



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

November 10, 1999

MEMORANDUM TO: Cynthia A. Carpenter, Chief
Generic Issues, Environmental, Financial
and Rulemaking Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

FROM: Eileen M. McKenna, Senior Reactor Engineer *Eileen McKenna*
Generic Issues, Environmental, Financial
and Rulemaking Branch
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF NOVEMBER 2, 1999, MEETING WITH THE NUCLEAR
ENERGY INSTITUTE (NEI) ON REVISION TO NEI 96-07 ON
IMPLEMENTATION OF 10 CFR 50.59 - METHODS OF EVALUATION

On November 2, 1999, a public meeting was held at the NRC offices in Rockville MD, between members of the Nuclear Energy Institute (NEI) and Nuclear Regulatory Commission (NRC) staff. Attachment 1 lists attendees at the meeting.

On September 17, 1999, NEI submitted a draft of NEI 96-07, Revision 1, for NRC review and comment. Part of the guidance relates to new criterion (viii), for when changes to evaluation methods require NRC approval. At a previous meeting in October on the draft guidance, there was considerable discussion about the topic of generic vs. plant-specific approval of methods by the NRC. NRC representatives stated that if a licensee wished to use a different method (under criterion (viii) of the revised rule¹), the approval by NRC would have to be generic, not for a specific licensee application. The task force members stated that they thought this was an area in which the licensees should be allowed to assume the responsibility for demonstrating that their use of a method for a particular application is done consistent with any limitations, terms or conditions that have been placed on it (by the vendor, or by NRC through its review).

~~NEI FILE CENTER COPY~~

¹ In criterion (viii) of the revised 10 CFR 50.59, NRC approval is required for a change to a method of evaluation if it is a departure, where *Departure from a method of evaluation described in the FSAR (as updated) used in establishing the design bases or in the safety analyses* means (i) changing of the elements of the method described in the FSAR (as updated) unless the results of the analysis are conservative or essentially the same; or (ii) changing from a method described in the FSAR to another method unless that method has been approved by the NRC for the intended application.

94196

DF03

PDR REV6P

The purpose of this meeting was to discuss the NEI-proposed guidance with respect to methods being "approved for the intended application" to see if there could be some agreement on guidelines or provisions by which a licensee could determine if a method accepted for a specific application was acceptable to be used for another facility under this criterion.

During the November meeting, the staff noted that when a method is reviewed for a plant-specific purpose, the staff does not review the suitability of that method for all possible reactor types or applications, or all features of the methodology. A safety evaluation written for a methodology will include discussion about the envelope under which it can be used. A safety evaluation for a specific application using a methodology (such as a plant-specific licensing action) would typically only discuss the review/approval of the methodology to the extent needed to judge the application. Thus, others who review the documentation later may not be in a position to determine the overall acceptability of the method for other applications.

The NRC staff distributed some examples to illustrate potential concerns with licensee use of a method that may have been approved or used by another plant (see attachment 2). For instance, there may be unique licensing basis considerations, individual elements of a method that were balanced in the overall decision, or geometry differences. The staff also related several recent examples of analyses where a particular licensee lacked understanding of analysis code limitations and improperly used a method, which had been accepted for some purposes, for an application where it was not appropriate. This was particularly noted as an area where mistakes can be made for "general purpose" codes, as for example, RELAP or RETRAN.

NEI acknowledged these concerns, and noted that these seemed to be cases where there was a lack of understanding which could have arisen even if the approval was "generic." The staff agreed, but also noted that the potential for error is clearly reduced when the available documentation of the approval is specifically prepared to discuss the envelope that was approved.

NEI also distributed some talking points (attachment 3), of how they would propose to modify the guidance in NEI 96-07. Some of the key aspects of this guidance would be satisfying the program requirements outlined in GL 83-11² for establishing technical competence to perform analyses, cautions for using a method with all its applicable conditions, and not selective implementation (i.e., no cherry picking), the demonstration of the technical appropriateness (considering past applications and planned application), and the documentation to be maintained.

²Generic Letter 83-11, and GL 83-11, Supplement 1, present guidance on the information that NRC needs to qualify licensees to perform their own safety analyses using approved computer codes. The guidance discusses application procedures, training of personnel, comparison calculations and quality assurance requirements.

The staff noted that the distinctions between changes to individual assumptions or elements of a method (covered by the first part of the definition of departure) compared to changing from one method to another (the second part of the definition) was also important, as noted in some of the other examples.

In summary, the staff stated that it may be possible for licensees to use methods that had not been explicitly approved on a generic basis if suitable guidance were prepared that addressed the need to have a program satisfying Generic Letter 83-11 requirements, and on how a licensee would determine the technical appropriateness of using the method for their planned application. Attachment 4 contains staff views on what this guidance should include.

NEI plans to include revised guidance on this subject in their submittal of a revised version of NEI 96-07, later in November, for staff review.

Attachments: As stated

cc w/atts: See next page

DISTRIBUTION: See attached page

Document Name: g:\rgeb\emm\msum1102.wpd

OFFICE	PM:RGEB:DRIP	SRXB	SC:RGEB
NAME	EMcKenna:sw	JWerniel	FAkustulewicz
DATE	11/14/99	11/9/99	11/10/99

OFFICIAL OFFICE COPY

The staff noted that the distinctions between changes to individual assumptions or elements of a method (covered by the first part of the definition of departure) compared to changing from one method to another (the second part of the definition) was also important, as noted in some of the other examples.

In summary, the staff stated that it may be possible for licensees to use methods that had not been explicitly approved on a generic basis if suitable guidance were prepared that addressed the need to have a program satisfying Generic Letter 83-11 requirements, and on how a licensee would determine the technical appropriateness of using the method for their planned application. Attachment 4 contains staff views of what the guidance should include.

NEI plans to include revised guidance on this subject in their submittal of a revised version of NEI 96-07, later in November, for staff review.

Attachments: As stated

cc w/atts: See next page

cc: Mr. Ralph Beedle
Senior Vice President
and Chief Nuclear Officer
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Ms. Lynnette Hendricks, Director
Plant Support
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Alex Marion, Director
Programs
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Charles B. Brinkman, Director
Washington Operations
ABB-Combustion Engineering, Inc.
12300 Twinbrook Parkway, Suite 330
Rockville, Maryland 20852

Mr. David Modeen, Director
Engineering
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Anthony Pietrangelo, Director
Licensing
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

Mr. Nicholas J. Liparulo, Manager
Nuclear Safety and Regulatory Activities
Nuclear and Advanced Technology Division
Westinghouse Electric Corporation
P.O. Box 355
Pittsburgh, Pennsylvania 15230

Mr. Jim Davis, Director
Operations
Nuclear Energy Institute
Suite 400
1776 I Street, NW
Washington, DC 20006-3708

NRC/NEI MEETING ON DRAFT REVISION TO NEI 96-07
Methods of Evaluation - approval
LIST OF ATTENDEES
November 2, 1999

<u>NAME</u>	<u>ORGANIZATION</u>
Eileen McKenna	NRR/DRIP/RGEB
Frank Akstulewicz	NRR/DRIP/RGEB
Cindi Carpenter	NRR/DRIP/RGEB
Jerry Wermiel	NRR/DSSA/SRXB
Ralph Caruso	NRR/DSSA/SRXB
Chris Jackson	NRR/DSSA/SRXB
John Knox	NRR/DE/EEIB
Stu Magruder	NRR/DRIP/RGEB
David Terao	NRR/DE/EMEB
Jim Andersen	NRR/DE/EMCB
Adel El-Bassioni	NRR/DSSA/SPSB
Dick Hoefling	NRC/OGC
Russell Bell	NEI
Jim Riley	NEI
Mike Schoppman	NEI
Scott Bauer	APS
Nancy Chapman	SERCH/Bechtel
Joe Hegner	Virginia Power
James Boatwright	TXU Electric
John McGaw	Southern California Edison
Ted Schiffley	Com Ed
Noval Smith	Virginia Power
Mayo Oppenheimer	Virginia Power
Kenneth Hutko	PSE&G
Michael Markley	NRC/ACRS staff
Don Ferraro	Winston and Strawn
Melvin Frank	Sciencetech/NUSIS

ILLUSTRATIVE EXAMPLES FOR DISCUSSION AT MEETING

USE OF NRC APPROVED METHODS IN 50.59

The final rule Statements of Consideration discussion of NRC approved in *Federal Register* 53598. "Approval for intended application includes assuring that the approved method was approved for the type of analysis being conducted, generically approved for the type of facility using it, and that all terms and conditions for use of the method are satisfied."

A few examples of potential problems associated with applying a plant specific evaluation methods generically. These examples are given to illustrate possible concerns, acknowledging that under the second part of the definition of departure, "mixing and matching of methods" was not expected to occur.

- The plant specific licensing basis for a plant may limit the application of a method. The staff safety evaluation will not identify limitations beyond the plant specific licensing basis. Subsequent analysts at other facilities may apply a method beyond where it was approved. For example, a non-LOCA transient methodology may be approved at facility A after a code qualification document justifying the codes acceptability is submitted. The design basis at facility A does not require the analysis of certain transients (i.e., main feed line rupture). The safety evaluation of the code qualification document does not discuss the limitations on the code beyond the design basis. An analyst at an identical facility B wishes to apply the same methodology to non-LOCA transients. However, the analyst for facility B may not recognize the method has not been demonstrated acceptable for certain transients, including the main feedwater line rupture.
- An aspect of an evaluation method may be accepted because there are other aspects of the plant specific methodology as a whole that compensate for the change. As a result, use by another facility with different supporting analyses is not appropriate. For example, facility A receives approval to use a modified heat transfer correlation in a transient methodology. The staff approves the application after reviewing the other aspects of the design basis methods (heat sources and losses) and concludes that the overall application continues to be conservative. This information will not necessarily be documented in the staff SE because the FSAR is referenced. Facility B wishes to apply the same heat transfer correlation, however, the analyst for facility B may not recognize that approval of the method was contingent^{on} other plant specific considerations and may end up with a non-conservative overall model. Note: The mix and match (correlation A from facility A' matched with correlation B from facility B' applied to facility C) approach may not only yield non-conservative results, it may result in a method that does not work at all.

X

The staff noted that the distinctions between changes to individual assumptions or elements of a method (covered by the first part of the definition of departure) compared to changing from one method to another (the second part of the definition) was also important, as noted in some of the other examples.

- The NRC plant specific approval of methods for a particular of plant includes the plant specific design features of that plant. These will not be discussed in the safety evaluation. The analyst from another facility will have a very difficult time determining what aspects of the plant design were important to the approval of the method. Numerous plant parameters can influence the NRC approval, including number of RCS loops, barrel/baffle up-flow vs. down-flow, bypass flow, location and number of ECCS penetrations, feedwater configuration, location and configuration of nuclear and other process instrumentation and fuel design. For example, a non-LOCA evaluation method was approved for Facility A. An analyst from facility B wishes to apply the method. The analyst from facility B determines that all conditions, parameters, approvals and other factors that he/she can think of are identical with the exception that the facility A vessel has a barrel/baffle up-flow configuration and facility B has a barrel/baffle down-flow configuration. A relatively simple modification to the input deck models the core differences. Has the new model been NRC approved? What criteria should the analyst use to make the determination? Additionally, how far should the analyst look for design differences before a conclusion can be made that the facilities are the same and the methods can be shared?

- In terms of what is "another method" vs. elements of a method - for instance, credit for iodine partitioning in the SG - the staff does not allow crediting for OTSG plants, but it is acceptable for U-tube SGs. Or the staff may allow a plant to credit certain mitigation mechanisms (steam line deposition) under the alternative source term reviews, but this was not allowed with TID. Also, credit for suppression pool scrubbing is acceptable as part of an overall methodology that conforms with SRP guidance, but may not be as a separate factor.

- A containment mass-energy analysis method takes further credit for entrainment (liquid water being carried out of the SG, reducing the amount of heat transferred to containment) than did the previous analysis. (In the particular instance where this arose, the licensee had used a different method from that used in its FSAR - the particular method had not been reviewed by NRC before use).

DRAFT
"Approved by the NRC for the Intended Application"

Proposed NEI 96-07 guidance: Under 50.59(c)(2)(viii), licensees may use methods that have been approved by the NRC in an SER and are technically appropriate for the intended application

- Providing licensees the flexibility to determine the applicability of new or different analysis methodology for their intended application is consistent with
 - Flexibility afforded under updated 10 CFR 50.54 to use QAP alternatives approved by NRC for others
 - Direction being taken for adoption of "me-too" tech spec changes
 - GL 83-11 guidance on use of codes and methods that have been approved by the NRC generically or otherwise accepted as part of a plant's licensing basis—"significantly improves licensee understanding of plant behavior"
 - Flexibility afforded under 10 CFR 50.59 to make a wide range of other changes to the facility and procedures
 - Shared goal of industry and NRC to reduce unnecessary burden, consistent with the NRC mission to ensure adequate levels of safety, by focusing licensee and NRC resources on safety significant matters
- Alleviates longstanding timeliness issues associated with licensee specific and generic topical reports. Per GL 83-11, "preparation and review of a qualification topical report is resource intensive on the part of the staff and the licensee...."
- Changes to methods specified in the tech specs (COLR, PTLR) will continue to require prior NRC approval
- In determining whether a method is appropriate for a specific application, licensees consider
 - Differences in licensing and design bases from the plant for which the analysis methodology is approved
 - Differences, if any, between the application for which the method was approved and that proposed
 - Industry experience since NRC approval of the method
 - Proprietary issues associated with use of new method
 - No cherry picking
- These activities are conducted under licensee QA programs subject to Appendix B, Criteria III, V and VI.
- NEI 96-07, R1, to include guidance on additional considerations that should be documented in 50.59(c)(2)(viii) evaluations, e.g., GL-83-11, Supplement 1. Documented evaluations should reflect understanding of differences in the revised analysis results.

Screening and Evaluation of Changes to Methods of Evaluation under 10 CFR 50.59

Screening and Evaluation Criteria		Examples							
1.	Is this a change to a "method" of evaluation as defined in NEI 96-07?								
2.	Is the method controlled by another regulation or license condition?								
3.	Is this a method used in establishing design bases or in the safety analyses?								
4.	Is the method described in the UFSAR, i.e., identified as the method used to perform a specific UFSAR analysis								
5.	For a change to an element of a method, are the revised analysis results conservative or "essentially the same" as the previous results?								
6a.	If this is a change to another method entirely, has the new method been approved by NRC for your intended application (generic approval or approval on your docket)?								
	<u>OR</u>								
6b.	Is the new method approved for use by another licensee, and is use of the new method technically appropriate for your intended application?								
7.	Is prior NRC approval required?								

STAFF VIEWS ON GUIDANCE ABOUT METHODS

We would expect that the guidance for determining when the application of an evaluation method, which has not been generically approved, has been "approved for the intended application," per criterion (viii) of the new 10 CFR 50.59, would include the following restrictions;

- There is a Generic Letter 83-11, Supplement 1, type qualification process for the users of the new method.
- The licensee is able to identify all conditions and limitations under which the method received NRC approval. Conditions and limitations will include, among other things, the type of analysis, the manner in which the analysis was applied, the physical configuration of the facility, and any licensing basis restrictions. The licensee assures that all limitations and restrictions are all applicable to the facility in question and the method is then applied within all conditions and limitations. For example;
 - a method that is approved at one facility for a particular transient cannot be applied at another facility for a different transient because it was not approved for the other transient or application.
 - a licensee is not permitted to adopt different aspects of different approved methods (i.e., mix and match) because the method is not being applied in the manner it was approved.
 - a method that is approved for a particular facility cannot be applied to another facility that has relevant design differences because the method was not approved for the different design configuration.
 - a method that is approved for a facility that is required to assume that offsite power is lost in the transient analysis can not be adopted by a facility that does not include a loss of offsite power assumption, when the assumption is relevant, because the method is not being applied for the conditions it was approved.
- The licensee is not permitted to adopt less restrictive licensing basis analysis assumptions even if they have been approved at a different facility (e.g., the guidance must be clear that it is not acceptable to neglect the assumption that loss-of-offsite power is lost in transient analyses, or neglect the consideration of a single failure in transient analyses, or credit containment overpressure for NPSH, or credit non-safety related components in transient analyses, or assume different iodine partitioning even if it is approved at another facility).

T5C-3

Distribution: Mtg. Summary w/ NEI Re Methods of Evaluation Dated 11/10/99

Hard Copy

Docket File

PUBLIC

RGEB R/F

OGC

M. Markley, ACRS

PWen

JBirmingham

EMcKenna

MSatorius, OEDO

EMail

SCollins/RZimmerman

BSheron

DMatthews/SNewberry

CCarpenter

FAkstulewicz

JWermiel

RCaruso

CJackson

JKnox

DTerao

AEI-Bassioni

JAndersen

RHoefling, OGC

PEng, NMSS

PBrochman, NMSS