



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30303

MAY 2 1979

SSINS 8100

MEMORANDUM FOR: J. P. O'Reilly, Director, Region II

THRU: R. C. Lewis, Acting Chief, Reactor Operations  
and Nuclear Support Branch

(1) H. C. Dance, Chief, Reactor Projects Section No. 1,  
RONS Branch

FROM: R. H. Wessman, Reactor Inspector, Reactor  
Projects Section No. 1, RONS Branch

SUBJECT: OBSERVATIONS RELATING TO PERSONNEL, PROCEDURES,  
AND ORGANIZATIONS RESULTING FROM THREE MILE ISLAND

The attached observations are submitted as a result of my personal reflections on the Three Mile Island accident. They are colored by my experiences in the nuclear navy, working for a NSSS supplier, five years of inspection activity (including two weeks at TMI) and recent conversations with other inspectors. They are submitted for your review, and transmittal to headquarters as you deem appropriate.

I would be glad to discuss these more fully with you. I would also be willing to participate in any program leading to the implementation of these, or similar suggestions originated by others.

R. H. Wessman  
Reactor Inspector

Enclosure

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OBSERVATIONS RELATING TO PERSONNEL, PROCEDURES, AND ORGANIZATIONS  
RESULTING FROM THREE MILE ISLAND

1. Increase Control-Room Manning

Requiring the addition of one licensed operator (RO) to the control room staff of each unit assures that there will be two men at the console at all times to cope with transients or emergencies. It is my belief that the control room is too big a place for one man, particularly when transients occur. Under current regulations, Technical Specifications could be satisfied with one man at the console and other licensed personnel elsewhere in the plant. Examples include Browns Ferry 3 or Crystal River 3.

It may also be appropriate to require that the shift supervisor (SRO) remain in the control room (or shift supervisor's office) at all times to assure a managed/directed response to casualties. If the shift supervisor is to go elsewhere in the plant, an assistant shift supervisor (SRO) could be required to remain in the control room/shift supervisor's office. The additional personnel in the control room area would assist in supporting the administrative activities, conduct of surveillances, or training when not directly supporting accident response.

2. Require Biannual Operator Exams Administered by the NRC

Present reliance on the utility's approved requalification program seems insufficient. A reliance on the utility's inhouse requalification program (eventhough its inspected) and relatively automatic reissue of an operator's license may tend toward complacency. An independent NRC exam may also provide greater assurance of operator quality.

The Navy's nuclear power program does not rely solely on the individual snipboard training and requalification program. The Navy uses outside examiners (from the fleet commander or Naval Reactors Division) to administer an Operational Reactor Safeguards Exam (ORSE) on a 1-2 year basis. This incentive (and threat of failure) keeps operators at a higher state of readiness.

3. Increase the IE/OLB Interface

The presence of an OLB examiner in the region has improved the exchange of information between the two organizations, although it has been

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frequently informal in nature. Sharing observations, and experiences have been beneficial to both groups. It is suggested that the NRC consider the following:

SEB [ - Provide specific training to IE inspectors so that they can better inspect operator performance (IE inspector simulator training is a step in this direction).

- Increase OLB representation in all regions.

SEB [ - Provide specific direction/guidance to the Resident Inspector to inspect in the area of licensed operator activity.

- Emphasize (such as via regional instruction) feedback mechanisms to assure that observations concerning operator performance are added to an individual's docket file.

EW [ - Look more closely at LER's for events attributable to operator error. ✓

4. Expand Scope of Licensing for Plant Personnel

There are several groups of individuals whose activities affect plant operations, as well as public health and safety, who could be subject to NRC licensing. Examples are auxiliary operators (operating waste processing equipment and nuclear auxiliaries), chemists, or health physicists. They are all subject to the constraints of ANSI N18.1 (Standard for the Selection and Training of Nuclear Power Plant Personnel). Additional training and qualification may currently be specified by the utility and/or union agreements. A specific NRC license, separate and distinct to the RO license, appears as an appropriate additional requirement.

5. Enhance Communication of Industry/Regulatory Experience to the Operator Level

2 It is not clear that information vehicles such as IE Bulletins, Circulars, and Notices reach the operators, when appropriate. These documents are seen by plant supervision but, based on my own experience, are not always passed on to the operators. The same may be true for industry vehicles from vendors, EPRI, or AIF.

6. Require Simulator Refresher Training for RO's and SRO's

Requiring simulator refresher training will maintain operator capabilities for accident response. This is the only place to "practice"

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for transients and accidents. An annual requirement of one week at the simulator seems appropriate and could be made part of the requalification program.

7. Require More In-plant Drills

An annual emergency drill, and an occasional fire drill seem insufficient. Operating Naval reactors hold drills on a far more frequent basis. Various in-plant casualties, such as pump trips, instrumentation failures, failures of automatic control systems, and radiological "accidents" can be simulated to enhance proficiency and procedures.

8. Development of Post-Accident Procedures

Many of the procedures developed during the recovery from the TMI accident have applicability at all facilities and may be required regardless of the initial accident. These should be postulated and developed in advance to avoid the extensive procedural generation effort in the midst of a casualty. Examples are:

- Loss of critical instrumentation
- Sampling when fission products are present
- High auxiliary building radiation levels limiting access to critical components
- Plant operations with high level contamination in the reactor building atmosphere
- Reactor coolant pump operations when solid or under limiting/accident conditions
- Handling of high level waste

9. Development of Post-Accident Command, Control, and Communications Structure

For each utility/facility the post-accident command, control, and communications structure needs development. Three Mile Island demonstrated the magnitude of such an organization and revealed various organizational weaknesses. Such a structure must identify interfaces between groups such as the NRC, the facility, the utility's corporate organization, vendors, the A-E, and other state or federal bodies. Communication and control paths require definition. Plans must exist

in advance to coordinate the actions of large numbers of personnel and diverse organizations into a directed accident response team. The NRC's role (and the role of various NRC offices) requires clarification.

10. System Lineup Verification on Safety-Related Systems

Current practice does not require an independent verification of system lineup subsequent to surveillance testing on safety-related systems. This extra check seems appropriate. The NRC has required this type of independent verification upon the installation or removal of jumpers and upon initial system lineup. Currently, we only rely on the surveillance test procedure, which may be fully executed by one person. Naval submarine practice has been to require such an independent verification upon "rig-for-dive" and whenever the rig-for-dive is broken and then restored, to assure ship safety.

ENCLOSURE 2

NRC Organization With Responsibilities Related To Mr. Wassman's Observations

Item

1. NRR/OLB
2. NRR/OLB
3. NRR/OLB, IE
4. NRR/OLB
5. SD - possible revision to existing Regulatory Guide.  
NRR - possible revision to Section 6 of the Technical Specifications.
6. NRR/OLB
7. NRR - possible STS or Appendix to 10 CFR 50.  
SD - possible input for RG.
8. SD - possible revision to RG 1.33.
9. SD - possible input for RG.  
NRR - possible Appendix to 10 CFR 50.
10. NRR/STS - incorporate language in Section 4.0 of TS which would delineate requirements for such independent verification.  
SD - include in possible revision to RG 1.33 or other Guide.