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

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for DSSA  
participants in  
7/12 meeting  
and return  
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MEMORANDUM FOR: Martin J. Virgilio, Acting Director  
Division of Systems Safety and Analysis  
Office of Nuclear Reactor Regulation

Joseph A. Murphy, Acting Director  
Division of Safety Issue Resolution  
Office of Nuclear Regulatory Research

FROM: M. Wayne Hodges, Director  
Division of Systems Research  
Office of Nuclear Regulatory Research

SUBJECT: THE USE OF MAAP BY THE UTILITY INDUSTRY FOR INDIVIDUAL PLANT EXAMINATIONS

- References: (1) J.U. Valente and J.W. Yang, "The MAAP 3.0B Code Evaluation Final Report," a BNL report, FIN L-1499, October 1992.
- (2) A.C. Thadani letter to W.H. Rasin, July 6, 1993.
- (3) L.W. Ward letter to F. Eltawila, January 10, 1994.
- (4) P.G. Ellison, L.W. Ward, and C.M. Allison, "The Role of the Modular Accident Analysis Program (MAAP) in NRC Requested Analysis," a letter from P.G. Ellison to M.A. Pohida, January 17, 1994.
- (5) F. Eltawila letter to J.A. Lake and H.S. Blackman, April 14, 1994.
- (6) J.A. Lake and H.S. Blackman letter to F. Eltawila, June 17, 1994.

The purpose of this memorandum is to provide appropriate documentation and background in preparation for the July 12, 1994, NRR and RES meeting regarding INEL concerns on the use of the MAAP code for IPEs and ALWRs. In July 1992 the NRC completed the evaluation of the MAAP 3.0B code for use in the IPE. The purpose of the evaluation was to provide guidance and insight on application of MAAP for the NRC IPE reviewers. In addition, the evaluation effort also was for the assessment of EPRI's recommendations (i.e., MAAP guidance document) for performing IPEs with MAAP. The results of this evaluation, which was performed by the Brookhaven National Laboratory (BNL), were documented in a BNL technical evaluation report (Ref. 1). In summary, the BNL evaluation indicates that the proper use of the MAAP code is adequate for most transient and accident conditions.

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*PDR per: R. Curuso*

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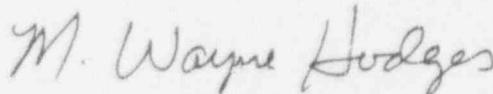
The BNL report was sent to W.H. Rasin of the Nuclear Management and Resources Council, Inc. in a letter from A.C. Thadani (Ref. 2). In this letter, NRC took the position that the NRC has no objection to the use of MAAP by the utility industry. However, the licensees should bear the responsibility that they have used MAAP properly in accordance with the intent of the IPE generic letter.

In January 1994, F. Eltawila received a letter (Ref. 3) and a paper (Ref. 4) from L.W. Ward (INEL) concerning the use of MAAP by the utility industry for IPE in-vessel and ex-vessel sequence success criteria. In the letter and the paper, the authors raised a concern about the use of MAAP 3.0B by the utility industry in IPE activities. Specifically, the concern is related to the use of MAAP for the analysis of the minimum cooling equipment configurations needed to prevent fuel damage. This use is found in IPE submittals by the utility industry. Following DSR reviews of Refs. 3 and 4, F. Eltawila requested in a letter to J. Lake and H. Blackman (Ref. 5) clarification of the position taken by the INEL staff concerning the use of MAAP by the utility industry.

We received a response letter (Ref. 6) from Drs. Lake and Blackman on June 29, 1994. In this letter, it was stated that, although the MAAP code has models to describe many of the important processes that occur during severe accidents, it is not sufficiently reliable to determine thermal-hydraulic success criteria to prevent core damage without benchmarking the code against more detailed models to establish the impact of model simplifications inherent in MAAP.

Due to the implications of this matter, it may be beneficial to inform EPRI and NEI about the concerns INEL expressed about the use of MAAP 3.0B by the utility industry in IPE activities. At the July 12, 1994, meeting I would like to discuss INEL's concerns and, by implication, similar concerns with regard to the use of MAAP by Westinghouse for AP600 applications and evaluation. At this meeting I would also like to determine what appropriate course of action the NRC should take, including interactions with EPRI and NEI on this subject.

Sincerely,



M. Wayne Hodges, Director  
Division of Systems Research  
Office of Nuclear Regulatory Research

Enclosure:  
Reference 2-6