



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
WASHINGTON, D.C. 20555-0001

August 4, 2016

MEMORANDUM TO: John Nakoski, Chief
Performance and Reliability Branch
Division of Risk Analysis
Office of Nuclear Regulatory Research

FROM: Anders Gilbertson, Reliability and Risk Analyst /RA/
Performance and Reliability Branch
Division of Risk Analysis
Office of Nuclear Regulatory Research

SUBJECT: PUBLIC MEETING ON THE DEVELOPMENT OF REGULATORY
GUIDE 1.174, REVISION 3, "AN APPROACH FOR USING
PROBABILISTIC RISK ASSESSMENT IN RISK-INFORMED
DECISIONS ON PLANT-SPECIFIC CHANGES TO THE
LICENSING BASIS"

On July 7, 2016, the Nuclear Regulatory Commission (NRC) staff held a public meeting to obtain stakeholder feedback on a draft revision of the guidance for the development of Regulatory Guide (RG) 1.174, Revision 3, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis." Specifically, the staff sought to obtain feedback on a draft revision of the guidance related to defense-in-depth in Section 2.1 of Draft Regulatory Guide DG-1285, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis."

External stakeholder participants included representatives from the following organizations: AREVA, Curtiss-Wright, Duke Energy, Exelon, Southern Nuclear, the Nuclear Energy Institute (NEI), Jensen Hughes, PSEG, the Pressurized-Water Reactor Owner's Group, the Boiling-Water Reactor Owner's Group, Westinghouse, the Tennessee Valley Authority, the Union of Concerned Scientists, and Point Beach, Diablo Canyon, members of the public. This public meeting was announced on June 13, 2016, on www.nrc.gov and the meeting notice was made publicly available in the NRC Agencywide Document Access and Management System (ADAMS) under accession number ML16165A473. The draft revision of Section 2.1 from DG-1285 was made publicly available in ADAMS on June 21, 2016, under accession number ML16175A448. Presentations were given by both the NRC and NEI. The NRC presentation was made publicly available in ADAMS on July 8, 2016, under accession number ML16190A130. The NEI presentation was made publicly available in ADAMS on July 7, 2016, under accession number ML16189A155. The following is a summary of the presentations and discussions that occurred.

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NRC Staff and Industry Presentations

The NRC staff gave a presentation that provided a brief background on the effort to revise RG 1.174 and the goals for the meeting. The NEI gave a presentation which provided industry feedback on the draft revision of Section 2.1; presented a suggested approach to defense-in-depth in RG 1.174; presented three examples for discussion in the context of addressing the defense-in-depth evaluation factors; and presented feedback on the treatment of risk aggregation and uncertainty in PRAs (see attachment 3). The three examples were discussed among meeting participants before having discussions on the staff revisions to the seven defense-in-depth evaluation factors. With regard to risk aggregation, it was suggested that this issue be raised to the Risk-Informed Steering Committee given that it is outside of the Commission-directed scope for the effort to develop RG 1.174, Revision 3.

Discussion of the Staff Revisions to the Seven Defense-In-Depth Evaluation Factors

Feedback on Factor 1 – Preserve a reasonable balance among the layers of defense:

- The staff should consider achieving consistency with the NRC Standard Review Plan, NUREG-0800.
- This is an overriding principle, which should be discussed in the context of a hierarchy.
- It is possible to meet the supporting factors and not meet this factor; however, this factor still needs to be addressed.

Feedback on Factor 2 – Preserve adequate capability of design features without an overreliance on programmatic activities as compensatory measures:

- It is unclear whether this factor is intended to include consideration of the likelihood of whether a design feature will be needed to perform its function.

Feedback on Factor 3 – Maintain sufficient availability and reliability of SSC commensurate with their importance to safety:

- Additional context should be provided regarding how to judge the phrase “commensurate with their importance to safety.”
- The staff should include language stating that a new single failure configuration is not introduced by the change.
- It is unclear whether taking credit for FLEX equipment would satisfy this factor.
- Staff should consider whether this factor needs to include the concept of the integrated risk-informed decisionmaking (RIDM) process.
- This factor does not appear to consider whether a longer out-of-service time necessarily prevents a system from being able to perform its function.
- Additional discussion should be provided regarding the significance of this factor in the context of a change.

Feedback on Factor 4 – Preserve adequate defense against potential common-cause failures (CCFs):

- Additional discussion should be provided on what is meant by the term significant.
- The staff should consider including a statement that this defense-in-depth evaluation factor does not apply to single-train systems, e.g., high-pressure coolant injection system.

Feedback on Factor 5 – Maintain multiple fission product barriers:

- The staff should consider an example that deals with a steam generator tube rupture or an interfacing system loss of coolant accident.

Feedback on Factor 6 – Preserve sufficient defense against human errors:

- The staff should consider revising the phrase “does not create new human failure events.” For example, this phrase could be replaced with, “does not degrade existing human actions,” or “avoid introducing new human actions whose failure could have an adverse impact on existing actions.”

Feedback on Factor 7 – Continue to meet the intent of the plant’s design criteria:

- Different views were expressed regarding whether this defense-in-depth evaluation factor is needed. One view was that this factor should be eliminated because it is accounted for under the first principle of RIDM, which is that the change meets current regulations unless it is explicitly related to a requested exemption or rule change. Another view was that it should not be eliminated as it is not entirely clear that it is redundant or duplicative related to first principle of RIDM.
- This factor is too broad to be considered under the evaluation of defense-in-depth; however, it should be considered in the overall RIDM process.
- The staff should consider emphasizing that exemptions to the regulations are within the design bases.
- A proposed licensing basis change should state specifically why the change is needed in order to determine if the change will meet the original intent of the plant design. For example, the reason for extending an allowed outage time for a DC power system or a standby liquid control system for two hours may be completely different than a reason for extending that time to three days.

Discussion of Industry-Provided Examples for the Seven Defense-In-Depth Evaluation Factors

The afternoon portion of the meeting was focused on how to address the seven defense-in-depth evaluation factors in the context of the industry-developed examples. For each example, discussions were held on how each of the seven defense-in-depth evaluation factors might be addressed. These discussions addressed much of the feedback provided above on the defense-in-depth evaluation factors and included the following additional feedback.

- A major concern expressed by industry is the apparent conflict between RG 1.174 and other internal NRC defense-in-depth implementation guidance, such as Branch Technical Position 8-8. Industry stakeholders pointed out that applications have been and are being withdrawn because of this issue.

- Stakeholders expressed that some change in defense-in-depth should be allowable and that the evaluation of the impact on defense-in-depth by a licensing basis change should be set in the context of the entire RIDM process.

Additionally, showing that a change is consistent with the defense-in-depth philosophy should not always be contingent upon fully satisfying all seven defense-in-depth evaluation factors; some factors may not apply or it may be justifiable to meet a factor to a less-than-full extent.

- Where appropriate, risk insights should be used to help determine whether a licensing basis change meets a given defense-in-depth evaluation factor.

Additional Feedback and Discussion

In addition to the above feedback, the following was discussed during the course of the public meeting:

- When asked whether a six week review period, as opposed to a two-week review period, would be preferred for the review of the completed draft guidance, stakeholders indicated that six weeks was preferable.
- Stakeholders indicated that, due to schedule conflicts with major industry meetings, only one public meeting could be supported in August, 2016.
- NEI committed to providing an example that not only demonstrates how to address the RIDM principle of a change being consistent with the defense-in-depth philosophy, but demonstrates the entire RIDM process. NEI indicated that this would be provided by late-August.
- NEI committed to providing industry feedback on the NRC's latest draft revisions to Section-2.1 from DG-1285 by early-August.
- NRC staff committed to providing to stakeholders the native format of the document used to develop the NRC draft work product.

Enclosures:

1. List of Meeting Attendees
2. NRC Meeting Presentation (ADAMS Accession No. ML16190A130)
3. NEI Meeting Presentation (ADAMS Accession No. ML16189A155)
4. Draft Revision of Section 2.1 for RG 1.174, Revision 3 (ADAMS Accession No. ML16175A448)

Position 8-8. Industry stakeholders pointed out that applications have been and are being withdrawn because of this issue.

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ADAMS Accession No.:

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