



U.S. NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

10 CFR 50.46c ECCS Rulemaking

Public Meeting

November 23, 2015



Agenda

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|--------------------|----------------------------------------------------------------------------------------|
| 1:00-1:10pm | Purpose and Ground Rules (NRC) |
| 1:10-1:30pm | Draft Preliminary Changes to 10 CFR 50.46c
Deterministic Reporting Provisions (NRC) |
| 1:30-2:30pm | Industry Discussion (Industry) |
| 2:30-2:45pm | Public Discussion (Public) |
| 2:45-3:45pm | Update on Items Identified at ACRS meeting
(11/3/15) (NRC) |
| 3:45-4:00pm | Closing Remarks (NRC) |
| 4:00pm | Adjourn |



Meeting Purpose

- Describe staff changes to deterministic reporting and corrective action provisions in preliminary draft final rule, addressing stakeholder comments at ACRS subcommittee meeting on lack of clarity
- Discussion is intended to help the NRC and stakeholders prepare for an Advisory Committee on Reactor Safeguards (ACRS) full committee meeting on December 3, 2015



Meeting Purpose (cont'd)

- Staff will consider oral comments made in developing the final rule and guidance to be provided to the Commission
 - NRC will not be providing, in the final rulemaking, detailed written comment responses to oral comments made at this meeting
- The NRC is not taking written public comments at or following this meeting



Preliminary Draft Package

- The NRC provided a draft preliminary version of the 10 CFR 50.46c rule package on regulations.gov, Docket ID NRC-2008-0332.
- These draft documents have not received NRC management review and approval and thus pre-decisional and subject to change.
- Draft preliminary 50.46c documents are also found in ADAMS at the following accession numbers:
 - SECY-XX-XXXX- Final Draft Rulemaking: ML15281A203
 - *Federal Register* Notice of Final Rulemaking: ML15281A196
 - **Draft changes to reporting SOC and rule language: ML15320A362**
 - NRC Staff Responses to Public Comments on Proposed Rule: ML15281A199
 - RG 1.222 (DG-1261)– Measuring Breakaway Oxidation Behavior: ML15281A170
 - RG 1.223 (DG-1262)– Determining Post Quench Ductility: ML15281A188
 - RG 1.224 (DG-1263)– Establishing Analytical Limits for Zirconium-Alloy Cladding Material: ML15281A192
 - RG 1.229 (DG-1322)– Risk-Informed Approach for Addressing the Effects of Debris: ML15292A012
 - Appendix C: ML15292A010
 - NRC Staff Responses to Public Comments on DG-1322: ML15292A009
 - Backfit and Issue Finality Discussion: ML15294A471
 - Regulatory Analysis: ML15294A467



50.46c Reporting and Corrective Actions

50.46c Workshop
November 2015

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Nuclear Reactor Regulation



Outline

1. Rulemaking Goals
2. Changes in Reporting and Corrective Actions
3. Future Actions



50.46c Rulemaking Goals

- Revise emergency core cooling system (ECCS) acceptance criteria to reflect recent research findings
- Expand applicability to all fuel designs and cladding materials
- Replace prescriptive analytical requirements with performance-based requirements, when possible
- Address concerns raised in two petitions for rulemaking (PRMs): PRM-50-71 and PRM-50-84
- Allow an alternative risk-informed approach to evaluate the effects of debris on long-term cooling



§50.46c Reporting and Corrective Action Requirements

- Segregates reporting/corrective action requirements from risk-informed, performance-based technical requirements for clarity
- Rewritten to clearly state NRC's reporting and corrective action requirements in various conditions/situations
 - Fundamental approach for reporting and corrective action unchanged from current §50.46
 - Rule intended to clearly establish NRC's requirements – resolving past industry/NRC disagreements over what is mandated in the rule
- NRC did not intend to restrict existing flexibility with respect to “estimating” effect, defining scope of reanalysis, or negotiating a schedule for reanalysis



50.46c Reporting

(1) ECCS evaluation model: reporting.

(i) If an entity identifies any change to, or error in, an ECCS evaluation model or the application of such a model that does not result in any predicted response that exceeds any of the acceptance criteria specified in this section and is itself not significant as defined in paragraph (n) of this section, then the entity must prepare a report describing each such change or error, its estimated effect on predicted response, and the basis for the entity's determination that the error or change is not significant. The entity must submit the report to the NRC at least annually.

- Added “estimated effect on predicted response”
- Removed “demonstration”
- Restored annual report (once per calendar year)



50.46c Reporting

(ii) If an entity identifies any change to, or error in, an ECCS evaluation model, or the application of such a model, that does not result in any predicted response that exceeds any of the acceptance criteria but is significant as defined in paragraph (n) of this section, then the entity must prepare a report describing each such change or error, its estimated effect on predicted response, proposed corrective actions, and a proposed scope and schedule for providing a reanalysis, and implementing the corrective actions. The entity must submit the report to the NRC within 60 days of the change or discovery of the error.

- Added “estimated effect on predicted response”
- Added “proposed scope” for the reanalysis
- Maintained relaxation of 60 days to submit report



50.46c Reporting

(iii) If a licensee of a facility licensed to operate identifies any change to, or error in, an ECCS evaluation model or the application of such a model, that results in any of the acceptance criteria specified in this section to be exceeded at the facility, then the licensee shall submit a report describing each such change or error, its estimated effect on predicted response, proposed corrective actions, and a proposed scope and schedule for providing a reanalysis and implementing the corrective actions. The entity must submit the report to the NRC within 30 days of the change or discovery of the error. This report may also contain the information required to be reported under §§50.55(e) and 50.73, as applicable; alternatively, the information required by this paragraph may be included in the report filed in accordance with §§50.55(e) and 50.73, as applicable. The report required by this paragraph is in addition to any reporting required by 10 CFR 50.72.

- Added “estimated effect on predicted response”
- Added “proposed scope” for the reanalysis
- Added language to avoid filing of duplicative reports with duplicative information



Significant Change or Error

- SOC will be revised to clarify reporting on complex ECCS analyses
- Multiple “estimated effects” on predicted PCT/ECR are necessary (1) if core fuel rod population subdivided, analyzed, and judged against different allowable PCT/ECR analytical limits or (2) when different limiting LOCA scenarios exist for PCT and ECR



Future Action

- Revised rule language and SOC clarify flexibility with respect to defining scope and schedule for reanalysis
- Industry should revise industry guidance on reporting and corrective action based upon RIS and §50.46c language
- Once revised industry standardized guidance is developed, staff will review and, if acceptable, approve for use
- Industry is encouraged to keep staff apprised of development of revised industry guidance



Acronyms

- SOC – Statement of Considerations
- ECCS – Emergency Core Cooling System
- PRM – Petition for Rulemaking
- RIS – Regulatory Issue Summary
- PCT – Peak Cladding Temperature
- ECR – Equivalent Cladding Reacted
- LOCA – Loss of Coolant Accident