

COMMERCIAL GRADE DEDICATION
OF MATERIAL
2014 NRC Vendor Workshop

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December 2008 Vendor Workshop

- * **NRC Workshop in December 2008 on Vendor Oversight for New Reactor Construction received several questions related to commercial grade dedication of metallic materials**
- * **Did the answers to the Workshop questions result in more questions to be answered??**

Why Are We Here

- * As an outcome of the 2008 NRC Workshop and numerous questions asked by the industry, in April 2009 the NRC answered questions on Commercial Grade Dedication (CGD) including CGD of metallic materials, in NRC Memorandum (ADAMS Document MLog0890707).**
- * Under the rules of CGD, Engineering involvement is necessary.**

What Are we Dedicating

* Typical Product Forms

- * Plate & sheet
- * Bar
- * Pipe
- * Tubing
- * Fittings
- * Flanges
- * Fasteners
- * Weld wire & rod



What Are We Here Understand

- * **In ASME Section III space, commercial material can be qualified in accordance with material specifications and are adopted for ASME Section III design.**
- * **ASME Section III, Subsection NCA-3855.5 “ Utilization of Unqualified Source Material”**
- * **The actual activity of qualifying material for ASME Section III nuclear application does not require specific engineering organization involvement.**

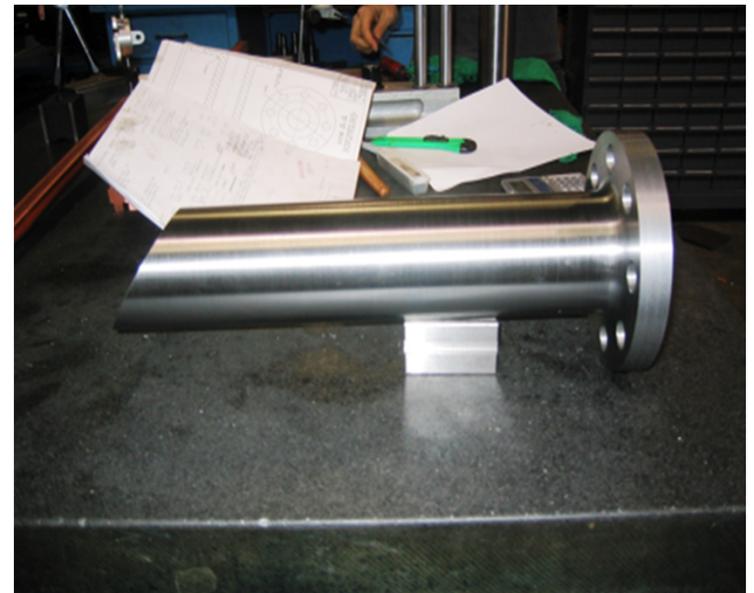
Why Is This Important

- * **The rules for Commercial Grade Dedication do not specifically incorporate or reference the rules for ASME Section III qualification of material (NCA-3855.5 – Utilization of Unqualified Source Material; commonly called material upgrade).**
- * **Upgraded material does not require specific engineering involvement. Upgraded material has been deemed by some facets of the nuclear industry as unacceptable as Commercial Grade Dedicated Material based on verbatim interpretation of the rules for CGD and the 2008 NRC workshop question replies.**

What Has This Interpretation Caused

Individual pieces of material (or starting material that is subsequently processed as part of a nuclear QA program) that were tested and complied with the requirements of the material specification in accordance with ASME Section III rules, to meet CGD practices, now require;

- * Technical evaluations,
- * Identification of Critical Characteristics,
- * Engineering Involvement,
- * And in some cases, retesting based on a sample plan justified and documented by the engineer, to be acceptable as Commercial Grade Dedicated.



April 28, 2009

MEMORANDUM TO: John A. Nakoski, Chief

Quality and Vendor Branch 2

Division of Construction Inspection

& Operational Programs

Office of New Reactors

Juan Peralta, Chief

Quality and Vendor Branch 1

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FROM: Antoinette Sakadales, Program Analyst Quality and Vendor Branch 2 /RA/

Division of Construction Inspection

& Operational Programs

Office of New Reactors

SUBJECT: NRC RESPONSES TO COMMERCIAL GRADE DEDICATION AND

GENERAL QUESTIONS RECEIVED DURING THE VENDOR

WORKSHOP ON NEW REACTOR CONSTRUCTION IN DECEMBER,

2008

Enclosed please find the NRC Responses to questions concerning Commercial Grade Dedication and General Topics received during the Workshop on Vendor Oversight for New Reactor Construction, which took place December 10-11, 2008 in Rockville, Maryland.

Material Upgrade vs Dedication

- * **Question 8:**
- * **For raw material, what is the NRC's position on purchase from commercial distributor relating to acceptance by commercial grade versus use of ASME rules for unqualified source material? Does testing of metal from commercial suppliers have to be defined as "dedicated"?**
- * **Answer:**
- * **If the raw material is to be used for ASME pressure boundary components, then the ASME rules apply and the process of upgrading of unqualified source material applies. If the raw material is to be used in other safety related applications, then commercial grade dedication must be performed. Testing of materials would always be part of the dedication process.**



What Does The Response Mean

- * **“If the raw material is to be used in other safety related applications, then commercial grade dedication must be performed. Testing of materials would always be part of the dedication process.”**
- * ***The above is a true statement. It does not prohibit applying the ASME Section III rules for utilization of unqualified source material to Commercial Grade Dedication. It simply requires this ASME Section III use to be addressed in the CGD Process.***

Material Upgrade vs Dedication

- * **Question 18:**

- * **What is the NRC position on purchase from commercial distributor relative to acceptance by commercial grade vs. use of ASME rules for unqualified source material?**

- * **Answer:**

- * **NCA-3800, Subsection 3855.5(a) provides specific requirements for the use of Unqualified source material by Material Organizations to be used in ASME components. The process described in 3855.5(a) is not CGI dedication. Acceptance of commercial grade material for safety related applications should be based on the identification and verification of the material's critical characteristics.**



What Does The Response Mean

- * **“NCA-3800, Subsection 3855.5(a) provides specific requirements for the use of Unqualified source material by Material Organizations to be used in ASME components. The process described in 3855.5(a) is not CGI dedication. Acceptance of commercial grade material for safety related applications should be based on the identification and verification of the material's critical characteristics.**
- * ***The above is a true statement. It does not prohibit applying the ASME Section III rules for utilization of unqualified source material to Commercial Grade Dedication. It simply requires this ASME Section III use to be addressed in the CGD Process.***

Material Upgrade vs Dedication

Question 72:

- * When performing commercial grade dedication to material that is produced to industry specifications such as ASTM A/B and the dedicating entity does not have design or engineering capabilities, what is an acceptable method for determining critical characteristics?
- * **Answer:**
- * Vendors supplying material as a basic component, including dedication activities, are required to establish adequate controls for the review of materials, parts, equipment, and processes for suitability of application as established in Criterion III, “Design Control,” of Appendix B. When performing dedication of materials, the dedicating entity may utilize ASTM standards for the specification of critical characteristics that need to be verified to provide reasonable assurance that the material will perform its intended safety function. Design or engineering involvement is necessary in performing these activities. The level of design control or engineering involvement is dependent on the nature, complexity, and use of the items to be dedicated.

Commercial Grade Dedication to Recognized standards

- * **Question 53:**

- * **When performing CGD of materials to a nationally recognized standard such as ASTM, can the standard serve as the engineering involvement?**

- * **Answer:**

- * **Vendors supplying material as a basic component, including dedication activities, are required to establish adequate controls for the review of materials, parts, equipment, and processes for suitability of application as established in Criterion III, “Design Control,” of Appendix B. When performing dedication of materials, the dedicating entity may utilize ASTM standards for the specification of critical characteristics that need to be verified to provide reasonable assurance that the material will perform its intended safety function. Design or engineering involvement is necessary in performing these activities. The level of design control or engineering involvement is dependent on the nature, complexity, and use of the items to be dedicated.**

What Does The Response Mean

- * **When performing dedication of materials, the dedicating entity may utilize ASTM standards for the identification of critical characteristics that need to be verified to provide reasonable assurance that the material will perform its intended safety function. Design or engineering involvement is necessary in performing these activities. The level of design control or engineering involvement is dependent on the nature, complexity, and use of the items to be dedicated.”**
- * ***What this means.... If the requirements of the ASTM material specification are verified as part of ASME Section III, NCA-3855.5 Code activities, and additional critical characteristics are not provided by the customer PO, then using the ASTM material specification identified by the procurement document addresses the design and engineering involvement as established by the identified ASTM material specification.***

Commercial Grade Dedication to Recognized Standards?

- * **Question 67:**
- * **How can a structural steel supplier choose the critical characteristics for evaluation when the utility's purchase order does not give guidance regarding the steel's intended use?**
- * **Answer:**
- * **The purchaser needs to include the appropriate level of detail in the purchase order to allow the supplier to address technical and quality requirements of the basic component. Appropriate interface between the utility and the vendor is often necessary to identify and characterize the design and functional parameters of specific parts.**

What Does The Response Mean

- * **“The purchaser needs to include the appropriate level of detail in the purchase order to allow the supplier to address technical and quality requirements of the basic component. Appropriate interface between the utility and the vendor is often necessary to identify and characterize the design and functional parameters of specific parts.”**
- * ***What this means...If the requirements of the material specification are performed in accordance with ASME Section III, NCA-3855.5, and additional critical characteristics are not provided by the customer then, by purchasing to the material specification design control is already established by the procurement document and the engineering involvement is already established by the ordered material specification.***

CGD Evolves Around Identification Of CC's

- * **New question; What are the Critical Characteristics of materials in recognized standards such as ASTM?**
- * **Answer- Per the definition of Critical Characteristics, those important to design, material, and performance characteristics. If the ordered material specification identifies the characteristic for the material, then the requirements of the material specification that impacts design, such as chemical composition and mechanical properties, are the critical characteristics.**
- * **When in doubt or end use is unknown, perform all the requirements of the material specification.**

NRC's Inspection of CGD practices

- * **Question:**
- * **Has the NRC issued findings on applying NCA-3855.5 to CGD practices.**
- * **Reply:**
- * **Not unless the activity was not addressed in the vendors Commercial Grade Dedication program and procedures.**



Material Upgrade vs Dedication Summary

- * **Real Question; Can NCA-3855.5 be applied for the Commercial Grade Dedication of material to recognized published Material Specifications.**
- * **Answer- YES- Provided this method of the selection, identification, and verification of critical characteristics is documented in the vendors dedication process described in their Commercial Grade Dedication Procedure(s)**



QUESTIONS?

