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JUN 11 1985

MEMORANDUM FOR: James P. Knight, Acting Director  
 Division of Engineering

FROM: Harold R. Denton, Director  
 Office of Nuclear Reactor Regulation

SUBJECT: SCHEDULE FOR RESOLVING AND COMPLETING GENERIC  
 ISSUE NO. 54 - SURVEY OF VALVE OPERATOR RELATED  
 EVENTS OCCURRING DURING 1978, 1979 AND 1980

Generic Issue No. 54, "Survey of Valve Operator Related Events Occurring During 1978, 1979 and 1980," has been prioritized as explained in the enclosed evaluation. No separate priority has been assigned to this issue because the principal concerns are being addressed in Generic Issue II.E.6.1, "In Situ Testing of Valves," which has previously been assigned to DE with a MEDIUM priority ranking. Therefore, a separate resolution of this issue is not required, but you are to assure that the safety issues identified in this issue are addressed in the resolution of Generic Issue II.E.6.1, "In Situ Testing of Valves."

The attached prioritization evaluation will be incorporated into NUREG-0933, "A Prioritization of Generic Safety Issues," and is being sent to other NRC offices, the ACRS, and PDR for comments on the technical accuracy and completeness of the prioritization evaluation. Any changes as a result of comments will be coordinated with you.

Should you have any questions pertaining to the contents of this memorandum, please contact Louis Riani (x24563).

Original Signed by  
 H. R. Denton

Harold R. Denton, Director  
 Office of Nuclear Reactor Regulation

Enclosure:  
 Prioritization Evaluation

cc: See next page

\*SEE PREVIOUS CONCURRENCES

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ENCLOSURE

PRIORITIZATION EVALUATION

Generic Issue No. 54

"SURVEY OF VALVE OPERATOR RELATED EVENTS

DURING 1978, 1979 AND 1980"

ISSUE NO. 54: SURVEY OF VALVE OPERATED-RELATED EVENTS  
OCCURRING DURING 1978, 1979, AND 1980

DESCRIPTION

Historical Background

In early 1982 the Office for Analysis and Evaluation of Operational Data (AEOD) issued a draft report entitled, "Survey of Valve Operated-Related Events Occurring During 1978, 1979, and 1980" for comment prior to the issuance of the final report (reference A). In this study AEOD established that motor-operator failures could be grouped into three principal categories: (1) torque switches; (2) limit switches, and (3) motor burn-out. On March 5, 1982, comments from NRR on this draft report were forwarded to AEOD (reference B). Subsequently, NRR also provided comments on the AEOD final report (reference C) in a memo of August 19, 1982. Following the receipt of comments from the various NRC Offices, AEOD provided an assessment of these comments (references D and E). NRR then provided a response to this assessment (reference F) in an effort to clarify certain matters related to this issue in terms of an expansion of an RES program to address features of this issue (reference G). Subsequently, AEOD issued an Engineering Evaluation Report (reference H) covering eight LERs on the degradation of motor-operated valve assemblies. This report presented results that augmented the findings of reference A. In March of 1984 a memo was written to SPEB by MEB presenting the status of potential Generic Issue No. 54 (reference I). This issue is related to issue C-11, "Assessment of Failure and Reliability of Pumps and Valves," of NUREG-0471 (reference A) and TMI Action Plan item II.E.6, "In Situ Testing of Valves."

### SAFETY SIGNIFICANCE

Degradation of motor-driven valve motors from thermal overloads may be occurring in repeated high-temperature cycles that is not detected in the present in-service testing programs. This may lead to premature motor burnout and subsequent unexpected unavailability of the valve during accident conditions. Moreover, torque switch settings and adjustments may be inadequate to ensure valve operability and qualification under accident conditions.

This issue would affect the design and operation of all existing and future nuclear plants for the lifetime of the plants.

### POSSIBLE SOLUTIONS

The possible solutions are: (1) reassessment of the present guidance in Regulatory Guide 1.106 on bypassing thermal overload-protection devices for motors; (2) improvement of the methods and procedures for the setting of torque switches, and (3) the development of signature tracing technique(s) to be incorporated into the in-service testing programs in order to detect valve deterioration, aging effects, improper maintenance, and improper valve adjustments that are not presently detectable.

### CONCLUSION

The principal concern in this issue as noted in the Safety Significance is the operability of the motor-driven valves under accident, faulted or emergency conditions. It is noted from the Task Action Plan for TMI Action Plan item II.E.6.1 (reference J) that the work scope includes verification of safety-related valve function under system emergency or faulted conditions, torque and limit switches settings and adjustments, motor burn-out resulting

from improper cycling and, MOV operator signature tracing by evaluation, test and analysis. Therefore, it is concluded that the objectives of Issue No. 54 will be met completely in TMI Action Plan Task II.E.6.1.

#### REFERENCES:

- A. "Survey of Valve Operator-Related Events Occurring During 1978, 1979, and 1980," Brown and Ashe, AEOD/C203, May 1982.
- B. Memorandum from H. R. Denton, NRR for C. Michelson, AEOD, "NRR Comments on AEOD Draft Report: 'Survey of Valve Operator-Related Events Occurring During 1978, 1979, and 1980,'" March 5, 1982.
- C. Memorandum from H. R. Denton, NRR for C. Michelson, AEOD, "NRR Comments on AEOD Draft Report: 'Survey of Valve Operator-Related Events Occurring During 1978, 1979, and 1980,'" August 19, 1982.
- D. Memorandum from E. J. Brown and F. S. Ashe, AEOD for C. Michelson, AEOD, "AEOD Assessment of Program Office Responses to the Report AEOD/C203, 'Survey of Valve Operator-Related Events Occurring During 1978, 1979, and 1980,'" December 23, 1982.
- E. Memorandum from C. Michelson, AEOD for H. R. Denton, NRR "AEOD Assessment of Program Office Responses to AEOD Case Study (C-203), 'NRR Comments on AEOD Draft Report: Survey of Valve Operator-Related Events Occurring During 1978, 1979, and 1980,'" January 12, 1983.
- F. Memorandum from H. R. Denton, NRR for C. Michelson, AEOD, "AEOD Assessment of Program Office Responses to AEOD Case Study (C-203), 'NRR Comments on AEOD Draft Report: Survey of Valve Operator-Related Events Occurring During 1978, 1979, and 1980,'" February 23, 1983.
- G. RES, DET FY 1983 Program Brief for RES, FIN A-6367 - INEL, Idaho Falls, Idaho, Subtasks H and I of Task 13.

- H. Memorandum from F. S. Ashe, AEOD, and Earl J. Brown, AEOD, for Karl V. Seyfrit, AEOD, "Engineering Evaluation Report AEOD/E305, 'Inoperable Motor Operated Valve Assemblies Due to Premature Degradation of Motors and/or Improper Limit Switch Adjustment,'" April 13, 1983.
- I. Memorandum from R. Bosnak for W. Minners, "Status of Potential Generic Issue 54, 'Valve Operator Related Events Occurring During 1978, 1979 and 1980,'" March 26, 1984.
- J. Memorandum from R. Bosnak through J. Knight for R. Vollmer, "MEB Task Action Plan for Resolution of Generic Issue II.E.6.1, 'In Situ Testing of Valves,'" July 30, 1984.