

December 6, 2002

MEMORANDUM TO: Eugene Imbro, Chief  
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Office of Nuclear Reactor Regulation

FROM: David Terao, Chief */RA/*  
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SUBJECT: SUMMARY OF MEETING WITH JOINT OWNERS' GROUP TO  
DISCUSS MOV PERIODIC VERIFICATION PROGRAM (TAC #MA5035)

On October 16, 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 with certain conditions and limitations the JOG topical report describing the interim MOV program and the 5-year dynamic test program. JOG plans to update its topical report to establish the long-term MOV periodic diagnostic test program upon completion of the 5-year dynamic test program and the review of the resulting test data.

A memorandum dated December 3, 2002, from Brian Benney of the Division of Licensing Project Management provided highlights of the October 16 meeting between the JOG representatives and the NRC staff, including a list of the meeting participants (see ADAMS Accession No. ML023370182). The slides used during the meeting are available in ADAMS under Accession No. ML023220255. In this memorandum, we summarize the information provided by JOG at the October 16 meeting and the discussion of that information by JOG and the NRC staff. This memorandum is being made publicly available to help ensure a clear understanding between JOG and the NRC staff of the issues remaining for resolution as part of the JOG Program on MOV Periodic Verification, and to support preparations for the next public meeting to discuss completion of the program.

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At the outset of the October 16 meeting, the NRC staff noted that the review of MOV programs established at nuclear plants in response to GL 89-10 and GL 96-05 had been completed through plant-specific inspections and preparation of safety evaluations based on licensee submittals. The staff relied to a significant extent on the commitment of individual licensees to all three phases of the JOG program in completing its review of the MOV programs. The staff plans to prepare a safety evaluation on the updated JOG topical report when revised to incorporate the long-term MOV periodic verification program. The staff will consider preparation of a Regulatory Issue Summary upon completion of its review of the JOG program. The staff suggested that JOG prepare a summary of the lessons learned from its MOV testing program.

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 195 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 three-quarters of the final set of dynamic tests have been completed. The JOG dynamic testing program was formally scheduled to end on October 30, 2002. However, a few dynamic tests will be conducted after the formal end date. JOG will evaluate the results of those tests for any impact on the program's 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, JOG considers the dominant influence for the increase in valve factors demonstrated by gate valves to be the disassembly and reassembly of valves prior to testing. JOG has found that valve factors tend to be reduced by the disassembly/reassembly process, and then increase with dynamic stroking to values similar to those observed for non-disassembled valves. For non-disassembled gate valves, JOG has found that the initial value of the valve factor generally influences the changes in valve factor, such that low valve factors tend to increase to typical values and high valve factors tend to remain stable or decrease. JOG is evaluating specific exceptions identified to these general trends in gate valve performance. JOG has not identified degradation associated with the spreading of the wedge assembly in double-disk gate valves, or the alignment of the ball/socket joint in split-wedge gate valves. JOG has found static tests conducted prior to dynamic tests to have a negligible influence on valve factors. JOG has not identified any effect of degradation on the friction associated with valve guides.

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. JOG has found significant variation in bearing friction during dynamic tests of butterfly valves with bronze bearings in untreated water systems. However, JOG has not identified any trends with regard to this variation.

JOG has observed low valve factors during dynamic tests of balanced disk globe valves. JOG has not found degradation with respect to the valve factors for these valves.

JOG has identified small variations in valve factors during dynamic tests of unbalanced disk globe valves. JOG indicated that these variations appear to be within the range of the

instrument uncertainty. JOG has not found evidence of degradation in the performance of unbalanced disk globe valves.

Since the previous meeting on May 8, 2002, JOG has expanded its feedback notice on an Aloyco split-wedge gate valve to alert participants in the JOG program to the observation that low valve factors may increase with dynamic stroking. The JOG representatives discussed the contents of the feedback notice with the staff during the October 16 meeting. JOG is considering preparation of a feedback notice to address the variation identified in the bearing friction for butterfly valves with bronze bearings in raw water service.

The JOG representatives stated that all of the test results from the MOV dynamic testing program will be evaluated at the conclusion of the program. As part of its conclusions, JOG plans to determine whether the test results confirm the assumptions in the interim program, and to modify the interim program as appropriate. JOG will present a basis for the long-term MOV periodic verification test program to be described in the updated topical report.

During the previous meeting, the NRC staff provided a preliminary list of open items for NRC review of the long-term phase of the JOG program. In its presentation, JOG discussed its response to those open items. The staff will consider JOG's response to the open items as part of its review of the updated topical report.

JOG plans to request a fee exemption for the NRC review of the updated JOG topical report. The NRC staff stated that JOG should submit a request for fee exemption with appropriate justification. The staff members at the meeting noted that the NRC review of the original JOG topical report had received a fee exemption, and that they would recommend that the fee exemption request for the updated JOG topical report be treated in the same manner.

Following the JOG presentation, the NRC staff discussed current activities considered to be of interest to the JOG representatives. For example, the staff noted the completion of its review of the MOV Thrust Uncertainty Method developed by the Electric Power Research Institute. The staff also reported on the overall conclusions of studies sponsored by the NRC Office of Nuclear Regulatory Research to evaluate the aging of Stellite material used on valve internal surfaces and the performance of MOV stem lubricants. As follow-up to a question from the JOG representatives, the staff notes that the Stellite aging study included simulated static inservice-test strokes followed by aging for 28 days prior to the Stellite friction test. The staff also notes that the MOV stem lubricant study included Grade 1 of the MOV Long Life lubricant. The final reports for the two studies should be publicly available soon.

The JOG representatives asked the NRC staff to discuss its view of the JOG program relative to ASME Code Case OMN-1, "Alternative Rules for Preservice and Inservice Testing of Certain Electric Motor-Operated Valve Assemblies in Light-Water Reactor Power Plants." The staff stated that it considers the intent of Code Case OMN-1 to size and set MOVs based on diagnostic test data to be compatible with the JOG program's evaluation of MOV dynamic test data to determine potential degradation in the performance of a wide range of gate, globe, and butterfly valves. The staff noted that a safety evaluation then being prepared in response to a request by the licensee of the LaSalle County Station nuclear power plant (a JOG program participant) to implement Code Case OMN-1 would discuss application of the JOG program as

part of satisfying provisions in the code case. The NRC staff subsequently issued the safety evaluation for LaSalle County Station on November 21, 2002 (see ADAMS Accession No. 023160039).

JOG's target date for submittal of its updated topical report to the NRC for review is December 2003. The JOG representatives requested the NRC staff's view on whether licensees participating in the JOG program will be expected to submit to the NRC a written commitment to implement the updated topical report when available. The staff noted that licensees participating in the JOG program committed to all three phases of the program, including the long-term MOV periodic verification program, as part of their response to GL 96-05. In the safety evaluations closing its review of the GL 96-05 program for licensees participating in the JOG program, the staff indicated its reliance on the commitment by those licensees to the entire JOG program. Therefore, the staff does not expect licensees to submit a written commitment to the JOG updated topical report. Where a licensee intends to deviate from its commitment to the JOG program, the staff would expect the licensee to follow its approved procedures for modifying written commitments to the NRC.

JOG suggested that public meetings be held during the summer of 2003 to discuss the draft conclusions and recommendations of its program, and in early 2004 to discuss the JOG updated topical report. Subsequent to the meeting, the NRC staff and JOG representatives set a tentative date of July 16 and 17, 2003, for the public meeting to discuss the draft conclusions and recommendations of the JOG Program on MOV Periodic Verification.

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