

**Utility Perspective on Commercial Grade Dedication  
Operation and Construction**

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### Focus of Presentation

**How to ensure technical requirements are met during the commercial grade dedication process.**

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### Dedication

**Per 10 CFR Part 21:**

Dedication is an acceptance process undertaken to provide reasonable assurance that a commercial grade item to be used as a basic component will perform its intended safety function.

This assurance is achieved by identifying the critical characteristics of the item and verifying their acceptability by inspections, tests, or analyses performed by the purchaser or third-party dedicating entity supplemented as necessary by one or more of the following: commercial grade surveys; product inspections or witness at holdpoints at the manufacturer's facility, and analysis of historical records for acceptable performance.

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### Terminology

**Critical Characteristics –**  
Those important design, material, and performance characteristics of a commercial grade item that, once verified, will provide reasonable assurance that the item will perform its intended safety function.

**Safety Function –**  
The piece part or subcomponent has a safety function if its failure or malfunction will prevent the host/equipment/system from performing the satisfactory accomplishment of its safety-related function during or following design basis accidents and transients.

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### Background – TVA CGD Issue

Implementation of TVA's commercial grade dedication (CGD) process resulted in some critical characteristics defined under 10 CFR 21 not being sufficiently identified, verified or documented.

The insufficient identification and verification of critical characteristics reduced the assurance that dedicated items could perform their intended safety functions.

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### TVA Response

- Enacted a Hold on All In-Stock Commercial Grade Dedicated Items
  
- Began Recovery Efforts
  
- Performed Root Cause Analysis Associated with CGD Program Issues

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### Lesson's Learned - Programmatic

The Procurement Engineering group did not always provide sufficient documentation for the critical characteristics justification when dedicating parts.

Latent organizational and programmatic shortfalls within Design Engineering, Supply Chain and Procurement Engineering Group (PEG) did not account for monitoring or assessing PEG organizational health, commercial grade dedication program weaknesses and industry changes.

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### Lesson's Learned - Process

#### CGD requirements

- Proper identification of safety function
- Selection of critical characteristics that support/verify safety function
- Proper evaluation, basis and documentation of Failure Modes and Effects Analysis (FMEA)
- Seismic Criteria

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### Lesson's Learned - Process

#### Vendor Manufacturing Practices

- Changes in manufacturing methods/techniques
- Internal/hidden changes in product manufacturing
- Difficult Items

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### Lesson's Learned - Process

**Material Designation and Testing**

- Criteria for Reasonable Assurance
- Test Results Meet or Comparable to ASTM Standards
- Verification of Physical Criteria
- Commercial Vendor documents (detail)
- Lab Capabilities
- Proper Sampling Plans

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### Lesson's Learned - Process

**Dimensional Checks**

- Use of Generic Vendor Catalogs or Web Based Documents
- Use of originally supplied drawings/catalogs to identify changes
- Tolerances match the manufacturing process and fit requirements
- Use of Acceptable Ranges and Tolerances vs. "Nominal"
- Remove Lab's interpretation of requirements

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### Lesson's Learned - Process

**Conditional Dedication**

- Package Acceptance Criteria not specific (Completion of PMT)
- Identify specific Surveillance Procedure and Acceptance Criteria to satisfy Critical Characteristics
- Use removed components to develop Method 1 Acceptance Criteria. Eliminate future Conditional Dedication

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**QUESTIONS?**

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