

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
WASHINGTON, D.C. 20555

April 14, 1979

IE Bulletin No. 79-08

EVENTS RELEVANT TO BOILING WATER POWER REACTORS IDENTIFIED DURING THREE MILE ISLAND INCIDENT

Description of Circumstances:

On March 28, 1979, the Three Mile Island Nuclear Power Plant, Unit 2 experienced core damage which resulted from a series of events which were initiated by a loss of feedwater transient. Several aspects of the incident may have general applicability to operating boiling water reactors. This bulletin requests certain actions of licensees operating, boiling water reactors.

Actions to be taken by Licensees:

For all Boiling water reactor facilities with an operating license complete the actions specified below:

1. Review the description of circumstances described in Enclosure 1 of IE Bulletin 79-05 and the preliminary chronology of the TMI-2 3/28/79 accident included in Enclosure 1 to IE Bulletin 79-05A.
  - a. This review should be directed toward understanding: (1) the extreme seriousness and consequences of the simultaneous blocking of both trains of a safety system at the Three Mile Island Unit 2 plant and other actions taken during the early phases of the accident; (2) the apparent operational errors which led to the eventual core damage,; and (3) the necessity to systematically analyze plant conditions and parameters and take appropriate corrective action.
  - b. Operational personnel should be instructed to (1) not override automatic action of engineered safety features unless continued operation of engineered safety features will result in unsafe plant conditions (see Section 5a of this bulletin); and (2) not make operational decisions based solely on a single plant parameter indication when one or more confirmatory indications are available.

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- c. All licensed operators and plant management and supervisors with

operational responsibilities shall participate in this review and such participation shall be documented in plant records.

2. Review the containment isolation initiation design and procedures, and prepare and implement all changes necessary to initiate containment isolation, whether manual or automatic, of all lines whose isolation does not degrade needed safety features or cooling capability, upon automatic initiation of safety injection.
3. Describe the actions, both automatic and manual, necessary for proper functioning of the auxiliary heat removal systems (e.g., RCIC) that are used when the main feedwater system is not operable. For any manual action necessary, describe in summary form the procedure, by which this action is taken in a timely sense.
4. Describe all uses and types of vessel level indication for both automatic and manual initiation of safety systems. Describe other redundant instrumentation which the operator might have to give the same information regarding plant status. Instruct operators to utilize other available information to initiate safety systems.
5. Review the action directed by the operating procedures and training instructions to ensure that:
  - a. Operators do not override automatic actions of engineered safety features, unless continued operation of engineered safety features will result in unsafe plant conditions (e.g. vessel integrity).
  - b. Operators are provided additional information and instructions to not rely upon vessel level indication alone for manual actions, but to also examine other plant parameter indications in evaluating plant conditions.
6. Review all safety-related valve positions, positioning requirements and positive controls to assure that valves remain positioned (open or closed) in a manner to ensure the proper operation of engineered safety features. Also review related procedures, such as those for maintenance, testing, plant and system startup, and supervisory periodic (e.g., daily/shift checks,) surveillance to ensure that such valves are returned to their correct positions following necessary manipulations and are maintained in their proper positions during all operational modes.

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7. Review your operating modes and procedures for all systems designed to transfer potentially radioactive gases and liquids out of the primary containment to assure that undesired pumping, venting or other release of radioactive liquids and gases will not occur inadvertently.

In particular, ensure that such an occurrence would not be caused by the resetting of engineered safety features instrumentation. List all

such systems and indicate:

- a. Whether interlocks exist to prevent transfer when high radiation indication exists, and
  - b. Whether such systems are isolated by the containment isolation signal.
  - c. The basis on which continued operability of the above features is assured.
8. Review and modify as necessary your maintenance and test procedures to ensure that they require:
- a. Verification, by test or inspection, of the operability of redundant safety-related systems prior to the removal of any safety-related system from service.
  - b. Verification of the operability of all safety-related systems when they are returned to service following maintenance or testing.
  - c. Explicit notification of involved reactor operational personnel whenever a safety-related system is removed from and returned to service.
9. Review your prompt reporting procedures for NRC notification to assure that-NRC is notified within one hour of the time the reactor is not in a controlled or expected condition of operation. Further, at that time an open continuous communication channel shall be established and maintained with NRC.
10. Review operating modes and procedures to deal with significant amounts of hydrogen gas that may be generated during a transient or other accident that would either remain inside the primary, system or be released to the containment.
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11. Propose changes, as required, to those technical specifications which must be modified as a result of your implementing the items above.

For all boiling water reactor facilities with an operating license, respond to Items 1-10 within 10 days of the receipt of this Bulletin. Respond to item 11 (Technical Specification Change proposals) in 30 days.

Reports should be submitted to the Director of the appropriate NRC Regional Office and a copy should be forwarded to the NRC Office of Inspection and Enforcement, Division of Reactor Operations Inspection, Washington, D.C. 20555.

For all other power reactors with an operating license or construction permit, this Bulletin is for information purposes and no written response is

required.

Approved by GAO, B180225 (R0072); clearance expires 7/31/80. Approval was given under a blanket clearance specifically for identified generic problems.