

NUPIC Vendor Meeting

June 2017

NRC Vendor Inspection Update

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QA Vendor Inspection Branches 1 & 2

Office of New Reactors

AGENDA

1. New Items

- Additive manufacturing (3D Printing)

2. Updates

- RG 1.231 – Design & Analysis Software Dedication
- RG 1.28 -- Revision 5 Status
- DG - 1291 – Part 21 Evaluation & Reporting
- DG - 1292 – Commercial-Grade Dedication
- EPRI TAG on Reverse Engineering
- SONGS Lessons Learned Pilot Inspection – Ametek
- Communication Initiatives

3. Recent NRC Vendor Inspections

- Specific Inspection Insights (Creusot Forge, France & CB&I Laurens, SC)

4. Questions

NEW ITEMS

Topics

- Additive Manufacturing (3D Printing)
- Similar to Welding
- Current activities
 - Issuance of ASTM F3184-16
 - Evaluating material limitations
 - Pre and post fabrication treatments

UPDATES

Regulatory Guide Information

- What are regulatory guides?
- What are proposed regulatory positions?
- What is different between regulations and RGs?
- Is it required to be implemented?

UPDATES

Regulatory Guide 1.231

- First software-specific CGD Guidance
 - Design and analysis computer programs
 - Non-process computer programs
- History:
 - Revision 1 of EPRI 1025243
 - Draft Regulatory Guide 1305
- Issued in January 2017

UPDATES

Regulatory Guide 1.231

- What does it mean to licensees and suppliers?
 - Establishes a useful knowledge baseline for both industry and regulators
 - Provides useful information in establishing SW evaluation plans and procedures
 - Provides program attributes for inspectors and auditors to consider
 - Provides better alignment with industry practices and standards (IEEE, ASME)

UPDATES

Draft Guideline 1326

- Proposed Revision 5 of Regulatory Guide (RG) 1.28, Quality Assurance Program Criteria (Design and Construction), dated June 2010
- RG 1.28, Revision 4, previously endorsed NQA-1-2008 with 2009 addenda
- Endorses, with certain clarifications and regulatory positions, NQA-1b-2011 addenda to ASME NQA-1-2008, NQA-1-2012 edition, and NQA-1-2015 edition
- Issued for 60 day Public comment in March 2017

UPDATES

Draft Guideline 1326

- What does it mean to licensees and suppliers?
 - Describes additional editions and addenda of NQA-1 that the NRC considers acceptable for complying with the provisions of 10 CFR Part 50, and 10 CFR Part 52, which refer to 10 CFR Part 50, Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel processing Plants,” for establishing and implementing a (QA) program for the design and construction of nuclear power plants and fuel reprocessing plants.

UPDATES

Draft Guideline 1291

- The NRC staff is currently reviewing Revision 1 of NEI 14-09, “Guidelines for Implementation of 10 CFR Part 21, Reporting of Defects and Noncompliance,” dated February 2016, which the NRC plans to endorse in a Regulatory Guide. The NRC staff has completed draft guide DG-1291, “Evaluating Deviations and Reporting Defects and Noncompliance.”
- The NRC continues to work on issuing DG-1291 for public comment later this year and hopes to issue the final regulatory guide in 2017.

UPDATES

Draft Guideline 1291

- What does it mean to licensees and suppliers?
 - Provides clarification on Part 21 requirements for reporting and evaluating
 - Part 21 rulemaking has been cancelled based on 2015 Project AIM recommendations and rebalancing of agency's work load,
 - Expect to issue DG-1291 for public comment later in 2017

UPDATES

Draft Guideline 1292

- Draft Guide DG-1292, “Dedication of Commercial-Grade Items for Use in Nuclear Power Plants,” was issued on June, 30, 2016, for a 60 day public comment period.
- Approves Revision 1 to the Electric Power Research Institute (EPRI) NP-5652 and TR-102260 with respect to the dedication of commercial-grade items and services used for supply of basic components for nuclear power plants.
- 2 staff regulatory positions identified.
- DG-1292 will be issued as Regulatory Guide 1.164, “Dedication of Commercial-Grade Items for Use in Nuclear Power Plants,” and should be issued final in the next month.

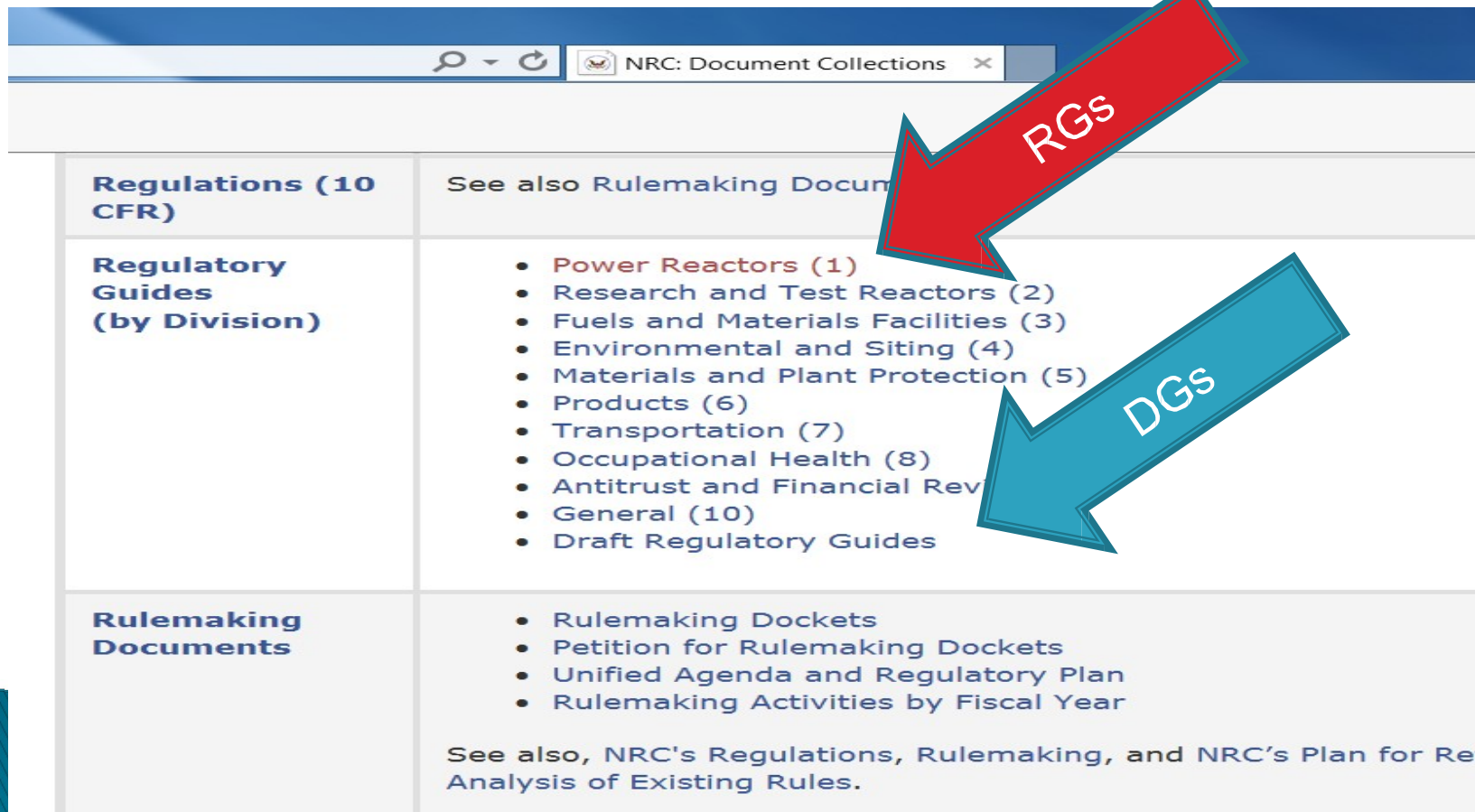
UPDATES

Draft Guideline 1292

- What does it mean to licensees and suppliers?
 - This new RG approves for use, with two staff regulatory positions, Revision 1 to the EPRI NP-5652 and TR-102260, “Plant Engineering: Guideline for the Acceptance of Commercial-Grade Items In Nuclear Safety-Related Applications,” with respect to acceptance of commercial-grade dedication of items used as basic components for nuclear power plants.

UPDATES

Finding the DGs and RGs



The screenshot shows a web browser window titled "NRC: Document Collections". The page is divided into three main sections. A red arrow labeled "RGs" points to the "Regulatory Guides" section, and a blue arrow labeled "DGs" points to the "Draft Regulatory Guides" section within the "Regulatory Guides" list.

Regulations (10 CFR)	See also Rulemaking Documents
Regulatory Guides (by Division)	<ul style="list-style-type: none">• Power Reactors (1)• Research and Test Reactors (2)• Fuels and Materials Facilities (3)• Environmental and Siting (4)• Materials and Plant Protection (5)• Products (6)• Transportation (7)• Occupational Health (8)• Antitrust and Financial Review (9)• General (10)• Draft Regulatory Guides
Rulemaking Documents	<ul style="list-style-type: none">• Rulemaking Dockets• Petition for Rulemaking Dockets• Unified Agenda and Regulatory Plan• Rulemaking Activities by Fiscal Year <p>See also, NRC's Regulations, Rulemaking, and NRC's Plan for Retrospective Analysis of Existing Rules.</p>

UPDATES

Songs Lessons Learned – Pilot Inspection

- Five proposed pilot design-aspect vendor inspections
- First inspection – ENSA, April 2016
 - Three findings
- Second inspection – Ametek, April 2017
 - Two Findings – Equipment Qualification
- Third inspection -- Konecranes scheduled in August

UPDATES

Communications

Annual vendor newsletter:

<https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance/vendor-insp/vendor-newsletters.html>

Quality Assurance FAQ:

<https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance/qual-assure-faqs.html>

Categories of Notice of Nonconformance (NON) or Notice of Violation (NOV):

<https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance/nonconformances-violations.html>

Vendor Inspection Program (VIP) Plan:

<https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance/vendor-insp/vendor-insp-program.html>



NRC QA website: <https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance.html>

UPDATES

Communications

Vendor inspection information:

<https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance/vendor-insp.html>

NRC Vendor Workshops:

<https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance/vendor-oversight.html>

Trip reports issued for the NUPIC audit observations:

<https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance/nupic-industry.html>

Advanced reactors and small modular reactors:

<http://www.nrc.gov/reactors/advanced.html>



NRC QA website: <https://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance.html>

VENDOR INSPECTIONS

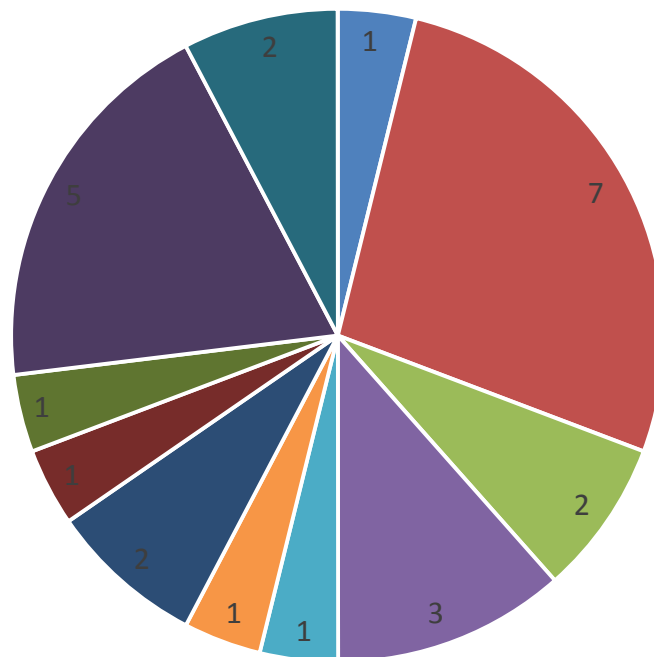
- 01/12/17 SAFER PEICo, Phoenix, AZ
- 02/07/17 WECTEC, Charlotte, NC*
- 02/21/17 AREVA Creusot Forge, Le Creusot, France
- 03/27/17 Westinghouse Waltz Mill Site, Madison, PA*
- 03/30/17 Chicago Bridge & Iron (CB&I), Laurens, SC*
- 04/24/17 Target Rock, Industrial Division, Curtiss-Wright, Farmingdale, NY
- 05/04/17 L&S Machine Company, Latrobe, PA*
- 05/05/17 SAFER, Birmingham, AL
- 05/10/17 AREVA Inc., Lynchburg, VA
- 05/12/17 Westinghouse Electric Company, Warrendale, PA*
- 12/22/16 Enercon, Kennesaw, GA
- 12/21/16 Curtiss Wright - Elect-Mech.Divi., Cheswick, PA*
- 12/14/16 AZZ Nuclear | NLI, Fort Worth, TX
- 12/09/16 Westinghouse Electric Company, Cranberry, PA*
- 12/07/16 Pentair Valves & Controls, Mansfield, MA*
- 11/29/16 General Atomics Electromagnetic Systems, San Diego, CA*
- 11/14/16 Westinghouse Electric Company, Cranberry, PA*
- 10/21/16 Paxton & Vierling Steel Co., Carter Lake, IA*
- 09/07/16 Aecon Industrial, Cambridge, Canada*
- 08/30/16 Westinghouse Electric Company, Warrendale, PA*
- 08/29/16 Namco Controls Corp., Elizabethtown, NC*
- 07/18/16 SPX, Copes-Vulcan, McKean, PA*
- 06/30/16 Westinghouse Electric Company, Cranberry, PA*



* AP-1000 testing, design, or fabrication
^ Major Mod pilot inspection
Released Reports (inspection date)

INSPECTION FINDINGS

Findings



- I: Organization
- III: Design Control
- V: Instructions, Procedures, and Drawings
- VII: Control of Purchased Material, Equipment, and Services
- IX: Control of Special Processes
- X: Inspection
- XII: Control of M&TE
- XIII: Handling, Storage, and Shipping
- XV: Nonconforming Materials, Parts, or Components
- XVI: Corrective Actions
- Part 21

INSPECTION RESULTS

Creusot Forge - France

- In November, 2016, two NRC inspectors participated in a in a Multinational Design Evaluation Programme (MDEP) Vendor Inspection Cooperation Working Group (VICWG) vendor inspection of AREVA Nuclear Power (NP) Creusot Forge (ACF) fabrication facility.
- The inspection was led by the French regulator, the French Nuclear Safety Authority (ASN), and included inspectors from France, United Kingdom, Finland, China, Canada, and the US.
- Purpose of MDEP inspection was to review ACF record files associated with forgings delivered worldwide that contained documentation that was different from the final documentation included with the forging provided by ACF.

INSPECTION RESULTS

CB&I – Laurens, SC

- During the week of January 23, 2017, the NRC conducted an unannounced vendor inspection at the Chicago Bridge & Iron (CB&I) facility in Laurens, SC
- CB&I Laurens is under contract from Westinghouse Electric Company to provide safety-related AP1000 piping spools for the Vogtle and V. C. Summer new reactors.
- The NRC issued 7 findings as a result of the inspection. One of the nonconformance's was against 10 CFR Part 50 Appendix B, Criterion I, "Organization," for CB&I Laurens failure to ensure that portions of the quality assurance program were effectively executed, and failure to verify that activities affecting safety-related functions have been correctly performed.

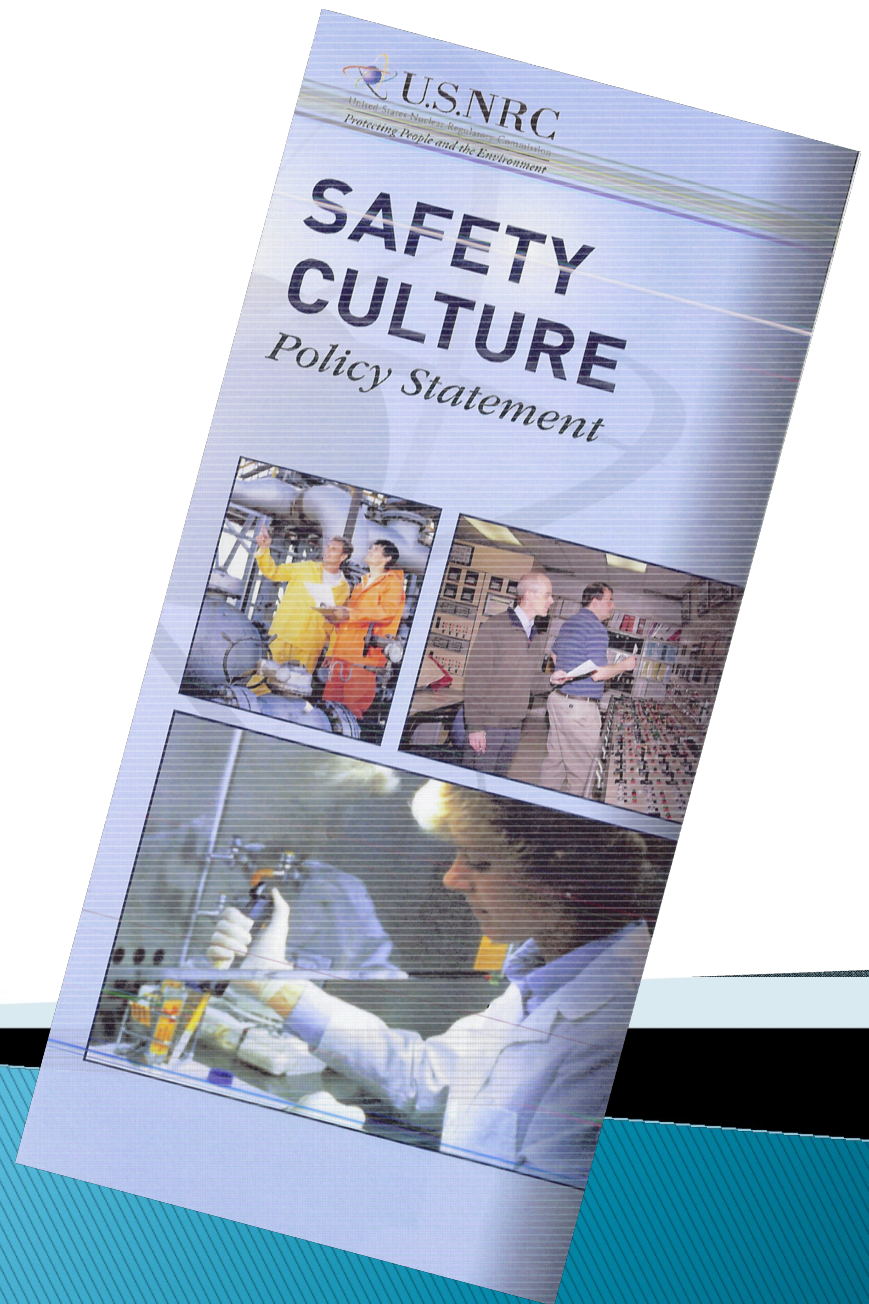
INSPECTION RESULTS

Inspection insights

- Commercial-Grade Dedication deficiencies
- Equipment Qualification deficiencies
- Supplier and sub-tier supplier qualification deficiencies
- Corrective actions / Part 21 deficiencies
- Thoroughness of vendor corrective actions
- Thoroughness of vendor internal audits

The Commission defines **nuclear safety culture** as the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.

NUREG/BR-0500, Rev. 3, March 2015



Questions

