U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

Motor-Operated Valve Regulatory Activities

Michael F. Farnan

Component Performance & Testing Branch
Division of Component Integrity
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission

MOV Users' Group
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NRC Regulations

- 10 CFR 50.49 – Environmental Qualification
- 10 CFR 50.55a – Codes and Standards (Inservice Testing)
- 10 CFR 50.69 – Risk-Informed Treatment
- 10 CFR Part 50, Appendix A – General Design Criteria
- 10 CFR Part 50, Appendix B – Quality Assurance
- 10 CFR Part 100 – Reactor Site Criteria (Seismic)

Generic Letters (GL)

- GL 89-10 requested licensees to verify design basis capability of safety-related motor-operated valves (MOVs)
- GL 95-07 requested licensees to address potential pressure locking and thermal binding of power-operated gate valves
- GL 96-05 requested licensees to develop programs to periodically verify MOV design basis capability

Current MOV Issues/Activities

- Information Notice IN 2010-03
- 50.55a Rulemaking
- Regulatory Guide 1.192 Revision 1
- ASME Code Case OMN-1
- Joint Owners Group (JOG) Program
- NRC Initiative to address JOG Class D Valves
- Licensee JOG Implementation Questions

Information Notice (IN) 2010-03 "Failures of Motor-Operated Valves Due to Degraded Stem Lubricant"

- 2009 – There were 5 instances of MOV failures due to stem lubricant degradation
- Stem lubricant degradation can affect the efficiency of actuator torque conversion thus reducing margin
- Licensees are responsible for addressing MOV actuator output and potential degradation
- IN alerts licensees on the importance of assessing lubricant performance as it relates to preventive maintenance (PM) intervals, maintenance practices, environmental conditions, safety margins and surveillance testing

Common factors which lead to degraded stem lubricant condition:

- Inappropriate PM interval
- Inadvertent mixing of non-compatible greases which accelerates degradation
- Stem / Stem-nut not properly cleaned of old grease prior to application of new

50.55a Rulemaking

- Published proposed rule in the Federal Register on May 4, 2010
- Public comment period ended July 19, 2010
- Comments have been resolved
- Rule language has been revised as necessary
- Obtain internal review and concurrence
- Publish final rule in the Federal Register around May 1, 2011

50.55a Rulemaking

Incorporates by reference the following ASME codes and code cases:

- 2005 Addenda through 2008 Addenda of Section III, Division 1, and Section XI, Division 1 of the Boiler and Pressure Vessel Code
- 2005 Addenda and 2006 Addenda of the Code for Operation and Maintenance of Nuclear Power Plants
- Code Case N-722-1
- Code Case N-770

Reg Guide 1.192 Operation and Maintenance Code Case Acceptability, ASME OM Code

- Regulatory guide lists OM Code Cases that are acceptable to the NRC for implementation in the Inservice Test (IST) of light-water-cooled nuclear power plants
- Revision 1 to RG 1.192 (NRC approval of ASME OM Code Cases, 2002-2009 Edition / Addenda) – in final stages of approval, to be issued for public comment spring 2011
- ASME OMN-1-1 is acceptable as an alternative to MOV quarterly stroke-time testing using periodic diagnostic testing and exercising

OMN-1 "Alternative Rules for Preservice and Inservice Testing of Certain Electric Motor-Operated Valve Assemblies in Light-Water Reactor Power Plants OM Code-1995, Subsection ISTC"

- Many plants are transitioning to OMN-1
- OMN-1 is now Mandatory Appendix III in ASME 2009 OM Code Edition
- Use of later editions of OMN-1 not endorsed by the NRC require a Relief Request
- Confusion on revisions – No revision identifiers in title (until 2009 Edition of OM Code)
- When requesting use of OMN-1, be sure to identify the OM Code Edition and Addenda of the desired OMN-1 code case

OMN-1 Revision Confusion

- 1995 issued
- Oma 2002 - revised
- Omb 2006 – revised in its entirety (industry typically refers to this as Rev 1)
- OM 2009 – OMN-1, OMN-1-1, OMN-1 Revision 1, Mandatory Appendix III
- NRC practice is to accept the latest revision

Joint Owners Group (JOG) Program on MOV Periodic Verification (PV)

- Risk-informed program to share test information on valve performance for GL 96-05
- Interim phase specified static diagnostic testing at frequency based on risk and margin
- 5-year dynamic testing of sample MOVs for each plant
- Safety Evaluation (SE) (10/97) issued on initial JOG Topical Report (7/97)
- Long term guidelines based on dynamic test results provided in JOG Topical Report (2/04)

JOG Program Basics

- JOG program tested over 150 different valves in various applications (treated water, untreated water, hot, cold, steam, etc.)
- Test results concluded that valves perform the same if they share the same attributes such as: valve type, fluid application, disk-to-seat material, disk-to-body material, bearing material, etc.

JOG Program Basics

- JOG program determined that all valves can be classified based on their attributes and performance
- Class A – Valves are not susceptible to degradation (based on test results)
- Class B – Similar to Class A valves, not susceptible to degradation (based on test results, extended analysis and engineering judgment)
- Class C – Valves are susceptible to degradation (based on test results
- Class D – Valves were not tested by the JOG program

JOG Program Basics

- JOG participants will have 6 years from issuance of NRC Safety Evaluation to implement final program
- Licensees need to obtain all valve attribute information
- Determine the classification of the valve
- Determine periodic verification (PV) approach
- PV approach is based on valve class, risk, and margin
- For Class D valves, licensees are responsible for determining PV approach. Plants are expected to notify NRC of its plans for PV of Class D valves
- Licensees are expected to notify NRC of deviations from the JOG program, including the implementation schedule

GL 96-05 Implementation

- NRC staff reviewed GL 96-05 descriptions submitted by licensees and performed sample inspections
- SE dated September 25, 2006 describes NRC staff review and acceptance of the final JOG Program
- Licensees continue to implement GL 96-05 programs
- Licensees have six year window to implement final recommendations with start date of SE issuance
- NRC staff is revising MOV Inspection Manual adding attributes of JOG program

NRC Initiative to Address Class D Valve

ASME 2009 Edition Code Case OMN-1-1 (Mandatory Appendix III) has the basic elements for testing unknown valves.

1. Design Basis Verification test
2. Mix of static and dynamic testing
3. Interval and test type to be determined based on engineering analysis of sufficient data
4. Test interval shall be conducted every 2 refueling cycles or 3 years (whichever is longer) until sufficient data exists
5. Data from other valves may be used if justified by engineering evaluation

NRC Initiative to Address Class D Valve

- Regulatory Guide (RG) 1.192 Revision 0 endorses OMN-1 (ASME OM Code 1999 Addenda) as an acceptable alternative for testing Motor-Operated Valves
- RG-1.192 is currently being revised and updated to latest ASME OM Code 2009 Edition
- NRC staff will issue a Regulatory Issue Summary (RIS) reaffirming RG 1.192 position and state that ASME OM Code 2009 Edition Code Case OMN-1-1 is an acceptable alternative for addressing Class D valves

NRC Expectations for Class D Valve Notifications

No Notification Expected if:

1. Classification process yields no Class D valves or
2. MOV program has transitioned to OMN-1 (this includes earlier versions of OMN-1)

Submittal of Relief Request in accordance with 10 CFR 50.55a(a)(3)(i) requesting OMN-1-1 program for Class D valves

1. MOV program has not transitioned to OMN-1-1 or Mandatory Appendix III and MOV program has identified Class D valves
2. It will not be necessary to transition entire MOV program to OMN-1-1 requirements. Plants will eventually have to comply with Mandatory Appendix III
3. Relief request may ask to do only portions of OMN-1-1 with justification analysis and alternative method description

NRC Expectations for Class D Valve Notifications

Notification via letter to NRC

1. Letter will be acknowledged as received
2. Licensee will be open to future inspection concerning application of a periodic verification program for Class D valves

No Notification

1. Licensee will be open to future inspection concerning application of a periodic verification program for Class D valves

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Summary Class D Valve Notification Expectation

1. NRC Staff to issue a RIS endorsing OMN-1-1 as an acceptable alternative for Class D valves
2. Plants with no Class D valves = no submit
3. Plants that have transitioned to OMN-1 = no submit
4. Submit a relief request stating intention to follow all aspects of OMN-1-1 per RIS for Class D valves
5. Submit relief request stating intention to follow portions of OMN-1-1. For portions not being performed, the relief request needs to explain the alternative method that will provide the same level of quality and safety.
6. Submit letter notifying NRC of plans to address Class D Valves. Licensee will be open to future inspection.

Licensee Implementation Questions

Question:

For valves that have been classified as Class C and require modification, do I have to complete the modifications by the end of the 6 year window?

Answer:

No – Modifications do not have to be completed by the end of the 6 year implementation schedule. Topical report MPR-2524A gives specific guidance on addressing Class C valves. For issues with valves that yield negative margins, licensees need to address these issues via the corrective action program

Licensee Implementation Questions

Question:

If my plant has to deviate from the JOG final program recommendations and/or schedule, what is the NRC expectation for notification?

Answer:

JOG participating plants made a commitment in their GL 96-05 response to follow the final program recommendations. If a licensee cannot comply or needs to deviate from the final JOG program, the NRC expects the licensee to use its normal internal process for making changes to NRC commitments.

Licensee Implementation Questions

Question:

What does the NRC want to see with respect to submitting Class D valve program strategy?

Answer:

Generic letter 96-05 is officially closed. There is no official NRC process to handle Class D valve submittals. NRC staff is developing an action plan to address Class D information submittal

QUESTIONS?

Future Questions

Michael.Farnan@nrc.gov

301-415-1486