

December 4, 2001

Theodore U. Marston  
Vice President & Chief Nuclear Officer  
Electric Power Research Institute  
3412 Hillview Avenue  
Palo Alto, CA 94304-1395

Dear Mr. Marston:

I am writing regarding the use of the Modular Accident Analysis Program (MAAP) computer code in the reactor licensing process, and the associated NRC staff reviews.

NRC and EPRI met on December 15, 2000, to discuss the MAAP code. EPRI and the Nuclear Energy Institute agreed to consider a future review of MAAP by the staff. EPRI also agreed to provide the staff with the MAAP user guidance to help the staff understand the code. EPRI provided a list of MAAP guidance documents (April 7, 2001, e-mail from G. Vine), but we are still awaiting a decision by EPRI regarding the review of MAAP.

Until the MAAP code is submitted to the NRC for review and accepted for specific applications, please be advised that we intend to take the following approach in reviewing licensee submittals that rely on MAAP.

- For each plant-specific submittal that relies on MAAP for a design-basis application, we will review those portions of the code relevant to the application, as we would any other licensing basis code. The review will generally be limited to identifying the critical MAAP models, assumptions, and code input used in the application, verifying the validity of the models by benchmarking the code with experiments and other codes, and assessing the integration of the MAAP results (e.g., containment pressure and temperature history) into the analysis package. We may supplement this review by performing audit calculations (using staff codes) to confirm the results. The approval of the analysis will be limited to that specific licensing action (i.e., the approval will not be an approval of MAAP.) The review costs will be billable to the licensee making the application.

This approach will also be used for plant-specific submittals that rely on MAAP for severe accident applications, when we consider a technical review appropriate.

- For MAAP applications submitted via topical reports, a similar review approach will be taken. The scope and depth of the review will depend on the particular application, and could be based on a phenomena identification and ranking (PIRT) evaluation for each application. Due to the broad scope of the MAAP code, any code review and acceptance will be limited to that specific type of application and be conditioned upon use of the code in a prescribed manner. The product of the review would be a safety evaluation report on the acceptability of the specific code version for the subject application. The review costs will be billable to the organization submitting the topical report.

Two particular types of MAAP applications deserve specific mention: (1) the use of MAAP to support the development of PRA success criteria, and (2) the use of MAAP to support urgent license amendment requests, e.g., when a quick approval is needed for a plant to restart. With regard to the first application, we stated in a July 6, 1993, letter to NUMARC, that the results of a contractor review of the MAAP3.0B did not call into question the overall adequacy of the code for use in individual plant examinations (which typically included development of Level 1 PRA success criteria), and that licensees bear the burden of proof that they have applied the code properly. While we do not intend to routinely evaluate PRA success criteria methodology as part of risk-informed license amendment reviews, we expect that in some situations a limited assessment of the use of MAAP for success criteria will be warranted. Regarding the second application, in the absence of a generic review and approval of the MAAP code as a topical report, the staff will not generally accept MAAP analyses without additional technical justification and confirmatory calculations (including licensee-supplied confirmatory calculations using other codes), because the staff will not be in a position to perform the necessary review on short notice.

The NRC staff is willing to meet with EPRI to discuss possible MAAP applications for which a detailed code review and staff acceptance may be useful. If you have any questions, please feel free to call me at 301-415-2884.

Sincerely,

Gary M. Holahan, Director  
Division of Systems Safety and Analysis  
Office of Nuclear Reactor Regulation

cc: Gary Vine

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RPalla	MRubin	RBarret	CTurner	GHolahan
10/24/01	10/31/01	11/01/01	11/15/01	11/27/01

NRR:ADPT	Tech Ed	D/DSSA-SIGNED
BSheron	PKleene	GMHolahan
11/29/01	10/22/01	12/04/01