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Comments on Draft Regulatory Guide DG-1096, *Transient and Accident Analysis Methods*, and Draft Standard Review Plan Section 15.0.2, *Review of Analytical Computer Codes*, (65 *Fed. Reg.* 77934)

Framatome ANP has reviewed and evaluated the draft regulatory guide and accompanying standard review plan concerning analytical computer codes used for safety analysis and offers several comments. These comments address the inappropriate application of LOCA-related techniques to other analytical methods, the contradictory effects these documents would have on several of the NRC's objectives, the excessive detail contained in the documents, the backfit implications of imposing these draft requirements, and an alternative approach to accomplish the apparent objectives being sought by the NRC.

Framatome ANP also participated in the development of the comments submitted by NEI to the NRC on these same documents. We concur in the NEI recommendations.

We believe many of the elements contained in these draft documents have considerable merit, and typically these principles are applied in our development of new analytical methods, and to a limited extent in the modification of existing models. Except for new realistic LOCA methods, however, the application of these detailed processes would be impractical and unnecessary. These documents reflect an effort to impose the strictest interpretation of those procedures that might be expected to be applied to the single most sophisticated and complex analysis (i.e., the large break LOCA) to the full spectrum of transient analyses, most of which can be adequately addressed using simplified techniques that call for very few of the requirements proposed in these documents.

Applying the proposed processes to the methods used for all transient analyses would go far beyond the intent of 10CFR50.34 and the NRC's practice in assessing compliance with this regulation. Requiring these excessive requirements is not only unnecessary, but would impose a huge burden on the industry that would add no value to the efficacy of the analyses used for Chapter 15 transients.

The industry has about 40 years of experience in successfully demonstrating the adequacy of its methods to accurately or conservatively predict the course of all transients, including large break LOCAs, for which special requirements are imposed to ensure conservative predictions. The development of these draft documents by the NRC is an egregious effort to extend the highly

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unusual requirements of a regulation, namely, 10CFR50.46, to the entire spectrum of non-LOCA transients with no basis for any value added. This translation of the 50.46 requirements appears to be an effort to institute new regulatory requirements without taking on the work and scrutiny needed to actually promulgate a new regulation. Additionally, this approach is an obvious attempt to remove all flexibility from the current non-LOCA methods and to impose the rigidity applied to LOCA models without any mechanism to modify the models without prior NRC review and approval, as permitted under 10CFR50.46. Such a situation would be unworkable.

In addition to imposing a needless and immense burden on the industry, these proposed guidelines run counter to other important objectives established by the NRC and generally supported by the industry. These objectives include a spirit of openness (for example, in disclosing the methods used to perform safety analyses), a common interest and desire in continuing to improve and upgrade the methods used to conduct transient analyses, an interest by the NRC in understanding the bases for the codes used for these analyses, and an NRC desire (shared by many licensees) to have the acceptance of these methods formally documented. The effect of imposing requirements of the nature and extent set forth in these documents would be to discourage, or in many cases eliminate, the fulfillment of these objectives. Even if a vendor were willing to invest the vast resources to try to incorporate many of these requirements, it is doubtful the NRC could muster the resources to apply the corresponding standard review plan mandates.

The processes suggested in these draft documents are far too ambitious, detailed, and overly prescriptive for relatively minor code modifications, and yet it is specified that even in these cases the full set of requirements would apply. Most future submittals on computer codes will be related to incremental changes to existing approved models. It would not be cost effective, nor would quality be improved, if these complex requirements were to be applied. The proposed regulatory guide offers little flexibility for making an efficient code modification when it states, "... the process may be shortened as long as the effect of the change is thoroughly addressed." As an alternate, the attachment to this letter outlines a reasonable expectation of the documentation requirements for a typical modification to an approved methodology.

In addition, the application of these suggested requirements to revisions of currently approved methods represents a clear example of a backfit. Instead of evaluating the merits of a revision and its potential effect on the base methodology, these documents require a complete investigation of the entire model, a monumental burden that would be avoided with the proper application of 10CFR50.109.

In another example of the unnecessary burden being placed on the code developer, the proposed documents require the application of both the full CSAU approach and the exacting PIRT process. While identification of important phenomena is important, the application of the extended PIRT process is unwarranted. It is unlikely that serious consideration would be given by the developer of a new methodology to implement these two specific requirements, except for a realistic LOCA methodology. To expect the application of these processes to code modifications is irrational. This expectation fails to recognize the many years of successful application of NRC-approved methods to which specific, well-demonstrated enhancements are being proposed. The approach adopted in the presentation of these requirements displays a lack of trust in the competence of the methods developers and in the integrity of the peer review and QA processes to which they are committed.

As further evidence of the addition of unnecessary requirements, the regulatory guide imposes an external peer review into the development process. The draft regulatory guide implies that this requirement is consistent with 10CFR50, App. B, but that is not accurate. Also, it is inappropriate for the NRC to specify who, other than qualified personnel, should participate in a peer review; to require the use of consultants is clearly outside the NRC's responsibility.

The regulatory guide presumes that there are almost unlimited experimental data and results available to validate the myriad of special effects being modeled. It is implied that all of the important phenomena are addressed by separate effects and integral tests at various scales for each accident scenario by stating, "...it should be possible to complete the data base by selection and experimentation." This is not the case, and it is unlikely that additional transient experiments will be conducted in the foreseeable future.

The draft regulatory guide also addresses plant-specific requirements. Although the major elements of a methodology should be reviewed and approved by the NRC, the details of how these methods are applied to a specific plant should not be addressed in a topical report. Unique, plant-specific features are not significant with respect to the adequacy of the model; they are important only to accurately reflect the plant design.

In summary, Framatome ANP believes that the issuance of a new regulatory guide that contains a substantial fraction of the requirements set forth in the draft guide would be counterproductive to the achievement of the NRC's stated objectives. Specifically, a regulatory guide of this nature would create an environment in which fewer computer code improvements would be made and therefore less documentation would be shared with the NRC. A more productive process would be to issue guidance that recognizes the maturity of the current methods and yet provides a framework for more consistency in the documentation of transient analysis methodologies.

Framatome ANP appreciates this opportunity to provide comments on these two draft documents.

Very truly yours,

James F. Mallay, Director
Regulatory Affairs

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Proposed Documentation Requirements for a Typical Modification to an Approved Methodology

The documentation required to adequately describe and support a modification to an NRC-approved safety analysis methodology is readily defined. This documentation should be contained in two parts: the information needed by the NRC to perform its acceptance review and certain documents retained by the vendor, but open for NRC inspection.

A typical submittal to the NRC should include a methodology report that describes the transients to be analyzed and a theory manual setting forth the bases for the codes used in the methodology. The methodology report should include how the codes are used for the intended scope of application and the assessments performed to qualify the code for these applications.

The theory manual should include the form of the field equations used in the code and the assumptions made that resulted in these equations, the closure equations, the type of numerical schemes used to solve the equations, and the overall range of applicability of the code. The range of applicability should be addressed using integral assessments. (It would be impractical to address the range of applicability of each closure relation because these are steady state relations being applied to transient conditions.)

The documentation to be retained by the code developer should include the development planning (including the process used to determine the important phenomena to be addressed), validation and verification records, a programmer's manual, a user's manual, and guidelines describing the details of how to apply the codes to each plant type and transient.