ENCLOSURE 3

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

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MEMORANDUM FOR Albert P. Kenneke, Acting Director
Office of Policy Evaluation

FROM Roger J. Mattson, Director
Division of Systems Safety, NRR

SUBJECT OPERATOR LICENSING AND TRAINING ACTIONS FOLLOWING THE TMI-2 ACCIDENT

This memo provides a status report on current NRR activities relating to operator licensing and training subsequent to the TMI-2 accident.

For the last few weeks the NRR Operator Licensing Branch personnel have been heavily involved in direct support of NRR activities at TMI-2, in the IE team that visited each Westinghouse and Combustion Engineering plants to discuss the IE bulletins with licensed personnel, in the bulletin response review team, in the B&W plant restart review teams, and in the B&W generic small break LOCA analysis review team.

Because of these other higher priority activities for the OLB staff, operator license examinations were suspended on PWR reactor plants as of April 9, 1979. Resumption of examinations will occur upon completion of the PWR plant bulletin response, review of revisions of operating procedures at operating plants, and review of the training associated with the bulletin response.

The most significant assessment so far of the longer term implications of TMI-2 for operator licensing and training was that done in connection with Section 4 of NUREG-0560 (enclosed)*. Based upon this preliminary work certain recommendations have been made by the staff in Section 8 of NUREG-0560. Included is a recommendation for better operator training including better utilization of simulators to track events that 1) lead to the formation of voids; 2) lead to long term natural circulation cooling; and 3) include effects of equipment failure and plant system misalignment. The need to better develop more effective procedures to cope with transients and accidents is also recommended. In this regard, the procedures would address system type failure modes to give the operator more guidance to assist in decision making.

*Staff Report on the Generic Assessment of Feedwater Transients in Pressurized Water Reactors Designed by the Babcock & Wilcox Company.

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A significant consideration that comes from the TMI-2 accident is the need to provide operators with the capability to function in a more decisive and effective manner. That is, there should be better preparation of operators as effective agents in transient and accident mitigation. While training improvements will help, training alone will probably not provide the capability ultimately desirable. On-line diagnostic aids, such as computer based systems, might be an important factor in providing the operator with better ability to diagnose rapidly developing accident situations. These possibilities and the recommendations in NUREG-0560 will be evaluated by the NRR lessons learned task force and actions will be initiated on the higher priority, most promising areas when such evaluation has been completed, perhaps within the next month. In this context, it is important to note the draft report dated May 11, 1979 to Senator Richard Schweiker on NRC's operator licensing program that has been prepared by the GAO. The Office of Inspector and Audit is coordinating NRC's response to this report. Our Office will have the bulk of the input to answering the questions raised by GAO, but our work on this project is only now beginning, subject to the resource commitments to higher priority work, described above. The lessons learned task force will coordinate this effort with the plan for near term and long term actions in the operator training area.

During the conduct of its investigation, the GAO representatives were advised by personnel in the Office of Nuclear Regulatory Research of two studies sponsored by the Probabilistic Assessment Branch of RES. One study, contracted to the Iowa State University, involves use of probabilistic analysis methods to evaluate licensee event reports that involved human error. The second study, contracted to Sandia Labs, involves use of probabilistic analysis in human factors analysis. It is possible that results from either of these studies may lead to consideration of changes in operator training and licensing requirements just as they may lead to considerations of changes in system design, control systems, testing or procedural requirements.

To summarize, there are several significant activities presently underway relating to operator training and licensing that involve a large fraction of NRC's expertise in this area. The activities are as follows:

1. All licensed personnel from B&W plants are undergoing training on the B&W simulator on the TMI-2 accident sequence. Included in the training are:

    a. Simulation of the response of instruments during the TMI-2 accident.
    b. Training on loss of off-site AC power with accompanying natural circulation.
    c. Recovery of pressurizer pressure and level following saturation in the reactor coolant loops.
    d. Review of actions required by the IE Bulletins concerning TMI-2.

2. All PWR licensed personnel have completed training required in IE Bulletin 79-06A and 79-06B, Review of Operational Errors and System Misalignments Identified During the Three Mile Island Incident, dated April 14 and 18, 1979, which included:

   a. Understanding the seriousness of blocking auxiliary feedwater trains, apparent operational errors and analysis of the TMI-2 accident.
   b. Instruction not to override automatic actions of engineered safety features.
   c. Review of operator actions and revised procedures to assure, for accident conditions, that there exist core flow and a heat sink with sufficient coolant inventory and that the primary and secondary systems are intact.

3. A meeting was held in Bethesda, April 13, 1979, with managers of the simulator training centers, simulator vendors, and representatives of consultant firms to discuss simulator training and the TMI-2 accident. The training center personnel were instructed to develop the following capabilities for reactor simulators:

   a. Modelling saturation conditions in primary loops to provide training on how to avoid and how to regain pressure and level in pressurizers in the event of saturation in the loops.
   b. Training to include an operating review of the safety systems and central parameters following re-initialization of the simulator during training exercises.
   c. Providing multiple failure accident training, including incorrect instrument responses.
   d. Providing training for both active and passive failure of Engineered Safety Feature Components.
   e. Providing training on natural circulation operation under solid water conditions.

4. Preparation of the response to a memorandum from Samuel J. Chilk to Lee V. Gossick, Commission Briefing on Procedures for Qualifying Reactor Operators, dated April 30, 1979, which included the following:

   a. Investigation of simulator use under accident conditions in FAA, NASA and commercial airlines.
   b. A statistical profile of the licensed operator and senior operator based on experience, age and salary as compared to the profiles in other regulated industries such as air traffic controllers and commercial airline pilots.
   c. A determination of the number of nuclear plant superintendents and assistant superintendents who have held licenses or who currently are licensed by the NRC.

d. Providing information on facility requalifications examinations and retraining. This information is being supplied by IE.
e. A review of the Navy nuclear training and examination program and a comparison to the NRC program.

Roger J. Mattson

Roger J. Mattson, Director
Division of Systems Safety
Office of Nuclear Reactor Regulation

~~Enclosure:~~
~~Excerpt from Sections 4 and 8 of NUREG-0560~~ (OPE NOTE: Enclosure deleted)

cc: L. V. Gossick
H. R. Denton
E. G. Case
R. S. Boyd
D. Skovholt
P. Collins
V. Stello
R. L. Tedesco