

September 7, 2005

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SUBJECT: TECHNICAL AUDIT OF JOINT OWNERS GROUP PROGRAM ON MOTOR-
OPERATED VALVE PERIODIC VERIFICATION (TAC NOS. MC2346, MC2347,
AND MC2348)

Gentlemen:

By letter dated February 27, 2004, the Joint Owners' Group (JOG) submitted Topical Report (TR) MPR-2524, Revision 0, "Joint Owners' Group (JOG) Motor Operated Valve Periodic Verification Program Summary," to the Nuclear Regulatory Commission (NRC) for review and approval. The NRC issued its request for additional information (RAI) on October 20, 2004, to which the JOG submitted its response by letter dated February 8, 2005. On June 14, 2005, the NRC staff conducted a technical audit of the JOG's RAI responses at the office of the JOG contractor, MPR Associates, Inc., in Alexandria, VA.

Enclosed is a report by the NRC staff summarizing the results of the audit. Supplemental information was requested during the audit in addition to the JOG's previous RAI response dated February 8, 2005. After reviewing the supplemental information, the NRC staff will then determine the acceptability of the JOG Program on MOV Periodic Verification as part of the industry-wide response to NRC Generic Letter 96-05, "Periodic Verification of Design-Basis

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Capability of Safety-Related Motor-Operated Valves.” The NRC aims to complete its review of the JOG TR MPR-2524 by December 31, 2005.

Sincerely,

/RA/

Brian Benney, Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Project Nos. 691, 693, and 694

Enclosure: Technical Audit Report

cc w/encl: See next pages

Capability of Safety-Related Motor-Operated Valves.” The NRC aims to complete its review of the JOG TR MPR-2524 by December 31, 2005.

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Brian J. Benney, Project Manager, Section 2
Project Directorate IV
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Office of Nuclear Reactor Regulation

Project Nos. 691, 693, and 694

Enclosure: Technical Audit Summary

cc w/encl: See next pages

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TECHNICAL AUDIT REPORT BY THE OFFICE OF NUCLEAR REACTOR REGULATION

JOINT OWNERS GROUP

TOPICAL REPORT (TR) MPR-2524, REVISION 0, "JOINT OWNERS GROUP

MOTOR OPERATED VALVE PERIODIC VERIFICATION PROGRAM SUMMARY"

PROJECT NOS. 691, 693, AND 694

1.0 BACKGROUND

On June 15, 2005, the Nuclear Regulatory Commission (NRC) staff conducted a technical audit of the Joint Owners Group (JOG) program on motor-operated valve (MOV) periodic verification at the office of the JOG contractor, MPR Associates, Inc., in Alexandria, VA. An NRC staff member from the Mechanical and Civil Engineering Branch and two NRC contractors (via teleconference) from Pacific Northwest National Laboratory (PNNL) participated in the audit. The NRC staff member and contract personnel participating in the audit (collectively referred to as the NRC staff in this report) are listed in Appendix A to this report. A list of individuals representing the JOG and its contractor who were contacted during the audit (collectively referred to as the JOG in this report) is provided in Appendix B to this report.

2.0 AUDIT OBJECTIVE

The objective of the audit was to review the responses submitted by the JOG on February 8, 2005, to the request for additional information (RAI) prepared by the NRC staff on October 20, 2004, during the acceptance review of the JOG Program on MOV Periodic Verification and as part of an industry-wide response to NRC Generic Letter (GL) 96-05, "Periodic Verification of Design-Basis Capability of Safety-Related Motor-Operated Valves."

3.0 PERFORMANCE OF AUDIT

Following issuance of GL 96-05, the Boiling Water Reactor Owners Group, B&W Owners Group, Combustion Engineering Owners Group, and Westinghouse Owners Group developed the JOG Program on MOV Periodic Verification as an industry-wide response. The JOG program consists of the following 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. Licensees for 98 reactor units have committed to implementing the recommendations of the JOG program as part of their response to GL 96-05.

The NRC staff prepared a safety evaluation (dated October 30, 1997) on the initial JOG TR MPR-1807 (dated July 1997) accepting the JOG program on MOV periodic verification for reference by licensees as part of its response to GL 96-05, with certain conditions. For example, the NRC staff stated that the JOG must submit for NRC review and approval the final JOG TR following completion of the 5-year dynamic test program. In accordance with that condition, the JOG submitted its final TR MPR-2524 to the NRC for review and approval in a

letter dated February 27, 2004. The final JOG TR establishes the long-term MOV periodic diagnostic test program to be implemented by the participating JOG licensees based on review of the dynamic test data.

During September 13-16, 2004, the NRC staff conducted an initial technical audit of the JOG program at the MPR office. A summary of the results of the initial audit is provided in a memorandum dated October 1, 2004 (Agency Documents Access and Management System (ADAMS) Accession No. ML042750194). Based on that initial audit, the NRC staff provided an RAI letter to the JOG on October 20, 2004.

During the audit on June 14, 2005, the NRC staff discussed each of the RAI responses with the JOG. The NRC staff and the JOG also reviewed test data collected as part of the JOG program during the discussion of the RAI responses. The NRC staff identified those RAI responses that adequately resolved specific NRC staff questions. Based on discussions during the audit, the JOG indicated that it would supplement its responses to several RAI questions to help resolve those items. In addition, the NRC staff will conduct further review of specific responses and test data to determine whether those related issues have been resolved. Appendix C to this report summarizes the status of the RAI questions on the JOG program on MOV Periodic Verification. The NRC staff and the JOG agreed to conduct a telephone conference call in the near future to discuss any remaining RAI items.

4.0 CONCLUSION

The NRC staff was able to resolve most of the RAI questions through discussions during the audit. The status of the RAI questions is attached in Appendix C. An additional supplement to the RAI responses by JOG is also planned for submittal in the near future. Upon reviewing the supplemental information, the NRC staff will determine the acceptability of the JOG program on MOV periodic verification as part of the industry-wide response to GL 96-05. The NRC staff is working to complete its review of the JOG TR by the December 31, 2005.

Attachments: 1. Appendix A: NRC Staff and Contractor Audit Participants
2. Appendix B: Industry Personnel Contacted During the Audit
3. Appendix C: Status of Request for Additional Information on JOG Program on MOV Periodic Verification

Principal Contributor: T. Scarbrough

Date: September 7, 2005

APPENDIX A

NRC STAFF AND CONTRACTOR AUDIT PARTICIPANTS

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Mechanical and Civil Engineering Branch
Division of Engineering
NRC Office of Nuclear Reactor Regulation

Stephen R. Gosselin (via telephone conference)
Chief Engineer
Pacific Northwest National Laboratory

John C. Watkins (via telephone conference)
Consultant
Pacific Northwest National Laboratory

APPENDIX B

INDUSTRY PERSONNEL CONTACTED DURING THE AUDIT

NAME	ORGANIZATION
Chad Smith	Duke Energy/JOG
Tim Chan	TVA/WOG
Ted Neckowicz	Exelon
Bob Schomaker	AREVA
Dennis Kreps	Westinghouse
Wendell Fiock	GE-BWROG
Paul Damerell	MPR Associates
Todd Spears	MPR Associates

APPENDIX C

STATUS OF REQUEST FOR ADDITIONAL INFORMATION (RAI) ON JOG PROGRAM ON MOV PERIODIC VERIFICATION (June 14, 2005)

RAI #	ACTION	COMMENT
1	JOG to supplement RAI response	JOG will reaffirm licensee responsibility for evaluating potential for water flashing to steam under applicable system conditions
2	None	Closed
3	None	Closed
4	JOG to supplement RAI response for Sub-items 3 and 5. NRC staff to address Sub-item 2 in SE.	Sub-item 1: Closed Sub-item 2: NRC staff will address schedule for licensees to develop separate approach for Class D valves (outside of JOG program scope) by end of JOG 6-year implementation period in SE. Sub-item 3: JOG will provide more detail on "satisfactory technical justification" and examples. Sub-item 4: Closed Sub-item 5: JOG will indicate that graph of meaningful parameter (thrust, valve factor, coefficient of friction, etc.) versus strokes is an appropriate tool for determining plateau of valve performance. Sub-item 6: Closed Sub-item 7: Closed Sub-item 8: Closed
5	None	Closed
6	None	Closed
7	JOG to supplement RAI response	JOG will discuss input from vendors, tests, etc., to develop judgment for MPR-2524, Appendix B, criteria related to negligible DP strokes.
8	JOG to supplement RAI response	JOG will discuss special consideration given to particular extremes in test frequency table for risk and margin combinations.
9	None	Closed
10	None	Closed
11	None	Closed

12	JOG to supplement RAI response	JOG will enhance discussion of results and coverage of fluid conditions (raw water) and how results were used to determine conclusions and thresholds for each valve type (gate, globe, and butterfly).
13	JOG to supplement RAI response	JOG will expand operational experience to include consideration of industry experience, by deleting "their own" or similar modification.
14	TBD	Action to be based on Comment 16 resolution.
15	None	Closed
16	NRC staff to provide feedback to JOG	NRC staff and contractor will conduct further review based on discussion information.
17	None	Closed
18	None	Closed
19	None	Closed
20	None	Closed
21	None	Closed
22	None	Closed
23	None	Closed
24	None	Closed
25	TBD	Action to be based on Comment 26 resolution.
26	NRC staff and contractor review and feedback to JOG	NRC contractor will review additional data provided by the JOG. NRC staff and contractor will discuss conclusions on age-related degradation for high temperature valves and relevancy of flow isolation and initiation points.
27	None	Closed
28	JOG to supplement RAI response	JOG will provide additional basis for use of four data points in grouping criteria (e.g., evaluating MIL or ASTM standards on sampling)

29	<p>JOG to supplement RAI response on Sub-items 1, 3, and 4</p> <p>NRC staff and contractor review and feedback to JOG on Sub-item 8</p>	<p>Sub-item 1: JOG will add more strength to basis for extension to 150EF (such as EPRI testing at higher temperatures and insensitivity of bearing COF) for butterfly valves.</p> <p>Sub-item 2: Closed</p> <p>Sub-item 3: JOG will provide additional basis for use of four data points in grouping criteria (e.g., evaluating MIL or ASTM standards on sampling).</p> <p>Sub-item 4: JOG will determine possible comparison of 400SS to 17-4PH (e.g., reference to EPRI topical report) and provide feedback to NRC staff.</p> <p>Sub-item 5: Closed</p> <p>Sub-item 6: Closed</p> <p>Sub-item 7: Closed</p> <p>Sub-item 8: NRC contractor will review COF allowance equations.</p>
30	TBD	Action to be based on Comment 16 resolution.

Joint Owners Group

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