



Vendor Workshop

June 2012

Baltimore, MD

Application of Commercial-Grade Dedication

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Commercial-Grade Item Dedication

Topics

- Commercial-Grade Dedication
 - Necessary Elements
 - Industry/NRC Guidance
- Example Component
- Safety Classification
- Commercial-Grade Item Determination
- Commercial-Grade Dedication Process
- Dedication ‘Traps’

Commercial-Grade Dedication: Necessary Elements

- Engineering Involvement
- Documentation
- Established Process

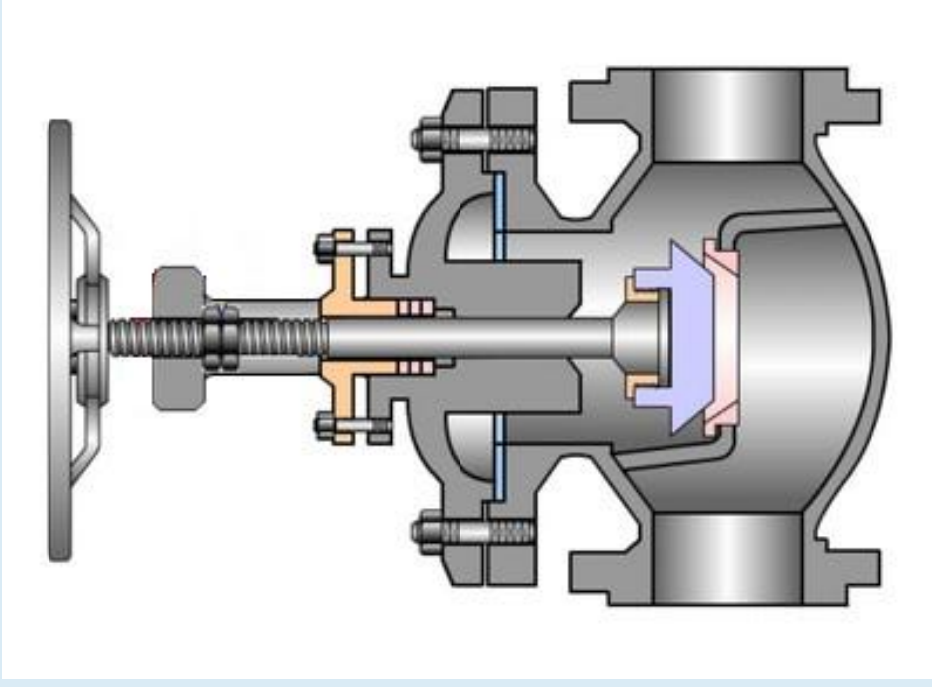
Commercial-Grade Dedication:

Industry/NRC Guidance

- EPRI NP-5652, “Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications (NCIG-07)”
- GL 89-02, “Actions to Improve the Detection of Counterfeit and Fraudulently Marketed Products”
 - Conditionally endorsed EPRI NP-5652
- GL 91-05, “Licensee Commercial-Grade Procurement and Dedication Programs”
 - Identified weaknesses in licensee dedication programs found during inspections

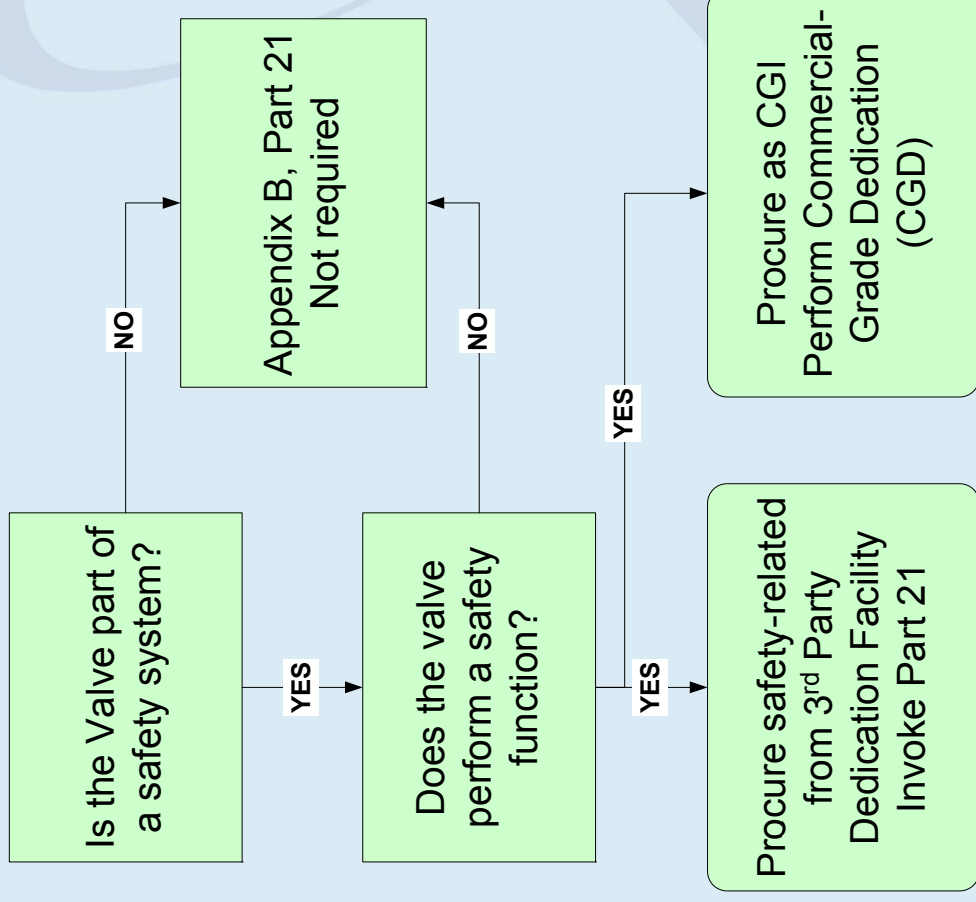
Commercial-Grade Dedication: Globe Valve Example

- Non – ASME
 - 1 inch Globe
- Valve
- Class 600



Commercial-Grade Dedication: Safety Classification

- What is the safety classification of the valve?



Commercial-Grade Item Determination

- Does the valve meet the criteria for a Commercial-Grade Item (CGI)?
 - Not designed and manufactured as a basic component
 - Critical Characteristics can be verified

Commercial-Grade Dedication Process

- What is dedication?
- Technical Evaluation
 - Identifies technical and quality requirements
- Develop technical evaluation from:
 - Licensee documents
 - Vendor Design documents
 - Failure mode and effect analysis
 - Engineering judgment

Commercial-Grade Dedication Process

- What is the purpose of the technical evaluation?
 - Determine valve's safety function:
 - Provide flow control
 - Maintain system boundary
 - Provide system isolation
 - Special considerations:
 - Environmental qualification
 - Seismic qualification

Commercial-Grade Dedication Process

- What is the purpose of the technical evaluation?
 - Determine acceptance criteria
 - Determine acceptance methods
- Determine if valve is a like-for-like or equivalent replacement.

Commercial-Grade Dedication Process

- What is the product of the technical evaluation?
 - Identification of critical characteristics and acceptance methods
 - safety function and classification (active and passive)
 - material specification (form)
 - configuration (fit)
 - pressure and temperature rating (function)
 - operation (function)

Commercial-Grade Dedication Process

What are the valve's Critical Characteristics?

Critical Characteristic	Measurable Attribute	Description of Critical Characteristic
Materials	Material	Valve material (chemical & physical properties)
Configuration	Physical	Type/style selected on basis of function, flow requirements and shutoff capability. End connections may be butt or socket weld, flanged, or threaded.
Size/ Dimensions	Dimensions	Dimensions, tolerances and minimum wall thickness may be i.a.w. ANSI B16.34 or other standards as applicable.
Pres/Temp Rating	Function	Selected based on specified design pressure and temperature i.a.w. ANSI B16.34 or other applicable standards
Seat Leakage/ Operation	Function	Selected based on specified design requirements

Commercial-Grade Dedication Process

What are the acceptance criteria?

Critical Characteristic	Value	Acceptance Range	Verification Method
Materials	Design Specs Mfr. Specs	Per Design or Mfr.	Test (alloy analyzer, chemical, hardness)
Configuration	Design Specs Mfr. Specs	Per Design or Mfr.	Visual Weight
Size/ Dimensions	Mfr. Specs	Per Mfr.	Measurement
Pres/Temp Rating	Design Specs Sys. Specs Mfr. Specs	Per Standard or Mfr.	Test (hydro, PMT)
Seat Leakage/ Operation	Function	Per Design or Mfr. Open/Close requirements	Test Operation 13

Commercial-Grade Dedication Process

- How are the valve's critical characteristic verified?
 - Method 1: Special tests and inspections
 - Method 2: Commercial-grade survey
 - Method 3: Source verification
 - Method 4: Acceptable supplier/item performance record

Commercial-Grade Dedication Process

How do I use Method 1?

Inspections*

- Receipt
- Installation
- Post Installation
- Document Review

Tests*

- Pre-Installation
 - Bench
 - Aging
 - Destructive
 - Non-Destructive
- Post Installation
 - Post Maintenance Test
 - Surveillance/Test Procedure

*Critical Characteristics (CCs)

Commercial-Grade Dedication Process

How do I use Method 2?

- Verify commercial supplier's quality controls. Typical areas of consideration include:
 - Procurement
 - Material Control
 - Fabrication
 - Assembly
 - Calibration
 - Test
 - Inspection
- ❖ Invoke quality controls in purchase order. Avoid nuclear-unique requirements. Have a certificate of conformance.

Commercial-Grade Dedication Process

How do I use Method 3?

- May want to use source verification for an infrequently used supplier or expedited need.
- The critical characteristics may be verified by witnessing:
 - Fabrication process
 - Assembly process
 - Nondestructive examination test
 - Performance test

Commercial-Grade Dedication Process

How do I use Method 4?

- Supplier/Item performance could be based on historical verification of:
 - Audit scheduling
 - Sampling plan development
- Ensure that the data is directly applicable to a critical characteristic

Commercial-Grade Dedication Process

How do I use Method 4?

- Provide specific information on acceptance activities. Don't state "test valve to ASTM B1b.34." Rather, state "performance hydrostatic test of the valve body to xxx psi." Hold the pressure for XX minutes, then inspect for leakage
- Don't adapt EPRI JUTG CGI evaluations without evaluating applicability
- Ensure "buy-in" by the licensee that dedication package is appropriate to their plant specific needs.

Questions or Comments?



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