

Proposal to Improve the Core Operating Limits Report (COLR)

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Introduction

- The Pressurized Water Reactor Owners Group (PWROG) and the Boiling Water Reactor Owners' Group (BWROG) have undertaken a project to improve the processes related to the Core Operating Limits Report (COLR).
- One goal of the project is to permit changes to the NRC-approved methods currently in the Technical Specifications (TS) COLR description under 10 CFR 50.59 instead of by license amendment request (LAR).
- The purpose of today's meeting is to discuss the basis of that change, obtain NRC feedback, and to discuss next steps.

Background

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COLR Background

- In the 1970's and the 1980's, it was common for a licensee to submit a LAR to revise limits related to a core reload.
- In 1985 Duke Power Company provided a draft TS change to the NRC that moved several TS limits to licensee control and proposed a Core Operating Limits Report.
 - There were several submittals and discussions between Duke and the NRC and a license amendment for Oconee was approved in 1989.
- On October 4, 1988, the NRC issued Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications."
 - The generic letter referenced the Oconee LAR as the Babcock & Wilcox Owners Group lead plant submittal.
- Every U.S. plant has incorporated the COLR into their TS.

COLR Background

- A typical COLR specification in the Administrative Controls section lists the TS that reference the COLR and lists the NRC-approved methods used to calculate the TS limits.
- Licensees submit a COLR to the NRC for each reload and any mid-cycle changes.
- The submitted COLR includes a list of the NRC-approved methods used to calculate the limits.

10 CFR 50.59 Background

- When Generic Letter 88-16 was issued, 10 CFR 50.59 had no specific controls related to evaluation methods and the questions to determine if a change was an "unreviewed safety question" did not directly relate to methods.
- In 1999, a new version of 10 CFR 50.59 was issued, and a new set of criteria were introduced.
 - "(c)(2) A licensee shall obtain a license amendment pursuant to Sec. 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would: ...
 - (viii) Result in a departure from a method of evaluation described in the FSAR (as updated) used in establishing the design bases or in the safety analyses."

10 CFR 50.59 Background

- The Statement of Consideration for the rule change (65FR53599) stated:
 - "The rule requirements for evaluation methods would allow for use of generic topical reports as not being a "departure," provided that the topical report is applicable to the facility, and is used within the terms and conditions specified in the approved topical report."

10 CFR 50.59 Background

- The Statements of Consideration also provided this example of Criterion VIII:
 - “Example 3: The licensee wishes to change a non-LOCA FSAR Chapter 15 transient methodology. The methodology is being changed to a different vendor's NRC approved method. The new vendor's method has been approved generically for the particular reactor type (e.g., 2 loop PWR) and for the particular transient being analyzed. The analysis is being performed in accordance with all the applicable limitations and restrictions. The licensee can make this change without prior NRC approval because using a generically approved method for the purpose it was approved, while meeting all the limitations and restrictions, is not a "departure." Subsequent plant changes can then be evaluated using this new method and the other seven criteria in Sec. 50.59." (emphasis added)

Application of Revised 50.59 to GL 88-16

- Regulatory Guide 1.187, "Guidance for Implementation of 10 CFR 50.59, 'Changes, Tests, and Experiments'," endorses NEI 96-07, "Guidelines for 10 CFR 50.59 Implementation."
- Revision 0 of the RG states in Regulation Position 7, "Applicability of Past NRC Communications":
 - "The NRC has issued a number of communications such as Generic Letters or Bulletins that discussed or referred to 10 CFR 50.59. In considering whether the information in those documents remains applicable, it should be noted that those documents were based on the rule requirements that existed at the time of issuance. To the extent that the discussion therein relates to specific aspects of the rule, such as evaluation criteria that have been revised, these past documents may no longer be fully consistent and the new rule requirements would prevail. The status is unchanged of other parts of these documents that are not affected by the revisions to the rule."

Application of Revised 50.59 to GL 88-16

- The 1999 revision to 10 CFR 50.59 should have resulted in a change to the implementation of Generic Letter 88-16 and licensee COLR requirements to control the use of NRC-approved methods using 10 CFR 50.59 instead of the license amendment process.

Regulatory Authority

- 10 CFR 50.59 states, "A licensee may make changes in the facility as described in the final safety analysis report (as updated) ... without obtaining a license amendment"
- In an August 4, 2011 letter to the TSTF regarding revision numbers on COLR methods, the NRC stated:
 - "Maintaining a list of the methodologies in the TSs requires licensees to obtain NRC approval prior to editing the reference list. Among others, one reason that NRC approval is required prior to editing the reference list is so that the NRC staff can review the methodology and ensure that it is applicable to the facility of a given licensee. Additionally, the NRC staff can verify that the licensee has properly satisfied all implementation conditions and limitations associated with a given methodology."

Regulatory Authority

- NEI 96-07, Section 4.3.8.2, states that a licensee may make changes under 50.59 from one method of evaluation to another provided the new method is approved by the NRC for the intended application and the applicable terms, conditions, and limitations are satisfied.
- NEI 96-07 requires these criteria to be documented in the evaluation:
 - "The licensee should address these and similar considerations, as applicable, and document in the 10 CFR 50.59 evaluation the basis for determining that a method is appropriate and approved for the intended application."
 - "Use of a new NRC-approved methodology (e.g., new or upgraded computer code) to reduce uncertainty, provide more precise results or other reason, provided such use is (a) based on sound engineering practice, (b) appropriate for the intended application and (c) within the limitations of the applicable SER. The basis for this determination should be documented in the licensee evaluation."

Regulatory Authority

- Ensuring an NRC-approved method is applicable to the facility and verification that conditions and limitations have been met is the responsibility of the licensee under 10 CFR 50.59 as endorsed by Regulatory Guide 1.187.
- Requiring prior NRC approval when 10 CFR 50.59 should be applied is inconsistent with the regulation.

Regulatory Consistency

- The requirement for NRC prior review of COLR changes is not consistent:
 - Half of the BWRs primarily reference the GE GESTAR document in their COLR list without a revision number or date. Evaluation of new methods referenced in the GESTAR are made under 50.59.
 - Approximately two-thirds of US plants have removed the revision numbers and approval dates from the list of approved methods in the TS. Adoption of a different revision is evaluated under 50.59 for those plants, but not for the remaining third.
- Removing the list of methods from the TS would apply a consistent regulatory position across the licensees.

Proposal

- The TSTF proposes to remove the list of NRC-approved methods from the TS Core Operating Limits Report.
- The list of NRC-approved methods used to calculate the core operating limits will be included in the submitted COLR.
- The NRC-approved methods will also be described in the UFSAR.
- Changes to the methods will be made under 10 CFR 50.59.
 - A license amendment will be submitted if required.

5.6.3

CORE OPERATING LIMITS REPORT

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

[The individual specifications that address core operating limits must be referenced here.]

- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, **and shall be documented in the COLR.**, ~~specifically those described in the following documents:~~

REVIEWER'S NOTE

~~Licensees that have received prior NRC approval to relocate Topical Report revision numbers and dates to licensee control need only list the number and title of the Topical Report, and the COLR will contain the complete identification for each of the Technical Specification referenced Topical Reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements). See NRC ADAMS Accession No: ML110660285 for details.~~

~~[Identify the Topical Report(s) by number, title, date, and NRC staff approval document or identify the staff Safety Evaluation Report for a plant specific methodology by NRC letter and date.]~~

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

Example of the Benefit of the Proposed Change

speaker

Example of the Benefit of the Proposed Change

- Recently a licensee submitted a LAR to revise methods listed in the COLR TS with alternate NRC-approved methods.
- Prior to submittal, the licensee reviewed and accepted the change under 10 CFR 50.59, but because the methods are included in the COLR TS, a license amendment was required.
- In their acceptance, the NRC staff estimated the amendment review would require 12 months and 380 review hours (\$106,020).
- If the provisions of 10 CFR 50.59 could have been applied, this cost and delay could have been avoided.
- The delay in implementing the new methods has an unquantifiable but definite impact on plant safety.

DISCUSSION

Next Actions

- After consideration of any NRC comments, the TSTF will develop and submit a TSTF traveler that modifies the TS COLR requirements to remove the list of NRC-approved methods.