May 29, 2002

MEMORANDUM TO: Cornelius F. Holden, Acting Director
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

FROM: Girija S. Shukla, Project Manager, Section 2 **/RA/**
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Division of Licensing Project Management
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF MEETING WITH JOINT OWNERS GROUP (JOG) TO DISCUSS MOTOR OPERATED VALVE (MOV) PERIODIC VERIFICATION PROGRAM

On May 8, 2002, the NRC staff held a public meeting with representatives of the Joint Owners Group (JOG) to discuss the current status of the JOG Program on Motor-Operated Valve (MOV) Periodic Verification. The Boiling Water Reactor Owners Group (BWROG), B&W Owners Group (B&WOG), Combustion Engineering Owners Group (CEOG), and Westinghouse Owners Group (WOG) are conducting the JOG program as an industry-wide response to Generic Letter (GL) 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves." The NRC staff issued GL 96-05 to provide recommendations for long-term MOV programs to be implemented following the initial verification of MOV design-basis capability performed in response to GL 89-10, “Safety-Related Motor-Operated Valve Testing and Surveillance.” The JOG program consists of the following three phases: (1) an interim MOV static diagnostic test program; (2) a 5-year MOV dynamic diagnostic test program; and (3) a long-term MOV periodic diagnostic test program. The NRC staff prepared a safety evaluation dated October 30, 1997, accepting the JOG program with certain conditions and limitations. The NRC staff meets with JOG representatives twice a year to discuss the status of the JOG program. Attachment 1 is a list of the meeting participants. Attachment 2 is a copy of the meeting agenda. Copies of the slides used during the meeting are available under ADAMS accession number ML021330151.

At the outset of the May 8 meeting, the NRC staff discussed the status of its review of MOV programs established at nuclear plants in response to GL 89-10 and GL 96-05. As noted at the previous meeting on October 17, 2001, the staff completed its review of the GL 89-10 programs through a series of onsite inspections at each nuclear plant. In reviewing the GL 96-05 programs, the staff relied to a significant extent on the commitment of individual licensees to the JOG program, and conducted GL 96-05 inspections at a sample of plants. The staff reviewed GL 96-05 programs developed by licensees that had not committed to the JOG program on an individual basis. The staff has issued safety evaluations closing the NRC review of the GL 96-05 programs at all 103 active operating reactor units. Attachment 3 indicates the completion of the NRC staff’s review of GL 89-10 and GL 96-05 programs.

The JOG representatives presented a status of the JOG program and provided an overview of the test results to date. The JOG representatives reported that licensees of 98 reactor units continue to participate in the program. The JOG program currently includes 197 valves that are receiving three repetitive dynamic tests with at least a 1-year time interval between tests. Essentially all of the first and second set of dynamic tests for the valves in the JOG program have been completed. Over one-half of the final set of dynamic tests has been completed. The JOG dynamic testing program is formally scheduled to end in October 2002. A few dynamic tests primarily from the third set of dynamic tests will be conducted after the October 2002 formal end date for the JOG test program. The JOG will determine whether performance of any remaining dynamic tests from the first or second set is necessary based on adequate test coverage of the valve categories within the scope of the JOG program. Because the JOG dynamic test program includes more valves than originally envisioned, the JOG representatives expect that sufficient MOV test data will be available to support the conclusions of the program. The JOG will evaluate the results of tests conducted after October 2002 for any impact on the program conclusions.

The JOG representatives provided an update of the key observations from the MOV dynamic tests performed as part of the JOG program. In particular, the JOG considers the dominant influence for the increase in valve factor demonstrated by gate valves is the disassembly and reassembly of valves prior to testing. For non-disassembled gate valves, JOG has found that the initial value of the valve factor typically influences the changes in valve factor, such that low valve factors tend to increase and high valve factors tend to remain stable or decrease. The JOG is evaluating specific exceptions identified to these general trends in gate valve performance.

The JOG has not identified degradation in bearing friction during dynamic tests of butterfly valves with bronze bearings in treated water systems, or with non-bronze bearings in treated or untreated water systems. As previously reported, the JOG has found significant variation in bearing friction during dynamic tests of butterfly valves with bronze bearings in untreated water systems, but has not identified any trends with regard to this variation.

The JOG has continued to find low valve factors without degradation during dynamic tests of balanced disk globe valves. Previously, the JOG had considered developing a justification for closing its dynamic test activities for balanced disk globe valves based on the test results. However, the JOG stated during the May 8 meeting that it will complete the test program for these valves.

The JOG has identified small changes in valve factors during dynamic tests of unbalanced disk globe valves, but considers the changes to be within the uncertainty of the test instrumentation. In general, the JOG has not found evidence of degradation in the performance of unbalanced disk globe valves. One possible exception to this determination involves an unbalanced disk globe valve tested under steam flow conditions that will be further evaluated following the next set of dynamic tests.

The JOG reported that no new feedback notices had been determined to be necessary. JOG continues to address the issues raised in previous feedback notices. The JOG plans to distribute a revision to its feedback notice on an Aloyco split wedge gate valve to expand the discussion to address potential increases in valve factors due to stroking for valves with low initial valve factors. The JOG is continuing to monitor the issues addressed in the other feedback notices, including the potential for under-filled test matrix categories in the JOG program, and the temporary reduction in valve factor observed during the dynamic testing of gate valves that had been recently disassembled and reassembled.

Following the JOG presentation, the NRC staff discussed several items of interest noted in the meeting agenda. For example, the staff provided a preliminary list of open items for NRC review of the long-term phase of the JOG program (see Attachment 4). The list includes such items as the potential effect of valve strokes prior to the MOV dynamic diagnostic test; lessons learned from NRC-sponsored research on the aging of Stellite valve seating material; industry and international experience with MOV testing and programs; consideration of MOVs sized and set with the Electric Power Research Institute MOV performance prediction methodology or thrust uncertainty method; close-out of the JOG feedback notices; conditions and limitations related to long-term MOV programs in the JOG topical report and NRC safety evaluation; and the transition from the JOG interim program to the long-term MOV program by participating licensees. The JOG and the NRC staff will discuss plans for resolution of the open items at the next meeting.

The target date for the submittal of the JOG final topical report to the NRC for review is December 2003. The NRC staff plans to prepare a safety evaluation addressing the JOG final topical report. The staff considers that the periodic meetings held with the JOG on the status of the program will allow performance of the review of the JOG final report within about 6 months of receipt of the report.

The NRC staff and the JOG discussed the methods for assuring that all licensees are aware of significant information being determined from the JOG dynamic testing program. Almost all licensees are participating in the JOG program and, therefore, receive specific information on the MOV test results. In addition, the NRC staff and JOG representatives present the status and overall findings of the JOG program at periodic industry meetings, such as the annual MOV Users Group meeting. In addition, the NRC staff prepares a summary of each public meeting with the JOG that includes important observations that might be useful to all licensees. The staff and the JOG also discussed the preparation of a summary document of lessons learned following completion of the JOG dynamic test program for use by licensees in system application and setup of MOVs and other power-operated valves. Further, the staff stated that it will consider the development of an information notice that alerts all licensees to the key lessons learned from the JOG program.

The NRC staff and JOG representatives set a tentative date of October 16, 2002, for the next public meeting to discuss the status of the JOG program.

Attachments:
1. Meeting Participants
2. Meeting Agenda
3. NRC Staff Review of Licensee Programs Established in Response to Generic Letters 89-10 and 96-05
4. Preliminary List of Open Items for NRC Staff Review of Long-Term Phase of JOG Program on MOV Periodic Verification

cc w/atts: See next page

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MEETING WITH JOINT OWNERS GROUP ON MOTOR OPERATED VALVE PROGRAM

MEETING ATTENDEES

MAY 8, 2002

WESTINGHOUSE OWNERS GROUP

Tim Chan, TVA
Ike Ezekoye, Westinghouse

COMBUSTION ENGINEERING OWNERS GROUP

Bob Doyle, APS
Frank Ferraraccio, CEOG-Westinghouse

B&W OWNERS GROUP

Bob Schomaker, Framatome
Chad Smith, Duke Energy

BWR OWNERS GROUP

Glenn Warren
Wendell Fiock, GE

OTHER

Paul Damerell, MPR
Todd Spears, MPR
John Watkins, INEEL

NRC

Tad Marsh
Steve Dembek
Girija Shukla
Tom Scarbrough
Jerry Jackson
Y. Diaz Sanabria

ATTACHMENT 1

AGENDA FOR MEETING WITH THE JOINT OWNERS GROUP ON

MOTOR OPERATED VALVE (MOV) PROGRAM

MAY 8, 2002

OWFN O-9B4

8:30 a.m.	Introductions (NRC and JOG)
8:35 a.m.	GL 96-05 review issues and status (NRC)
8:40 a.m.	Status of utility testing and data submittals (JOG)
8:50 a.m.	JOG test program results since previous meeting (JOG)
10:00 a.m.	BREAK
10:10 a.m.	Continuation of discussion on JOG test program results (JOG)
10:55 a.m.	Status of utility feedback notices (JOG)
11:00 a.m.	Items of interest (NRC)

- Success path for resolution of open items on JOG program
- EPRI MOV thrust uncertainty method
- NRC research on Stellite aging
- NRC initiative to risk-inform its regulations
- ASME Code activities to improve MOV inservice testing
- NRC/ASME Symposium on valve and pump testing

11:45 a.m.	Action items and schedule for next meeting (NRC and JOG)
Noon	Closing (NRC)

ATTACHMENT 2

NRC STAFF REVIEW OF LICENSEE PROGRAMS ESTABLISHED

IN RESPONSE TO GENERIC LETTERS 89-10 AND 96-05

The NRC staff has completed its review of motor-operated valve (MOV) programs established at all active reactor units in response to GL 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance."

The licensees of 98 reactor units committed to implement the Joint Owners Group Program on MOV Periodic Verification in response to GL 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves."

The licensees of the five reactor units listed below are implementing plant-specific GL 96-05 programs:

Callaway
Fort Calhoun
Palisades
San Onofre 2/3

The NRC staff has issued safety evaluations closing its GL 96-05 review for all 103 active reactor units.

ATTACHMENT 3

PRELIMINARY LIST OF OPEN ITEMS FOR NRC STAFF REVIEW OF LONG-TERM PHASE OF JOG PROGRAM ON MOV PERIODIC VERIFICATION

1. Potential effects on JOG test results and long-term program of:

   Pre-calibration strokes on MOV performance during dynamic testing, including (a) length of time between static and dynamic diagnostic valve strokes; (b) uninstrumented valve strokes in the interval between static and dynamic diagnostic strokes; (c) relative valve factor where valves might undergo static strokes prior to dynamic diagnostic testing; and (d) static and differential-pressure stroke sequence during dynamic testing.

   Normal operation, inservice testing, or stationary valve position over the interval between dynamic tests.

   Normal position of the valve as open or closed.

   Various system fluid conditions such as temperature, pressure, and quality.

2. Lessons learned from NRC-sponsored research of aging of Stellite valve surface material and stem lubricants through separate effects testing.

3. Industry experience in U.S. and other countries compared to JOG test results and long-term program.

4. Consideration of MOVs within the scope of the JOG program sized and set using EPRI MOV performance prediction methodology or thrust uncertainty method.

5. Close-out of JOG feedback notices.

6. Conditions and limitations related to long-term programs indicated in JOG topical report and NRC safety evaluation.

7. Transition from JOG interim program to JOG long-term program by individual licensees.

cc:

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