

New Build Challenges

Commercial Grade Dedication

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“

Globalization is as much a part of the civil nuclear scene as it is in other industries. Managing the quality and capability challenges along the supply chain is just as important.

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What is dedication?

Reasonable assurance that a commercial-grade item to be used as a basic component will perform its intended safety function ...



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Elements of the dedication process

- Identify safety function
- Determine safety significance & failure modes
- Determine the critical characteristics
- Select acceptance methods & values
- Document basis and results



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Basic Component vs. Dedicated Item

Safety Related Supplier

- Design Control
 - Seismic
 - EQ testing
 - Analysis
- Manufacturing
- Other QA criteria

*Includes
Everything*

VS

Dedicating Entity

- **Technical Evaluation**
 - Equivalency
 - Specification
- **Acceptance**
 - Methods
 - Criteria
- Other QA criteria

Commercial
Design

Commercially
Manufactured

Dedicated item equivalent in quality to item purchased as a basic (safety-related) component



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Dedication

**Technical
Evaluation**

**Acceptance
Process**



Dedicated Product

Equivalent as Basic Component



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Technical Evaluation

- Identify safety function(s)
- Identify credible **failure modes**
- Identify design characteristics
- Identify **critical characteristics** & relation to safety function
- Identify **acceptance method & criteria**



**Engineering Function ...
Performs All Tasks**



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Critical Characteristics



In 2015 GEH dedicated more than **37,000** parts,
equivalent to more than **180,000** Critical
Characteristics



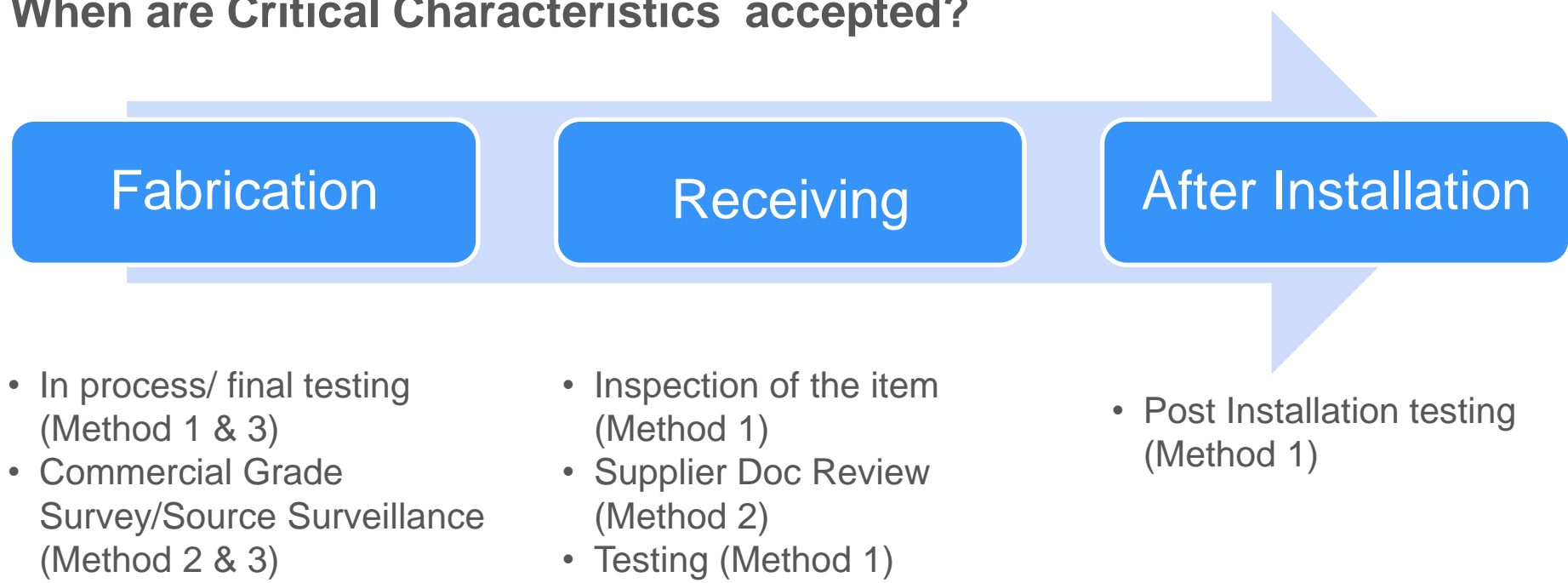
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Acceptance Process

Acceptance Methods



When are Critical Characteristics accepted?



Dedication in Construction Activities

Benefits

- Broader Options in Supply Chain
- Use of non-Nuclear suppliers
- Use of cutting edge, state of the art technologies
- Integration between Engineering, Procurement and Product Acceptance Organizations



Challenges

- Lack integration of Engineering Procurement and Product Acceptance Organizations
- Product Complexity. Analysis of the failure modes...deep knowledge of the product function
- Sub supplier control...counterfeit material
- Poor Manufacturing practices...lack of “Nuclear Safety Culture”
- Less than adequate Quality Controls



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A good Commercial Grade Supplier has...

- Programmatic **controls** for inspections and tests
- **Rigor** on Special Process...procedures, documentation
- Manufacturing, design and procurement controls
- Complete product **documentation**
- Continuous performance **improvement** programs



Questions?



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