

Commercial Grade Dedication

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Commercial Grade Dedication

- 10CFR830 Subpart A Criterion 7, Performance/Procurement
 - Procure items and services that meet established requirements and perform as specified
 - Evaluate and select prospective suppliers on the basis of specified criteria, and
 - Establish and implement processes to ensure that approved suppliers continue to provide acceptable items and services.



Commercial Grade Dedication

- DOE O 414.1D, Quality Assurance
- DOE G 414.1-2A, Quality Assurance Management Guide
 - Commercial Grade Items intended for use in nuclear safety applications should be procured in accordance with documented processes using recognized consensus standards.



Commercial Grade Dedication

- Recognized Industry Standards
 - EPRI NP-5652, *Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications*
 - EPRI TR-102260, *Supplemental Guidance for the Application of EPRI Report NP-5652 on the Utilization of Commercial Grade Items*



Commercial Grade Dedication

- Commercial grade items and services are “dedicated” for use in nuclear safety applications when a qualified NQA-1 vendor cannot be located or cannot provide the item or service in time to meet the buyer’s needs.
 - “*dedication*: an acceptance process performed in accordance with this Standard to provide reasonable assurance that a commercial grade item or service will successfully perform its intended safety function and, in this respect, is deemed equivalent to an item or services provided under the requirements of this Standard.”
 - ASME NQA-1b-2007



Commercial Grade Dedication

Commercial Grade Items – NQA-1

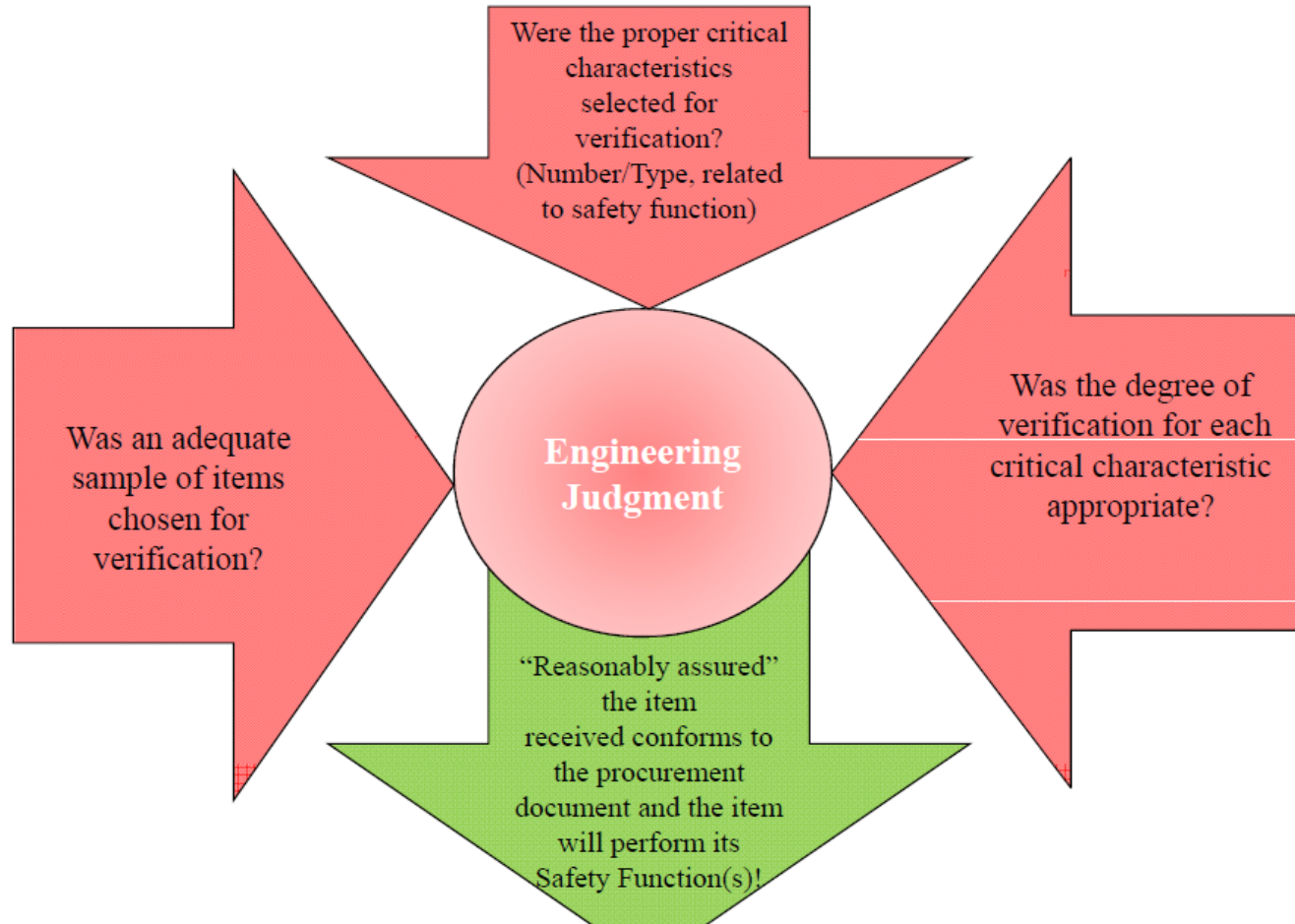
- *commercial grade item: an item satisfying the following:*
 - *not subject to design or specification requirements that are unique to those facilities or activities*
 - *used in applications other than those facilities or activities*
 - *ordered from the manufacturer/ supplier on the basis of specifications set forth in the manufacturer's published product description (e.g., a catalog)*
- *commercial grade item: a structure, system, or component, or part thereof, that affects its safety function, that was not designed and manufactured in accordance with the requirements of this Standard.*



Commercial Grade Services – NQA-1

- *commercial grade service: a service that was not provided in accordance with the requirements of this Standard.*

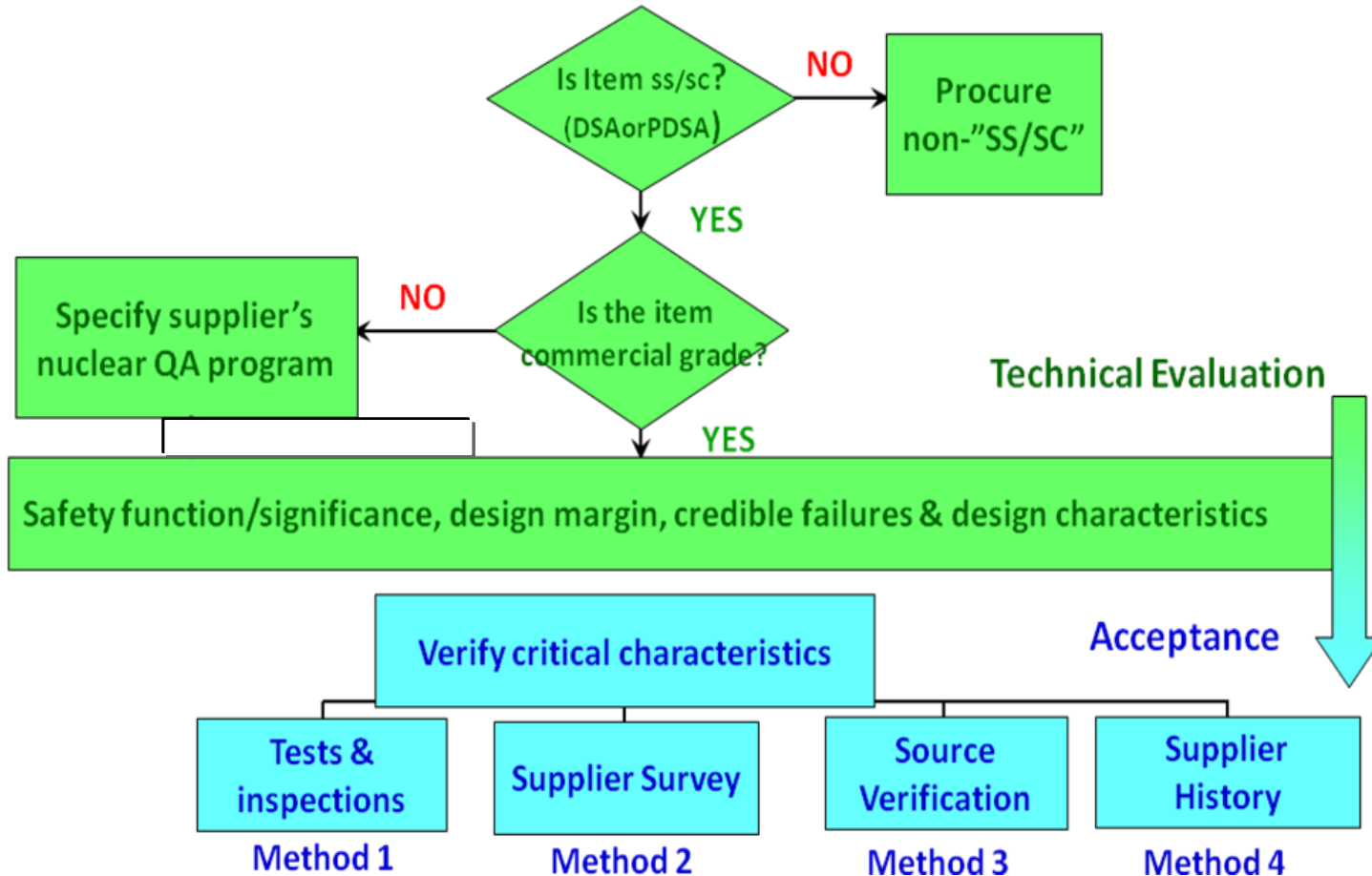
- Reasonable Assurance





Commercial Grade Dedication

Overview of the Generic Process





Commercial Grade Dedication

- Technical Evaluation
- Identification of Critical Characteristics and Acceptance Criteria
- Selection, performance, and documentation of dedication method(s)



Commercial Grade Dedication

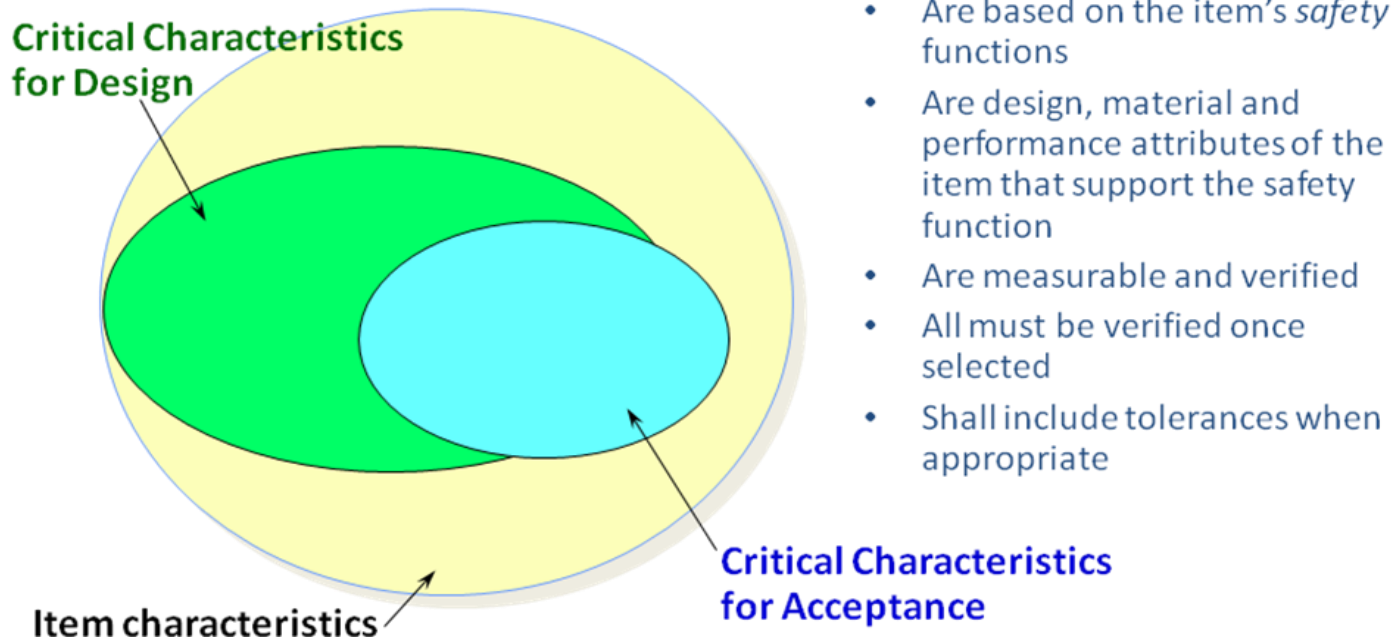
- Technical Evaluation
 - An evaluation performed to assure that the correct technical requirements for an item are specified in a procurement document. [EPRI NP-5652]
- Critical Characteristics for Acceptance (CCFA)
 - Identifiable and measurable attributes of an item or service that, when verified, will provide reasonable assurance that the item/service received is the item specified. [EPRI Report NP-5652]

EPRI Report NP-5652 (1998) - *Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications (NCIG-07)*



Commercial Grade Dedication

Critical Characteristics for Acceptance



- Are based on the item's *safety* functions
- Are design, material and performance attributes of the item that support the safety function
- Are measurable and verified
- All must be verified once selected
- Shall include tolerances when appropriate



Commercial Grade Dedication

- Selection, performance, and documentation of dedication method(s)
 - Method 1 – Test, inspection, and/or analysis
 - Supplemented as necessary by one or more of the following
 - Method 2 – Commercial Grade Survey
 - Method 3 – Source Verification
 - Method 4 – History



Commercial Grade Dedication

- Method 1 – Test, inspection, and/or analysis
 - Inspection – Receipt inspection using a QA Inspection Plan
 - Test – Either upon receipt or following installation (e.g., strength, hardness, megger, hydro)
 - Analysis – Laboratory analysis (e.g., material composition)



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- Method 2 – Commercial Grade Survey
 - Verifies Supplier's processes and controls are effectively implemented for the identified critical characteristics
 - Vendor must have a QA program
 - Performance-based assessment
 - Requires technical support personnel (e.g., welding engineer)
 - Determines extent to which the Buyer can rely on Supplier's Certificate of Conformance



Commercial Grade Dedication

- Method 3 – Source Verification
 - Direct observation to confirm critical characteristics are adequately controlled by the vendor
 - In-process
 - Inspections
 - Surveillances/audits
 - Tests
 - Analyses



Commercial Grade Dedication

- Method 4 – History
 - Established historical record based on industry-wide performance data that is directly applicable to the critical characteristics and the intended facility application



Commercial Grade Dedication

Required Documentation

- Dedication Plan
- Technical Evaluation, including CCFAs and acceptance criteria
- Test reports/results, inspection reports, analysis reports
- Commercial Grade Survey reports
- Completed plan or report documenting evidence of acceptance of item or service critical characteristics



Commercial Grade Dedication

Complex-Wide Issues

- Subcontractor dedication of items (e.g., weld rod)
- Material upgrade vs. dedication
- Inappropriate acceptance criteria for CCFAs
- Lack of implementing procedures
- Less than adequate detail in completed dedication packages
- No technical basis for sample sizes used for Method 1



Electric Power Research Institute (EPRI) References

- NP-5652, Guideline for the Utilization of Commercial Grade Items in Nuclear Safety Related Applications (NCIG-07)
- TR-102260, Supplemental Guidance for the Application of EPRI Report NP-5652 on the Utilization of Commercial Grade Items
- NP-7218, Guideline for the Utilization of Sampling Plans for Commercial Grade Item Acceptance
- NP-6629, Guideline for the Procurement and Receipt of Items for Nuclear Power Plants
- TR-106439, Guideline on Evaluation and Acceptance of Commercial Grade Digital Equipment
- TR-1011710, Guideline for Evaluating Critical Digital Equipment and Systems
- TR-107330, Generic Requirements Specification for Qualifying Commercial Available PLCs for Safety-Related Applications in Nuclear Power Plants