

**Detroit
Edison**

William S. Orser
Vice President
Nuclear Operations

Fermi 2
6400 North Dixie Highway
Newport Michigan 48166
(313) 586-5201



Nuclear
Generation

December 28, 1989
NRC-89-0274

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D. C. 20555

- References:
- 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
 - 2) NRC Bulletin 85-03 and Supplement 1,
"Motor-Operated Valve Common Mode Failures
during Plant Transients due to Improper
Switch Settings".
 - 3) NRC Generic Letter 89-10, "Safety-related
Motor-Operated Valve Testing and Surveillance
to 10CFR50.54(f)," dated June 28, 1989
 - 4) Detroit Edison Letter to NRC, NRC-88-0235,
"Response to CAL on Reactor Recirculation
Pump B Discharge Valve", dated September 28, 1988

Subject: Response to NRC Generic Letter 89-10

Detroit Edison has reviewed the Generic Letter 89-10 (Reference 3) which was received on July 17, 1989. This Generic Letter extends the scope of the program outlined in NRC Bulletin 85-03 and Supplement 1 (Reference 2) to include all safety-related MOVs as well as all position changeable MOVs as defined in the Generic Letter. This Generic Letter supersedes the recommendations provided by the NRC in Bulletin 85-03 and its supplement.

Detroit Edison's response to each specific NRC item of Generic Letter 89-10 is provided in the enclosure to this letter.

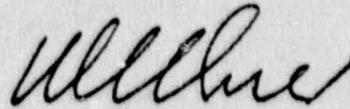
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If you have any questions, please contact Mr. Girija Shukla at (313)
586-4270.

Sincerely,



Enclosure

cc: A. B. Davis
R. W. Defayette
W. G. Rogers
J. F. Stang

RESPONSE TO GENERIC LETTER 89-10

The Detroit Edison response to each specific NRC item of Generic Letter 89-10 are given below.

o NRC Item a:

Review and document the design basis for the operation of each MOV. This documentation should include the maximum differential pressure expected during both the opening and closing of the MOV for both normal operations and abnormal events, to the extent that these MOV operations and events are included in the existing approved design basis.

Detroit Edison Response:

Detroit Edison is participating in BWROG MOV Testing Committee activity for developing a generic BWR position for meeting the requirements of Generic Letter 89-10. To ensure a consistent application of the Generic Letter, the BWROG plans to develop a scope of valves, range of events and set of assumptions to form a sound technical basis for BWR plants. Detroit Edison will use this generic technical basis as it applies to Fermi 2 in developing the design basis for the operation of each safety related and position changeable MOV for systems reviewed by the BWROG. Detroit Edison will also develop similar design basis for the remaining safety related and position changeable MOVs.

o NRC Item b:

Using the results from item a., establish the correct switch settings. This should include establishing a program to review and revise, as necessary, the methods for selecting and setting all switches (i.e., torque, torque bypass, position limit, overload) for each valve operation (opening and closing). One purpose of this letter is to ensure that a program exists for selecting and setting valve operator switches to ensure high reliability of safety-related MOVs.

Detroit Edison Response:

Detroit Edison previously established an MOV program which included selecting and setting valve operator switches to ensure high reliability of safety-related MOVs. As a part of the MOV program, a design verification of these MOVs is also being performed. Furthermore, based on the design basis review performed in item a., Detroit Edison will review the existing switch settings and revise them as necessary.

o NRC Item c:

Individual MOV switch settings should be changed, as appropriate, to those established in response to item b. Whether the switch settings are changed or not, the MOV should be demonstrated to be operable by testing it at the design-basis differential pressure and/or flow determined in response to item a. Testing MOVs at design-basis conditions is not recommended where such testing is precluded by the existing plant configuration. An explanation should be documented for any cases where testing with the design-basis differential pressure or flow cannot practicably be performed. This explanation should include a description of the alternatives to design-basis differential pressure testing or flow testing that will be used to verify the correct settings.

Note: This letter is not intended to establish a recommendation for valve testing for the condition simulating a break in the line containing the MOV. However, a break in the line should be considered in the analyses described in items a., b., and c. if MOV operation is relied on in the design basis.

Each MOV should be stroke tested, to verify that the MOV is operable at no-pressure or no-flow conditions even if testing with differential pressure or flow cannot be performed.

Detroit Edison Response:

At Fermi 2, MOVs are tested as per the MOV program currently using Henze-MOVATS diagnostic equipment to determine the stem thrust which is compared against calculated design thrust based on the maximum differential pressure. Other industry available diagnostic testing methods are also being considered for future use. In addition, based on the design basis review and the correct switch setting, differential pressure or flow testing of safety-related and position-changeable MOVs as permitted by the plant configuration will be performed to demonstrate operability of the MOV, as required by this Generic Letter. A description of the alternatives to design basis differential pressure testing or flow testing, including MOV static testing that will be used to verify the correct settings and operability of the MOV, will be documented and available for NRC review.

o NRC Item d:

Prepare or revise procedures to ensure that correct switch settings are determined and maintained throughout the life of the plant. These procedures should include provisions to monitor MOV performance to ensure the switch settings are correct. This is

particularly important if the torque or torque bypass switch setting has been significantly raised above that required.

It may become necessary to adjust MOV switch settings because of the effects of wear or aging. Therefore, it is insufficient to merely verify that the switch settings are unchanged from previously established values. The switch settings should be verified in accordance with the program schedule (see item j.).

The ASME Code Section XI stroke-timing test required by 10 CFR Part 50 is not oriented toward verification of switch settings. Therefore, additional measures should be taken to adequately verify that the switch settings ensure MOV operability. The switch settings need not be verified each time the ASME Code stroke-timing test is performed.

Detroit Edison Response:

Fermi 2 has already prepared and implemented procedures for controlling the correct switch setting for MOVs throughout the life of the plant. Design basis switch settings for all MOVs will be stored in Central Component Data Base (CECO) which is one of the Base Configuration Design Documents for Fermi 2. Any changes to existing switch settings are processed per Fermi 2 configuration control program.

o **NRC Item e:**

Regarding item a., no change to the existing plant design basis is intended and none should be inferred. The design-basis review should not be restricted to a determination of estimated maximum design-basis differential pressure, but should include an examination of the pertinent design and installation criteria that were used in choosing the particular MOV. For example, the review should include the effects on MOV performance of design-basis degraded voltage, including the capability of the MOV's power supply and cables to provide the high initial current needed for the operation of the MOV.

Detroit Edison Response:

The Fermi 2 design basis has included single failure criteria and degraded voltage, including the capability of the power supply and cables, for MOV performance. The design basis review to be performed under item a., will be limited to the Fermi 2 design criteria and UFSAR which are licensing basis documents.

o NRC Item f:

Documentation of explanations and the description of actual test methods used for accomplishing item c. should be retained as part of the required records for the MOV.

It is also recognized that it may be impracticable to perform in situ MOV testing at design-basis degraded voltage conditions. However, the switch settings established in response to item b. should at least be established to account for the situation where the valves may be called on to operate at design-basis differential pressure, or flow, and under degraded voltage conditions. If the licensee failed to consider degraded voltage, power supply, or cable adequacy for MOVs in systems covered by Bulletin 85-03, the design review and established switch settings for those MOVs should be reevaluated.

Alternatives to testing a particular MOV in situ at design-basis pressure or flow, where such testing cannot practicably be performed, could include a comparison with appropriate design-basis test results on other MOVs, either in situ or prototype. If such test information is not available, analytical methods and extrapolations to design-basis conditions, based on the best data available, may be used until test data at design-basis conditions become available to verify operability of the MOV. If this two-stage approach is followed, it should be accomplished within the schedule outlined in item i. and would allow for MOV testing and surveillance to proceed without excessive delay.

Testing of MOVs at design-basis conditions need not be repeated unless the MOV is replaced, modified, or overhauled to the extent that the licensee considers that the existing test results are not representative of the MOV in its modified configuration.

Detroit Edison Response:

As required by this Generic Letter, test specifications, including testing methods(s), test conditions, test results evaluation, and test system requirements used at Fermi 2 to satisfy NRC Item C will be documented in the Fermi 2 MOV program and will be retained as required records for the MOVs.

o NRC Item g.

A number of deficiencies, misadjustments, and degraded conditions were discovered by licensees, either as a result of their efforts to comply with Bulletin 85-03 or from other experiences. A list of these conditions (including improper switch settings) is

included in Attachment A to this letter for licensee review and information.

Detroit Edison Response:

Detroit Edison has reviewed the information provided.

o NRC Item h:

Each MOV failure and corrective action taken, including repair, alteration, analysis, test, and surveillance, should be analyzed or justified and documented. The documentation should include the results and history of each as-found deteriorated condition, malfunction, test, inspection, analysis, repair, or alteration. All documentation should be retained and reported in accordance with plant requirements.

It is suggested that these MOV data be periodically examined (at least every 2 years or after each refueling outage after program implementation) as part of a monitoring and feedback effort to establish trends of MOV operability. These trends could provide the basis for a licensee revision of the testing frequency established to periodically verify the adequacy of MOV switch settings (see items d. and j.). For its monitoring and feedback effort, a well-structured and component-oriented system (e.g., the Nuclear Plant Reliability Data System [NPRDS]) is needed to capture, track, and share the equipment history data. The NRC encourages the use of the industry-wide NPRDS, appropriately modified, for this purpose in view of the multiple uses for these data.

Detroit Edison Response:

Safety-related and position changeable MOV failures and corrective actions taken have been and continue to be documented on Deviation Event Reports. MOV repairs and alterations performed in response to corrective action or MOV performance improvement will also be documented per Fermi 2 Configuration Control Program. Under the Fermi 2 MOV program a tracking and trending program will be developed for MOV test and maintenance results. The trending program will be part of a monitoring and feedback effort and will provide feedback to improve MOV maintenance activities.

o NRC Item i:

Each licensee with an operating license (OL) should complete all design-basis reviews, analyses, verifications, tests, and inspections that have been instituted in order to comply with items a. through h. within 5 years or three refueling outages of

the date of this letter, whichever is later. Each licensee with a construction permit (CP) should complete these actions within 5 years of the date of this letter or before the OL is issued, whichever is later.

For plants with an OL, the documentation described in items 1. and 2. below should be available within 1 year or one refueling outage of the date of this letter, whichever is later. For plants with a CP, the documentation outlined in items 1. and 2. should be available within one year of the date of this letter or before the OL is issued, whichever is later. The documents should include:

1. The description and schedule for the design-basis review recommended in item a. (including guidance from item e.) for all safety-related MOVs and position-changeable MOVs as described, and
2. The program description and schedule for items b. through i. for all safety-related MOVs and position-changeable MOVs.

Detroit Edison Response:

Fermi 2 plans to complete all activities required by this Generic Letter, as stated above in NRC Item i, within 5 years or three refueling outages of the date of the Generic Letter, whichever is later.

The documentation described in item 1 and 2 above will be available at Fermi 2 within one year or one refueling outage of the date of the Generic Letter, whichever is later.

As per Item k, Fermi 2's first refueling outage, which occurred within six months of the date of the Generic Letter, would not be counted for these schedules.

o NRC Item j:

The program for the verification of the procedures outlined in item d., as well as other tests or surveillance that the owner may choose to use to identify potential MOV degradations or misadjustments, such as those described in Attachment A, should be implemented after maintenance or adjustment (including packing adjustment) of each MOV, and periodically thereafter. The surveillance interval should be based on the licensee's evaluation of the safety importance of each MOV as well as its maintenance and performance history. The surveillance interval should not exceed 5 years or three refueling outages, whichever is longer, unless a longer interval can be justified (see item h.) for any particular MOV.

Detroit Edison Response:

The trending program to be established per Fermi 2 MOV program and existing MOV PM Program will provide a feedback for establishing the surveillance interval longer than 5 years for verifying switch setting for MOV performance. Otherwise, Fermi 2 will not exceed 5 years or three refueling outages for the surveillance interval. The verification of switch settings for MOV performance will be done per Fermi 2 post maintenance testing procedure NPP-CT1-06.

o NRC Item k:

In recognition of the necessity for preplanning, refueling outages that start within 6 months of the date of this letter need not be counted in establishing the schedule to meet the time limits recommended in items i. and j.

Detroit Edison Response:

Detroit Edison has noted this item and will not count the first refueling outage of Fall 1989, which occurred within 6 months of the date of the Generic Letter, in the schedule to meet the time limits of Items i. and j.

o NRC Item l.

Each licensee shall advise the NRC in writing, within 6 months of the date of this letter, that the above schedule and recommendations will be met. For any date that cannot be met, the licensee shall advise the NRC of a revised schedule and provide a technical justification in writing. For any recommendation that it cannot meet or proposes not to meet, the licensee shall inform the NRC and provide a technical justification, including any proposed alternative action, in writing.

Each licensee shall also submit, in writing, any future changes to scheduled commitments; for example, changes made on the basis of trending results (see items h. and j.). These revised schedules or alternative actions may be implemented without NRC approval. Justification for the revised schedules and alternative actions should be retained on site.

Detroit Edison Response:

This letter is being submitted to meet the reporting requirement of this item. Any future changes will be submitted to the NRC as necessary.

o NRC Item 1:

Each licensee shall notify the NRC in writing within 30 days after the actions described in the first paragraph of item 1. have been completed.

Detroit Edison Response:

Detroit Edison will notify the NRC within 30 days after completion of activities described in Item 1. above.