



NRC Workshop on Vendor Oversight for New Reactor Construction

Overview of the NRC's Vendor Inspection Program

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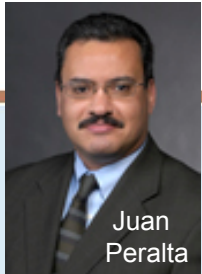
Office of New Reactors



Topics

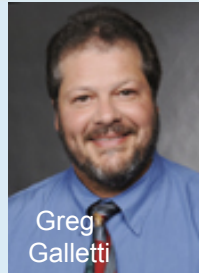
- NRC Vendor Inspection Programs
- New Reactor Vendor Inspection Program
- Vendor Inspection Findings
- Global Supply Chain

NRO Vendor Staff

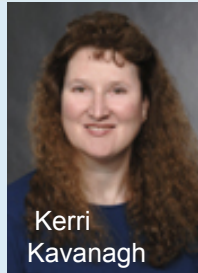


Juan Peralta

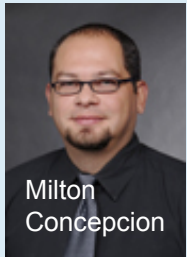
CQVP



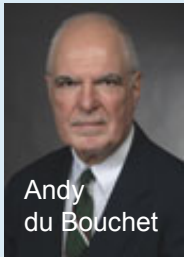
Greg Galletti



Kerri Kavanagh



Milton Concepcion



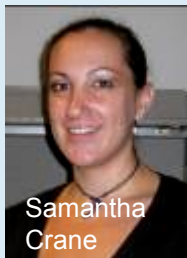
Andy du Bouchet



Ken Heck



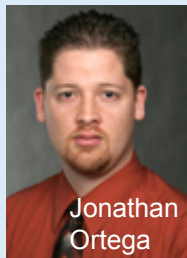
Raju Patel



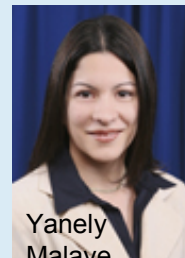
Samantha Crane



John Tomon



Jonathan Ortega

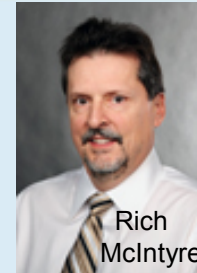


Yanelly Malave



John Nakoski

CQVB



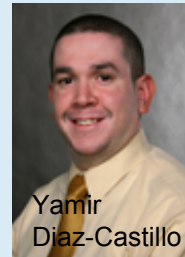
Rich McIntyre



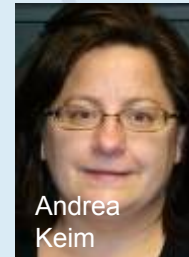
Dan Pasquale



Aida Rivera



Yamir Diaz-Castillo



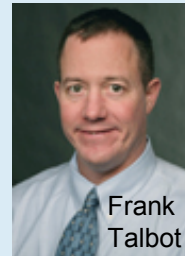
Andrea Keim



George Lipscomb



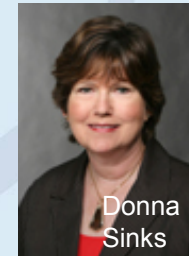
Mike Morgan



Frank Talbot



Sabrina Cleavenger



Donna Sinks



Wesley Deschaine

NRC Reactor Vendor Inspection Programs

- Operating Reactor Vendor Inspection Program
 - Responds to operating experience and concerns
- New Reactor Vendor Inspection Program
 - Routine inspection of vendors providing basic components to U.S. nuclear utilities for new reactor construction
- Complimentary and Coordinated Programs

NRC Reactors Vendor Inspection Programs (continued)

- NRC Inspects Vendor Performance for Compliance with Regulations
- NRC Oversees Licensee Audits of Vendors
 - Nuclear Procurement Issue Committee Audits
- NRC Does Not Certify, Accredite, or Endorse Any Vendor

NRC Vendor Inspection Program

(continued)

- Quality Assurance & Vendor Inspection Webpage

- <http://www.nrc.gov/reactors/new-reactors/oversight/quality-assurance.html>
- Regulations, Standard Review Plan, and SECY Paper
- Safety Evaluation Reports Concerning Revised Basis for QA Programs
- QA Inspections for New Reactor Licensing
- Vendor QA Inspections
- Nuclear Procurement Issues Committee (NUPIC) and Industry Interactions

Vendor Oversight Enhancements

- Build upon existing vendor inspection program in coordination with other NRC offices
- Increase inspection frequency and scope
- Clarify oversight and improve interface with industry's third-party auditing organization
- Expand international cooperation in vendor oversight

New Reactor Vendor Inspection Program

- New Reactor Vendor Inspections
 - Emphasize QA and technical requirements through performance-based inspections
 - Assess effective implementation of manufacturing and fabrication processes to provide assurance of product quality
- Sample of Vendors are Inspected
 - Plan for about 12 vendor Inspections in FY2009
 - Potential to increase sample size in subsequent years

New Reactor Vendor Inspection Program (continued)

- Factors affecting vendor inspection planning
 - Safety Significance of Parts and Services
 - Scope of Parts and Services Provided by Vendor
 - Insights for ITAAC Verification – Targeted ITAAC
 - First-of-a-Kind Component Fabrication
 - Vendor Experience with Component Fabrication
 - Operating and Construction Experience
 - Insights from International Vendor Oversight
 - Insights from Third Party Audit Organizations
 - Resources Available Consistent with Licensing Workload

New Reactor Vendor Inspection Program (continued)

- Inspection Manual Chapter (IMC) 2507 – Construction Vendor Inspection Program for New Reactors
 - **Inspection Procedure (IP) 43002:** Routine Inspections of Nuclear Vendors
 - **IP 43003:** Reactive Inspections of Nuclear Vendors
 - **IP 43004:** Inspection of Commercial Grade Dedication Programs
 - **IP 43005:** NRC Oversight of Third-Party Organizations Implementing Quality Assurance Requirements
 - **IP 36100:** Inspection of 10 CFR Part 21 and 50.55(e) Programs for Reporting Defects and Nonconformance

Vendor Inspection Findings

- Inadequate implementation of Part 21 requirements (IN 2007-40)
- Inadequate commercial grade dedication programs
- Inadequate administrative/programmatic controls
- Unfamiliarity with NRC regulations (new and existing suppliers)

Vendor Inspection Findings

(continued)

- Findings related to inadequate implementation of 10 CFR Part 21 requirements
 - 10 CFR Part 21 implementing procedures did not adequately address all the requirements
 - Procurement documents sent to Appendix B suppliers did not include 10 CFR Part 21 as an applicable requirement

Vendor Inspection Findings

(continued)

- Findings Related to Inadequate Commercial Grade Dedication Programs
 - Critical characteristics were not identified and verified
 - Sampling plans not followed in support of test and inspection activities
 - Inadequate documentation of the basis to support sampling plans
 - Inadequate use of EPRI-5652, Method 4 (Performance History)
 - Dedication Procedure did not include the appropriate 10 CFR Part 21.3 definition for a commercial grade item

Vendor Inspection Findings

(continued)

- Findings Related to Nonconformance and Corrective Action
 - Corrective action reports were not initiated after repetitive nonconformances were identified
 - Corrective action reports were not initiated after notification of a nonconforming condition by a customer
 - Insufficient evidence to support the closure of nonconforming conditions
 - Ineffective corrective action and nonconformance control programs

Vendor Inspection Findings

(continued)

- Findings Related to Design Control
 - Independent verification and validation of design calculations were not performed
 - Design changes and engineering design review conclusions were not documented
- Findings Related to Instructions, Procedures, and Drawings
 - Adequate procedures were not developed
 - Procedural guidance was not followed

Vendor Inspection Findings

(continued)

- Findings Related to Control of Measuring and Test Equipment (M&TE)
 - Historical records of calibrations performed were not maintained
 - External audit reports of commercial calibration services did not include required checklists
- Findings Related to Control of Purchased Material, Equipment, and Services
 - Sufficient objective evidence to support conclusions was not included in audit reports
 - Suppliers' control of M&TE was not verified

Global Supply Chain

- Many components for U.S. Market manufactured outside of the U.S.
- Increasing demand on a historically stable supply chain
- NRC will inspect vendors throughout the world
- Working with International Regulators to share insights

Summary

- The challenge before us all is to remain vigilant in assuring product quality
- NRC has hired and trained staff for oversight of vendors for new reactor construction
- The New Reactor Vendor Inspection Program procedures have been developed and implemented
- A global supply chain requires strong international cooperation among regulators to assure the quality of parts and services used at commercial nuclear power plants