August 28, 1979

DR DONALD F. KNUTH
President

Mr. Harold Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

In a previous letter from KMC, Inc. dated August 8, 1979, preliminary comments on two issues from the TMI-2 Lessons Learned Task Force Report (NUREG-0578) were provided for your consideration. The two issues involved the requirement for a shift technical advisor and that of automatic shutdown in the event of a loss-of-safety function. It was indicated in the earlier letter that we proposed to provide additional alternatives to meet the Task Force objectives.

We have had the opportunity to consider these issues in more detail and to have discussions with members of your staff as well as with the ACRS. Although we agree with the basic Task Force concerns, we remain convinced that alternative methods of meeting the initiatives could be superior to those recommended by the Task Force. The methods used at any particular site should be selected and implemented by the utility as approved by the NRR staff. The enclosed paper provides alternative methods of meeting the objectives of the Task Force Report recommendations related to the shift technical advisor and the loss-of-safety function.

We would be pleased to meet and discuss these alternatives and additional implementation details with your staff.

Sincerely,

Donald F. Knuth

Donald F. Knuth

encl.

Appendix A

ALTERNATIVE METHODS OF MEETING RECOMMENDATIONS OF TMI-2 LESSONS LEARNED REGARDING SHIFT TECHNICAL ADVISOR

Introduction

The basic objective of the task force recommendation is to provide enhanced technical support for the operations personnel in the event of an off-normal event. The task force indicated an upgrading of plant operators training and informational displays should be made over the long term. The task force recommended in the short term the addition of a college graduate (or equivalent) to each shift. Three alternative methods are proposed in the subsequent sections which will meet the task force objectives and could in fact be superior from the standpoint of safety to the assignment of a shift technical advisor. The short term alternatives should only be interim in nature and as further analyses and operator response requirements are defined, the preferred course of action would be to provide the operations personnel the required training.

Discussion

As correctly indicated in the task force report the shift supervisor's responsibility is the command and control function. This individual is the key person who is delegated responsibility from higher management for the safe operation of the power plant

during his assigned shift. The shift supervisor's responsibilities include all responses to emergency situations. In this regard the ideal situation would be that the shift supervisor receive the needed instruction such that an emergency response would be within the scope of instruction.

In concept, the functions to be performed to prevent a high consequence radiological plant accident are to place the plant in a shutdown condition and to assure adequate core cooling. In the design of the plant the goal for accident response is that needed functions are automatically initiated such that immediate operator actions are not required; rather, the operators are viewed in a backup role to assure automatic initiation occurred as designed. In the longer term role, during the course of an accident, the operator is expected, in conformance with procedures, to realign or secure unneeded equipment. Although the required functions are straightforward the extent and diversity of equipment to provide these functions is more complex and it is in the arena of diagnosing and understanding the interrelated events where added capability is recommended. If agreement could be made on the areas of any additional desired technical training, it would be possible to commence shift supervisor training or retraining such that added technical augmentation would not be required. Until such agreement is reached other means

could be provided for increased technical support.

The Task Force recommended position for adding a technical advisor to each shift would at many sites make it extremely difficult to hire and train personnel in the requisite skills who would be well-motivated and effective. The alternative methods described below provide methods to provide that support which for many utilities would be superior to adding a shift technical advisor.

1. On-Call Technical Advisor

An on-call technical advisor could be established with a rapid call back system (for example, through a telephone paging system) which would assure added technical capability within a specified time period at the plant. The assigned person would be required to be on-call and to be available onsite within a nominal period of time. Procedures could be developed to initiate the call back and provide the responsible person with preliminary information on the nature of the incident such that while enroute the advisor could think through the expected contingencies. In this fashion, the on-call advisor would arrive in the control room with fresh perspectives of the situation.

2. Duty Technical Advisor

An alternate method of enhancing technical onsite capability at a site where a call back would be difficult would be to designate one qualified plant engineer as the "duty technical advisor." During a tour of duty which could be rotated among eligible persons, a 24 hour duty day could be established. While on duty, the person would reside onsite and be available for immediate response.

3. Site Organization Having Multiple Senior Operators

In some sites an organization exists having three or more senior reactor operators (SRO) on shift duty. At a multi-unit site, for example, one senior reactor operator could be the shift supervisor at each unit and one additional SRO may be assigned. Through selection and shift assignment one of the senior reactor operators (either the Shift Supervisor or the additional senior operator) could have the requisite experience and training as indicated for a "technical advisor." In the event of an incident at one unit the designated senior reactor operator having the requisite skills of a technical advisor could be relieved of all operational authority and would assume an advisory role. If the "technical advisor" happened to be the shift supervisor of one of the units the other assigned senior operator could assume his operational responsibilities.

Appendix B

ALTERNATIVE METHOD OF MEETING RECOMMENDATION OF TMI-2 LESSONS LEARNED REGARDING LCO FOR LOSS-OF-SAFETY FUNCTION

Introduction

The basic objective of the task force recommendation is to reduce the number of instances where through personnel error a safety function is defeated. An alternative to an automatic shutdown is provided which provides emphasis on corrective action. It is acknowledged that the Commission already has sufficient authority to order a plant to cold shutdown if the circumstances of the event indicate that action to be in the best interest of public health and safety.

Discussion

A violation of a limiting condition for operation which results in a loss-of-safety function can arise from a number of causes such as:

1. design error
2. component failure
3. system miscalibration
4. improper maintenance
5. operator error

Although nearly all causes from the above categories could ultimately be traced to human error it is the last three items which

seem of greatest concern to the task force; however, the recommendation as written in the Task Force Report is broader and would require a plant shutdown for any cause of loss-of-safety function.

Alternative Proposal

Upon loss-of-safety function the licensee would be required to conduct an investigation as to the cause of the incident and institute corrective action. Within 14 days of the incident a meeting with tne Regional Office of Inspection and Enforcement management could be required where senior utility management would provide both orally and in writing the results of its investigation. The remedial corrective action would be described and would be expected to be tailored to the specific cause (which could be one of several diverse causes). The investigation would include as a requirement the deliberations of the designated onsite and offsite safety review committees. The timing of the safety committees' review would be dependent on the circumstance of the loss-of-safety function and may not be complete at the time of the required meeting with the NRC.

Since there may be a number of diverse reasons for the incident we would expect the remedial action could and should be different for each situation and the same prescribed actions should not be followed. If the Office of Inspection and Enforcement

believes there is cause to require a plant shutdown, it already has the authority to take that action or to take whatever enforcement options it considers appropriate.

FROM:	DATE OF DOCUMENT	DATE RECEIVED	NO. 80-555 #6
Roger J. Mattson	9/24/79	9/2?	SG-2???-79
	LTR X	MEMO	REPORT / OTHER — Due Date:
TO: R. B. Minogue	ORIG. xerox	CC	OTHER — Requested Due Date:
	ACTION NECESSARY ☐	CONCURRENCE ☐	DATE ANSWERED
	NO ACTION NECESSARY ☐	COMMENT ☐	BY
CLASSIF	POST OFFICE REG NO	FILE CODE	

DESCRIPTION (Must Be Unclassified)

ALTERNATIVE METHODS OF MEETING RECOMMENDATIONS OF TMI-2 LESSONS LEARNED REGARDING SHIFT TECHNICAL ADVISORS

ENCLOSURES

REFERRED TO	DATE	RECEIVED BY	DATE

REMARKS

U.S. NUCLEAR REGULATORY COMMISSION

MAIL CONTROL FORM

FORM NRC 326S (4-79)

#25