ASME Mandatory Appendix III Overview

Quiklook User Group

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ASME Code MOV IST History

- Currently covered under ISTC section of ASME OM Code.
- Optional Code Case OMN-1 developed in 1996 and endorsed by NRC 1999. Current version is OMN-1 Rev.1.
- Effectively replaces stroke time testing with periodic diagnostic testing. OMN-1 was the initial code initiative to drive MOV diagnostic testing into the ASME Inservice Testing Code
- Most plants that have adopted OMN-1 have done so with a relief request. (RR is no longer required)

ASME Code MOV IST History

- In the mid 2000's ASME OM code decided to transition Optional Code Case OMN-1 into a mandatory ASME OM IST Appendix.
- Mandatory Appendix III, which essentially replaces OMN-1, was first included in the ASME OM Code in the 2009 edition.
- Appendix III essentially institutionalizes GL 96-05 MOV Programs into the ASME OM Code.

Current Regulatory Status

- The NRC is currently reviewing the 2009 through 2012 Editions of the OM Code, and final rule-making is expected to be published around August 2016. Nuclear plants performing ASME 10- year code updates beginning around August 2017 will be required to implement Appendix III.

Resistance is Futile

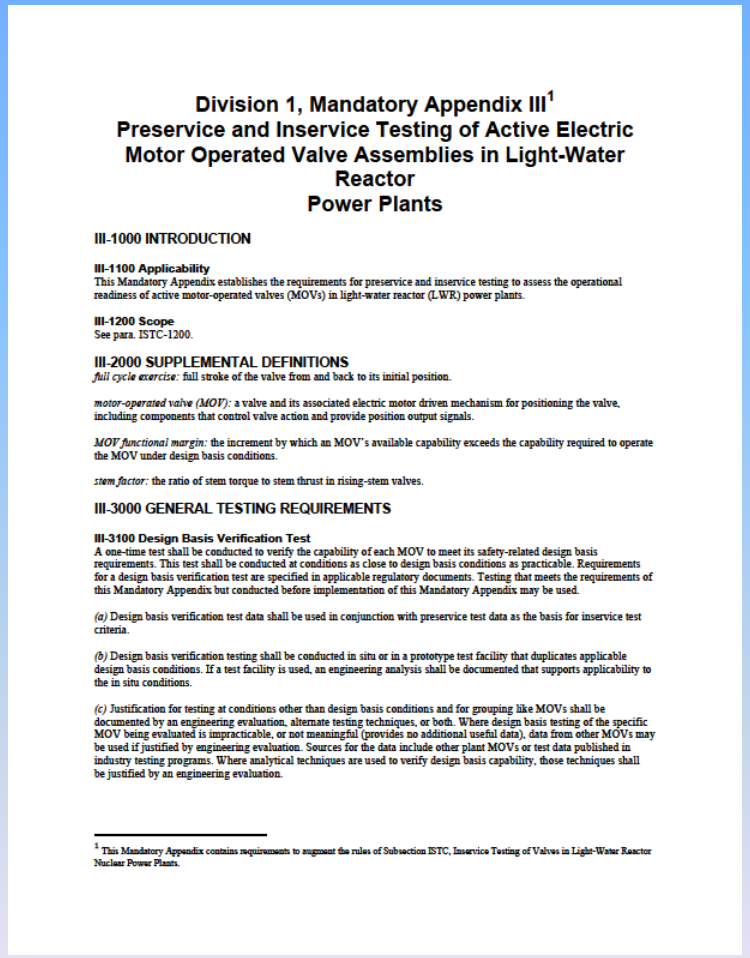
You will be assimilated!

ASME OM Mandatory Appendix III

Preservice and Inservice Testing of Active Electric Motor Operated Valve Assemblies in Light-Water Reactor Power Plants – Only 7 pages long but packs a big punch

Key Sections

III-3000 General Testing Requirements
III-3100 Design Basis Verification Testing
III-3200 Preservice Testing
III-3300 Inservice Testing
- III-3310 Inservice Test Interval
III-3400 Effect of MOV Repair /Replacement
III-3500 MOV Grouping for Inservice Testing
III-3600 MOV Exercising Requirements
III-3700 Risk Informed MOV Inservice Testing
III-6000 Analysis and Evaluation of Data
III-9000 Records and Reports



Division 1, Mandatory Appendix III[1]
Preservice and Inservice Testing of Active Electric Motor Operated Valve Assemblies in Light-Water Reactor Power Plants

III-1000 INTRODUCTION

III-1100 Applicability
This Mandatory Appendix establishes the requirements for preservice and inservice testing to assess the operational readiness of active motor-operated valves (MOVs) in light-water reactor (LWR) power plants.

III-1200 Scope
See para. ISTC-1200.

III-2000 SUPPLEMENTAL DEFINITIONS
full cycle exercise: full stroke of the valve from and back to its initial position.

motor-operated valve (MOV): a valve and its associated electric motor driven mechanism for positioning the valve, including components that control valve action and provide position output signals.

MOV functional margin: the increment by which an MOV's available capability exceeds the capability required to operate the MOV under design basis conditions.

stem factor: the ratio of stem torque to stem thrust in rising-stem valves.

III-3000 GENERAL TESTING REQUIREMENTS

III-3100 Design Basis Verification Test
A one-time test shall be conducted to verify the capability of each MOV to meet its safety-related design basis requirements. This test shall be conducted at conditions as close to design basis conditions as practicable. Requirements for a design basis verification test are specified in applicable regulatory documents. Testing that meets the requirements of this Mandatory Appendix but conducted before implementation of this Mandatory Appendix may be used.

(a) Design basis verification test data shall be used in conjunction with preservice test data as the basis for inservice test criteria.

(b) Design basis verification testing shall be conducted in situ or in a prototype test facility that duplicates applicable design basis conditions. If a test facility is used, an engineering analysis shall be documented that supports applicability to the in situ conditions.

(c) Justification for testing at conditions other than design basis conditions and for grouping like MOVs shall be documented by an engineering evaluation, alternate testing techniques, or both. Where design basis testing of the specific MOV being evaluated is impracticable, or not meaningful (provides no additional useful data), data from other MOVs may be used if justified by engineering evaluation. Sources for the data include other plant MOVs or test data published in industry testing programs. Where analytical techniques are used to verify design basis capability, those techniques shall be justified by an engineering evaluation.

[1] This Mandatory Appendix contains requirements to augment the rules of Subsection ISTC, Inservice Testing of Valves in Light-Water Reactor Nuclear Power Plants.

What's the bid deal, anyway?

Your GL89-10 / GL96-05 MOV Program may not meet Appendix III Requirements.

- Possible MOV scoping gaps
- Possible design basis verification gaps
- Strict rules on Grace (6 months max)
- All inservice tests will be in the As-found condition.
- More rigorous documentation
- Change in Mindset required.

ASME ISTC/Appendix III Open Issues

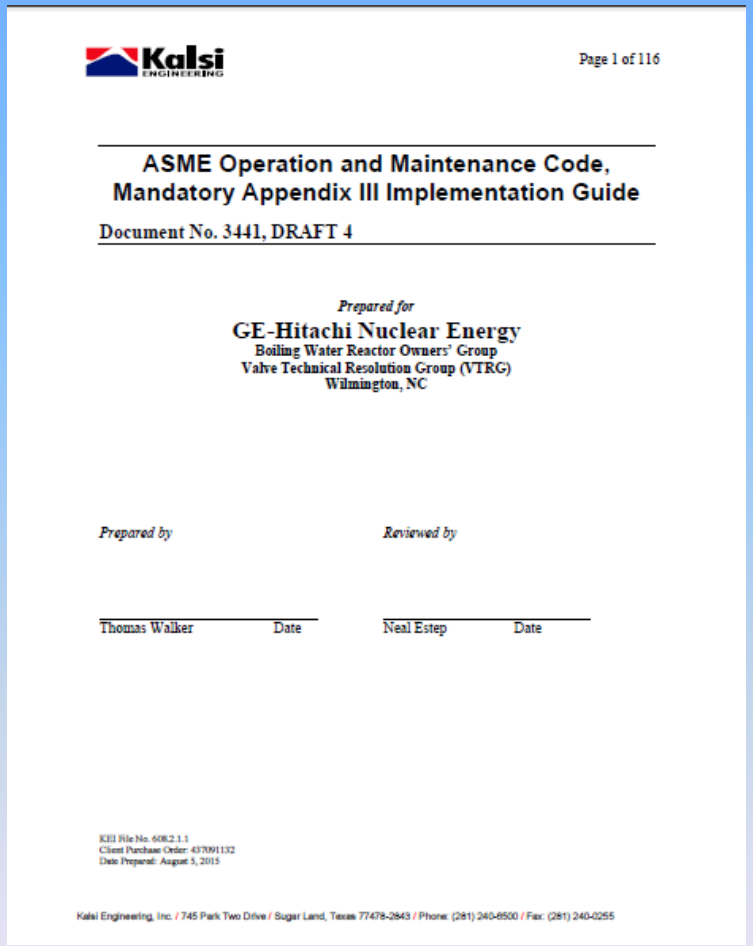
- More rigorous Obturator (valve disc/stem) movement verification requirements.
- ASME MOV Code Committee attempting to build more flexible MOV specific methodology into an upcoming Appendix III revision.
- NRC wants verification every cycle, industry is pushing back. No current consensus approach.

Appendix III Implementation Guide

The BWROG VTRG is currently developing an ASME OM Appendix III Implementation Guide.

Scheduled for issuance as a BWROG Topical Report Fall 2015.

7 page Appendix III turns into a 116 page implementation document.



Kalsi ENGINEERING

ASME Operation and Maintenance Code, Mandatory Appendix III Implementation Guide

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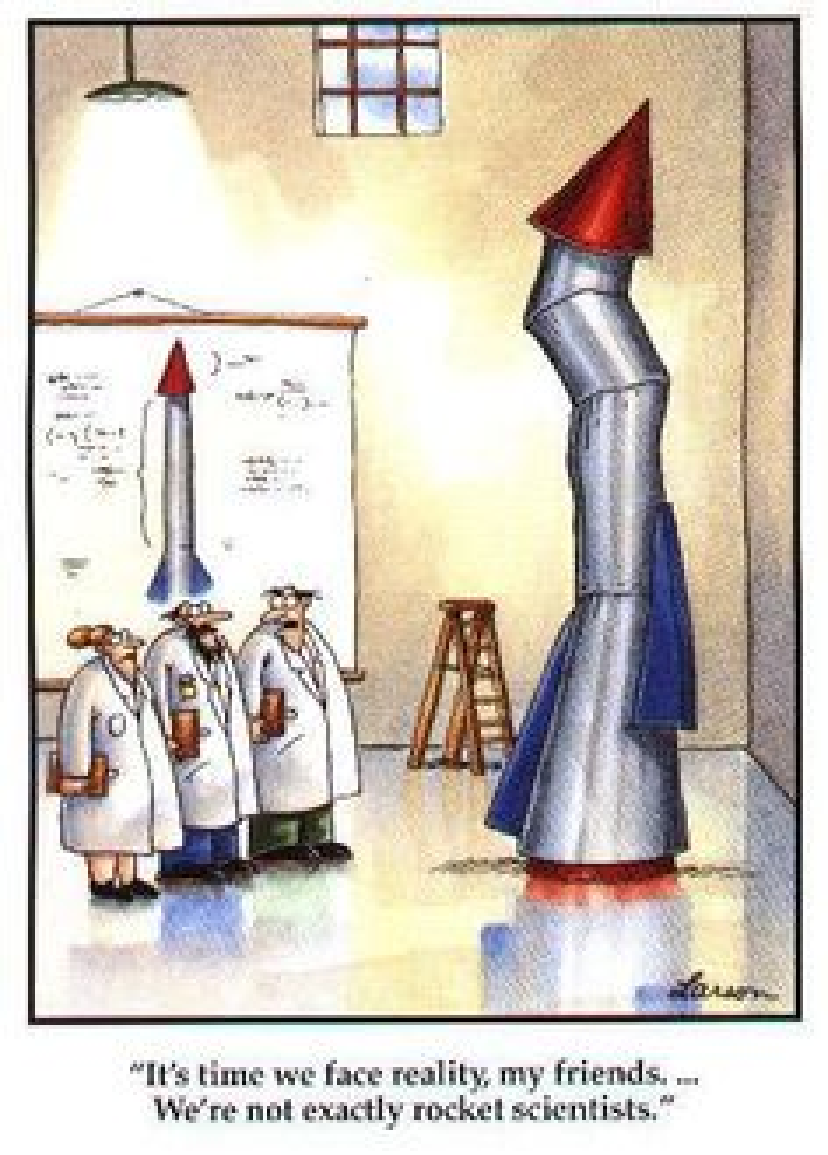
Questions?

Thank you for your Attention!



"It's time we face reality, my friends. ... We're not exactly rocket scientists."