There is an additional discussion found only in NUREG-1022 that indicates a system is considered to actuate if enough components actuate to carry out the system's function (typically at least a train). Is the intent of this discussion to emphasize the original FRN discussion that single channels actuations, pump starts, other component manipulations, etc., are not reportable if the minimum actuation logic for a train is not met? If not, could this discussion be in conflict with the Background discussion found in Question 1 above?

   Background: Section 3.2.6, "System Actuation," of NUREG-1022, Revision 2 (ML003762595), states:

   > "The intent is to require reporting of the 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 an EDG to be actuation of a train—not actuation of a single component—because an EDG mitigates the event (performs the safety function)."

10 CFR 50.72(b)(3)(iv) / 50.73(a)(2)(iv) System Actuation Issues

This discussion first appears in Section 3.3.2, “Actuation of an Engineered Safety Feature or the RPS” of NUREG-1022, Revision 1 (ML070530420). The background for the Revision 1 discussion can be found in a Federal Register Notice (58 FR 18167). The FRN indicates that the phrase ‘associated valves, piping, instrumentation, interlocks, pumps, tanks and necessary heat tracing’ has been deleted at several places in the Draft NUREG-1022, Revision 1 since the phrases are no longer appropriate because the staff has concluded that actuation at the train level, rather than at the component level, is reportable.

3. Is it considered an actuation if enough channels complete the minimum actuation logic but are only functions associated with continued system operation or protection (e.g. storage water tank swap or system isolation)?

   Background: Example C-7 of NUREG-1022, Revision 0 (ML101550096) indicates that a partial actuation of RCIC to isolate the steam supply on high steam flow (indicative of a pipe break) is an actuation. However, the example could be focusing on containment isolation.

   In addition, as indicated in the Background for Question 2 above, the FRN associated with NUREG-1022, Revision 1 indicates that the staff has concluded that actuation at the train level, rather than at the component level, is reportable.

4. Are system classification (i.e. safety-related / non-safety related) or plant status (i.e. operating in a Mode in which system may not be needed) considerations in determining if an “actuation” occurred or in determining the classification of the actuation (i.e. valid vs. invalid)?

   Background: The FRN associated with the original 1983 rule (48 FR 33850) states “This paragraph requires events to be reported whenever an ESF actuates either manually or automatically, regardless of plant status.”

   The FRN associated with the 2000 rule change (65 FR 63769) states “Previously, the rules generally required reporting the actuation of any ESF including the RPS. The final rule, instead, generally requires reporting for actuation of specific listed systems.” The FRN also states “This approach provides for consistent reporting of actuations for these highly risk-significant systems.”

   The FRN associated with the 2000 rule change also states “A valid actuation is one that results from either a ‘valid signal’ or an intentional manual initiation. A ‘valid signal’ is one that results from actual plant conditions or parameters satisfying the requirements for system actuation. An invalid actuation is one that does not meet the criteria for being valid.” The definitions do not seem to take into account system classification or plant status.

5. Is a signal's classification (i.e. credited in FSAR / non-credited in FSAR) consideration in determining if an "actuation" occurred or in determining the classification of the actuation (i.e. valid vs. invalid)? For example, can a non-credited signal still result in a valid actuation of a safety-related system?

   Background: The FRN associated with the 2000 rule change (65 FR 63769) states "Previously, the rules generally required reporting the actuation of any ESF including the RPS. The final rule, instead, generally requires reporting for actuation of specific listed systems." The FRN also states "This approach provides for consistent reporting of actuations for these highly risk-significant systems." It appears that the emphasis is on the reporting of the specific listed systems as opposed to the classification of either the system or the actuation signal.

   The FRN associated with the 2000 rule change also states "A valid actuation is one that results from either a 'valid signal' or an intentional manual initiation. A 'valid signal' is one that results from actual plant conditions or parameters satisfying the requirements for system actuation. An invalid actuation is one that does not meet the criteria for being valid." The definition of valid signal does not seem to take into account signal classification.

6. Is a report required for a "System Actuation" if an actuation should occur due to unplanned actual plant conditions, but fails to do so?

   Background: Section 3.2.6, "System Actuation," of NUREG-1022, Revision 2 (ML003762595), states: "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)…" This discussion is also found in the FRN associated with the original rule (48 FR 33850).

   Section 3.2.6 of NUREG-1022, Revision 2, also states "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 under these paragraphs…" This discussion first appears in Section 3.3.2, "Actuation of an Engineered Safety Feature or the RPS," of NUREG-1022, Revision 1 (ML070530420).

7. Is actual performance of a system's function (i.e. ECCS discharge, EDG output breaker closing, etc.) a consideration in determining if an "actuation" occurred or in determining the classification of the actuation (i.e. valid vs. invalid)?

   Background: The first scenario in Example 1 of Section 3.2.6, "System Actuation," of NUREG-1022, Revision 2 (ML003762595), indicates a report due to a valid actuation is required even though there is no performance of the actual system's function due to plant conditions. This example first appears in Section 3.3.2, "Actuation of an Engineered Safety Feature (ESF) or the RPS," of NUREG-1022, Revision 1 (ML070530420).

10 CFR 50.72(b)(3)(iv) / 50.73(a)(2)(iv) System Actuation Issues

The FRN associated with the 2000 rule change states “A valid actuation is one that results from either a ‘valid signal’ or an intentional manual initiation. A ‘valid signal’ is one that results from actual plant conditions or parameters satisfying the requirements for system actuation. An invalid actuation is one that does not meet the criteria for being valid.” The definitions do not seem to take into account actual performance of a function.

Example C-1 of NUREG-1022, Revision 0 (ML101550096) indicates that a report is required for an actuation of a Safety Injection System due to actual plant conditions, even though no injection occurred since plant pressure remained above the pump shutoff head.

8. If an actuation occurs, is the only justification as to why an actuation is invalid, is that it is not considered valid? In other words, are there additional considerations for determining if an invalid actuation exists?

   Background: The FRN associated with the 2000 rule change states “A valid actuation is one that results from either a ‘valid signal’ or an intentional manual initiation. A ‘valid signal’ is one that results from actual plant conditions or parameters satisfying the requirements for system actuation. An invalid actuation is one that does not meet the criteria for being valid.” It appears that there are specific considerations only for determining if a valid actuation exists. It does not appear that there are any considerations (i.e. plant status, system classification, actual performance of function, etc.) for determining if an actuation is invalid. If the actuation is not valid, then by default it is invalid.

9. What constitutes a “mitigation of the consequences of an event” with regards to System Actuation reporting?

   Background: The FRN (48 FR 33850) associated with the original rule indicates that the staff 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 operated unnecessarily. However, there appears to be conflicting passages later in the FRN that indicates actuations that need not be reported are those initiated for reasons other than to mitigate the consequences of an event (i.e. no mention of unnecessary operation). In addition, in spite of specific guidance that may be found associated with the Questions above, there have been reporting issues attributed to considerations that system classification, plant status, actual performance of a function, spurious actuations, etc., are taken into account and may not be reportable since there was no mitigation of a design basis event. The FRN discussions are also found in Section 3.2.6, “System Actuation,” of NUREG-1022, Revision 2 (ML003762595).