



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION IV

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ARLINGTON, TEXAS 76011-8064

AUG - 5 1994

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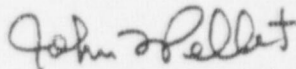
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SUBJECT: GUIDANCE OF CLOSURE OF STAFF REVIEW OF GENERIC LETTER 89-10 PROGRAMS

On July 12, 1994, Mr. B. W. Sheron, Director, Division of Engineering, Office of Nuclear Reactor Regulation, sent a memorandum to each of the Directors, Division of Reactor Safety, regarding the closure of staff review of Generic Letter 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance." Since you have completed, or will be completing, the implementation portion of your program for the verification of the design-basis capability of your motor-operated valves, the enclosed memorandum may provide you with useful information on the NRC's planned closure process for Generic Letter 89-10.

Should you have any questions regarding this closure process of inspection information, please contact Thomas F. Westerman, Chief, Engineering Branch, Division of Reactor Safety, Region IV, at (817)860-8145.

Sincerely,

  
Thomas P. Gwynn, Director  
Division of Reactor Safety

Enclosure:  
Memorandum dated July 12, 1994,  
B. W. Sheron to Directors,  
Division of Reactor Safety

cc w/enclosure:  
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RIV:DRS:RI	C:EB	D:DRS	D:DRP	D:DRS
CPaulk/lb	TFWesterman	TPGwynn	ABBeach	TPGwynn
08/03/94	08/03/94	08/03/94	08/04/94	08/05/94

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 WASHINGTON, D.C. 20555-0001

JUL 12 1994

MEMORANDUM FOR: James T. Wiggins, Acting Director  
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Albert F. Gibson, Director  
 Division of Reactor Safety, RII

Geoffrey E. Grant, Director  
 Division of Reactor Safety, RIII

Thomas P. Gwynn, Director  
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FROM: Brian W. Sheron, Director  
 Division of Engineering  
 Office of Nuclear Reactor Regulation

SUBJECT: GUIDANCE ON CLOSURE OF STAFF REVIEW OF  
 GENERIC LETTER 89-10 PROGRAMS

At the inspector workshop on October 14, 1993, the NRR and Region staff began discussions of the process for closure of the NRC staff's review of programs developed by licensees in response to Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance." Since then, several licensees have indicated that they have completed, or are nearing completion of, the portion of their GL 89-10 programs involving the verification of the design-basis capability of GL 89-10 motor-operated valves (MOVs).

After verification of MOV design-basis capability, licensees will implement the long-term aspects of GL 89-10, such as periodic verification of design-basis capability and trending of MOV problems. Periodic verification of design-basis capability and trending of MOV problems are activities that will continue throughout the operating life of the plant. Thus, we believe it would be appropriate to close GL 89-10 on the basis of the licensee's completion of design-basis capability verification of safety-related MOVs. The long-term MOV activities will be covered by the new maintenance rule (10 CFR 50.65) and will be monitored by the implementation of an inspection procedure that will replace Temporary Instruction 2515/109. We are also working with the ASME Operations and Maintenance Code Committee to develop methods to verify MOV design-basis capability through periodic testing.

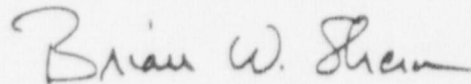
With many licensees approaching completion of their GL 89-10 programs, the Regions and NRR developed a process to provide consistency in the closure of the NRC staff's review of GL 89-10 programs. In addition, the Regions and NRR have documented inspection information that may be helpful in ensuring that issues remaining open from the initial GL 89-10 inspections are resolved. The GL 89-10 closure process and the inspection information are provided in Enclosures 1 and 2, respectively.

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Regional Directors

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If you have any questions on the GL 89-10 closure process or inspection information, please contact Richard H. Wessman, Chief, Mechanical Engineering Branch, Division of Engineering, at 301-504-3288.



Brian W. Sheron, Director  
Division of Engineering  
Office of Nuclear Reactor Regulation

Enclosures: As stated

cc (w/enclosures): A. Thadani  
R. Zimmerman  
NRC Public Document Room

## PROCESS FOR CLOSURE OF NRC STAFF REVIEW OF GENERIC LETTER 89-10

Background

Generic Letter (GL) 89-10 indicated that licensees were to maintain on site their MOV programs developed in response to the generic letter for review and evaluation during NRC inspections. With assistance from the NRR staff and contractors, the Regions have been performing inspections to review the development of GL 89-10 programs and to evaluate the implementation of those programs. Many licensees are nearing completion of the verification of the design-basis capability of their GL 89-10 MOVs. Periodic verification of design-basis capability and trending of problems will continue throughout the operating life of the plant.

Objective

NRR intends to close GL 89-10 on the basis of the licensee's completion of the design-basis verification of safety-related MOVs. This includes all the licensee's committed design and test activities to establish design assurance of the existing capability of MOVs to perform their safety-related functions under worst-case design-basis conditions. The long-term MOV activities discussed in GL 89-10 which were intended to maintain MOV design-basis capability throughout the life of the plant will be covered by 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," and 10 CFR 50.55a, "Codes and Standards," through code development. Continuing NRC review of these activities will also be performed by implementing an inspection procedure that will replace TI 2515/109. Therefore, long-term licensee actions need not be complete to close GL 89-10.

Process

Pursuant to 10 CFR 50.54(f), GL 89-10 stated that licensees shall notify the NRC in writing within 30 days after completion of their GL 89-10 program (with the exception of periodic verification of MOV capability). When a licensee notifies the NRC that it has completed the MOV design-basis capability verification portion of its GL 89-10 program, the NRR Project Manager will arrange a conference call between the cognizant staff in NRR Projects, NRR Mechanical Engineering Branch, and the Region to discuss:

- (1) the short-term and long-term aspects of the licensee's MOV program that need to be evaluated by the staff before acceptance of the licensee's response to GL 89-10;
- (2) whether a meeting with the licensee and/or a closeout inspection by the Region of the licensee's MOV design-basis capability verification is appropriate; and
- (3) NRR assistance to the Region during a review of submitted information or an on-site inspection.



As necessary, the NRR Project Manager will request the licensee to submit information or to participate in a meeting or conference call with the staff in advance of the MOV design-basis capability verification closeout inspection. If the Region requires significant NRR staff assistance, the Region should forward a TIA to NRR, and the NRR Project Manager will open a plant-specific TAC.

If a closeout inspection is performed, the Region would indicate acceptance of the licensee's response to the verification portion of GL 89-10 regarding the MOV design-basis capability in its closeout inspection report provided

- (1) the licensee had submitted a letter notifying the staff of its completion of the MOV design-basis capability verification portion of GL 89-10,
- (2) the Region found the licensee's GL 89-10 program to have been adequately implemented during the closeout inspection, and
- (3) NRR concurs in the closeout inspection report as discussed in TI 2515/109.

For closeout inspections, the NRR review may require more time than the one-day or two-day period needed for typical TI 2515/109, Part 2, inspections. The Region may follow the guidance in TI 2515/109 for meeting report-issuance time goals when the report is submitted to NRR for concurrence. The cover letter of the inspection report must refer to the long-term commitments made by the licensee in response to GL 89-10 which will be verified during future MOV inspections.

NRR will prepare an MOV inspection procedure by June 30, 1995, (1) to replace TI 2515/109 and (2) to monitor long-term commitments.

In cases where NRR and a Region agree that a closeout inspection is not necessary, NRR (with concurrence of the applicable Region) will prepare a letter to the licensee discussing the NRC staff's evaluation of the licensee's response to GL 89-10.

## INSPECTIONS FOR CLOSURE OF THE STAFF'S REVIEW OF GL 89-10 PROGRAMS

Background

Temporary Instruction (TI) 2515/109 provides guidance to the NRC staff for performing inspections of the activities of nuclear power plant licensees in response to Generic letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance." With input from the Regions, NRR provided additional information on GL 89-10 in memoranda to the Regions dated April 30, 1993, and December 20, 1993.

General Guidance

Where a Region will perform an inspection to close the staff's review and acceptance of a GL 89-10 program, the Region will use the guidance of TI 2515/109.

Specific Guidance for Closure Review

The basic inspection requirements from TI 2515/109 are listed below along with additional information related to review for closure of GL 89-10.

04.04 Select a sample of MOVs for detailed review from the population of MOVs in the generic letter program.

In implementing its GL 89-10 program, the licensee is expected to have verified the design-basis capability of each MOV in its GL 89-10 program. As a result, the licensee should have available a specific status for each MOV in its GL 89-10 program. Although not necessarily in a single document, the licensee should have available the following status of each MOV in the GL 89-10 program:

- a. Valve number and system label name
- b. Safety function description (and probabilistic-risk-assessment priority if applicable)
- c. Manufacturer, type, and size for valve, actuator, and motor for each MOV
- d. Control switch thrust versus calculated minimum and maximum thrust
- e. Test status (static/dynamic/Design-Basis Differential-Pressure /Percent DBDP during test)
- f. Basis for closure:
  - (1) Full d/p or extrapolated partial d/p test
  - (2) Static test only
    - (a) grouping with other valves d/p tested
    - (b) prototype testing
    - (c) reliance on EPRI or industry test data
    - (d) large calculated margin
    - (e) other (PRA, etc.)
- g. Remaining activities with schedule for completion

To close GL 89-10, the Regions should conduct a summary review of the status of information for the MOVs in the licensee's program to determine if adequate assurance of design basis capability has been demonstrated for the MOVs at the completion of the licensee's design and test activities.

### Mispositioning

Many PWR licensees are nearing completion of the verification of the design-basis capability of MOVs as part of their GL 89-10 programs. Most PWR licensees have deferred consideration of valve mispositioning in their GL 89-10 programs pending NRC staff response to the request by the Westinghouse Owners' Group that the recommendation in GL 89-10 to consider valve mispositioning be removed. The staff is preparing a supplement to GL 89-10 on the need to consider valve mispositioning as part of GL 89-10 programs at PWR plants. If ongoing staff analyses provide adequate justification, the supplement will eliminate the recommendation for PWR licensees to consider valve mispositioning as part of their GL 89-10 programs.

During the time while the staff is preparing the proposed supplement to GL 89-10, the staff guidance will be that a PWR licensee may defer consideration of valve mispositioning in its GL 89-10 program. Where a PWR licensee has completed its GL 89-10 program with the exception of the consideration of valve mispositioning, the staff may close its review of the licensee's design-basis capability verification of MOVs within the GL 89-10 program provided the licensee commits to consider valve mispositioning if the staff determines that this recommendation in GL 89-10 remains appropriate. If a schedule for PWR licensees to consider valve mispositioning is not provided as part of any resolution retaining this recommendation, the schedule for particular PWR licensees to consider valve mispositioning will be determined at the time of staff resolution of the issue. The staff will monitor the implementation of any continued recommendation on valve mispositioning in PWR plants through Temporary Instruction 2515/109 (or its replacement inspection procedure) or staff review (as agreed upon by the Region and NRR staff at the time of resolution of the issue).

- 04.05 Verify that the licensee has performed design-basis reviews of the sampled MOVs consistent with the generic letter or its commitments (where accepted under Part 1), as appropriate.

### Pressure Locking and Thermal Binding

Supplement 6 to GL 89-10 provided information on the consideration of pressure locking and thermal binding of gate valves. In addition, a memorandum dated December 20, 1993, from James T. Wiggins, Acting Director, Division of Engineering, NRR, to the Regions provided guidance on the evaluation of licensee activities

to address pressure locking and thermal binding of gate valves. NRR is preparing a generic letter specifically to address pressure locking and thermal binding of gate valves.

For closure review, the Regions should assess the progress being made by licensees in addressing pressure locking and thermal binding of gate valves. A licensee need not complete its response to the pressure locking and thermal binding issue at the time that its verification of the design-basis capability of MOVs within the scope of GL 89-10 is completed at the plant. The proposed generic letter on pressure locking and thermal binding will address the schedule for completing the licensees' response to the pressure locking and thermal binding issue.

- 04.06 Verify that the licensee has adequately sized the sampled MOVs in accordance with the generic letter or its commitments (where accepted under Part 1), as appropriate. Verify that switch settings are consistent with the expected design conditions for operation of the valve.
- 04.07 Verify that the licensee has demonstrated the design-basis capability of the sampled MOVs and the adequacy of the licensee's program applied to the sampled MOVs in accordance with the generic letter or its commitments (where accepted under Part 1), as appropriate.

#### Diagnostic Test Equipment Accuracy

Supplement 5 to GL 89-10 requested that licensees address the increased inaccuracy of MOV diagnostic equipment. Licensees have submitted responses to Supplement 5. The staff has reviewed the responses and replied to each licensee. The licensee is expected to be able to acceptably justify its actions taken in response to the increased MOV diagnostic equipment inaccuracy.

For closure review, the Regions should verify the implementation of the licensee's actions in response to Supplement 5 and assess the adequacy of the licensee's treatment of measurement error in their analysis of test data and torque switch setpoint analysis.

#### Grouping

Supplement 6 to GL 89-10 provides information on the grouping of MOVs used by some licensees to reduce the extent of dynamic testing under GL 89-10.

- 04.08 Verify that the licensee has established a method for periodic verification of adequate capability of the sampled MOVs in accordance with the generic letter or its commitments (where accepted under Part 1), as appropriate.



### Periodic Verification

The licensee should have justification for its method for periodically verifying the design-basis capability of MOVs within the scope of GL 89-10. Where a licensee relies on periodic testing to validate assumptions in their analysis supporting the initial demonstration of design basis capability, the licensee's method of periodic verification should be capable of providing the required data.

For closure review, the Regions should verify that the licensee has established and implemented a program for periodic verification consistent with their commitments. The Regions should review the licensee's justification for their method and assess the adequacy of the method in support of the licensee's verification of design basis capability.

For long term surveillance testing, the staff is working with the ASME Operations and Maintenance Committee to develop methods to detect degradation and maintain MOV design-basis capability through periodic testing. It is expected that the staff will prepare a separate generic communication on periodic testing in the future. Until further guidance is developed, the adequacy of the licensee's justification for their method of periodic verification to maintain design basis capability should be determined based on review and concurrence between the Regions and NRR.

As an example, the licensee for the Callaway plant has submitted a method for periodic verification which has been determined to adequately meet the recommendations of GL 89-10.

- 04.09 Verify that (1) the licensee has analyzed MOV failures which have occurred and has an effective corrective action plan to prevent recurrence and (2) the licensee trends failures of MOVs in accordance with the generic letter or its commitments (where accepted under Part 1), as appropriate.

This inspection requirement includes consideration of licensee response to NRC information notices, industry technical and maintenance updates, and 10 CFR Part 21 notices.

- 04.10 Verify that the licensee is meeting the program schedule in accordance with the generic letter or its commitments (where accepted under Part 1), as appropriate.

In Supplement 6 to GL 89-10, the staff provided guidance for licensees that cannot meet their GL 89-10 schedule commitments.

- 04.11 Verify quality assurance program implementation in the design control and testing of the sampled MOVs.

Part 1 Issues

Many issues remained open following the TI 2515/109, Part 1, inspections that will need to be resolved before GL 89-10 closure. For example, the licensee is expected to be able to justify assumptions and actions taken during the implementation of its GL 89-10 program. The following is a list of some of the assumptions at various plants which will need to be justified as applicable:

- a. Valve factor (including area assumption)
- b. Stem friction coefficient
- c. Load sensitive behavior
- d. Margins for stem lubrication degradation and springpack relaxation
- e. Motor performance factors
  - (1) motor rating
  - (2) efficiencies used in open and close directions
  - (3) application factor
  - (4) power factor used in degraded voltage calculations
- f. Basis for extrapolation method of partial d/p thrust measurements
- g. Torque switch repeatability
- h. Use of Limitorque, Kalsi, or other sources for increasing thrust and torque allowable limits
- i. Equipment error
- j. Post-maintenance testing, especially valve packing adjustments
- k. Grouping of MOVs
- l. Trending of MOV problems.

The staff's closure letter or inspection report (as applicable) will specify where any additional information is needed.