Overview of the NRC’s Vendor Inspection Program

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Topics

- NRC Vendor Inspection Programs
- New Reactor Vendor Inspection Program
- Vendor Inspection Findings
- Global Supply Chain
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, Accredit, or Endorse Any Vendor
NRC Vendor Inspection Program
(continued)

• Quality Assurance & Vendor Inspection Webpage
  – 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 included 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