



U.S.NRC

UNITED STATES NUCLEAR REGULATORY COMMISSION

Protecting People and the Environment

10 CFR 50, Appendix B Components and Cyber Security

Technical Meeting for Reducing Cyber Risks in the Supply Chain
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Topics

- Nuclear Regulatory Commission (NRC) Regulations
- Discuss the oversight of the supply chain
- Observations identified during vendor inspection activities
- Questions



NRC Regulations

- 10 CFR Part 50, Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants”
 - “Quality Assurance comprises all those planned and systematic actions necessary to provide adequate confidence that a structure, system, or component will perform satisfactorily in service”
 - Consists of 18 Criteria of Quality Assurance (QA)



NRC Regulations

- NRC evaluated Appendix B and ISO 9001-2000
- NRC issued the results of this analysis in SECY-03-0117 which is publicly available
- The attachment to SECY-03-0117 provides the details for the Appendix B to ISO 9001-2000 comparison.



NRC Regulations

- 10 CFR Part 21, “Reporting Of Defects And Noncompliance”
 - Requires evaluation of deviations and failures to comply relating to defects that could create a substantial safety hazard
 - Also prescribes the reporting requirements for defects or failures to comply
 - Section 21.41, “Inspection” grants access for NRC inspections



NRC Regulations

Other NRC Regulations that are applicable to NRC vendors:

- 10 CFR Part 50.5, “Deliberate misconduct”
- 10 CFR Part 50.7, “Employee protection”



Oversight of the supply chain

- NRC's Vendor Inspection Center of Expertise (COE) provides oversight of vendors supplying safety-related* parts, materials and services.
- Performs routine and reactive vendor inspections, as well as, quality assurance implementation inspections for new reactor applicants.

*safety-related as defined by 10 CFR 50.2

Oversight of the supply chain

- SECY-11-0154, “Agencywide approach to Counterfeit, Fraudulent and Suspect Items,” provide the following direction:
 - The NRC staff will conduct vendor inspections at suppliers of safety-related Critical Digital Assets (CDAs), in accordance with 10 CFR Part 21
 - The NRC staff will evaluate the results of these inspections to determine the need to expand the inspection sample to suppliers and sub-suppliers of non-safety-related CDAs



Oversight of the supply chain

Vendor oversight of CDA's occurs if the items are procured as basic components (safety-related*)

- Appendix B and Part 21 requirements are contractually imposed on the vendor through the licensee's procurement document
- These requirements are inspected by NRC using Inspection Procedure 43002

*safety-related as defined by 10 CFR 50.2



Oversight of the supply chain

- Inspection Procedure 43002, “Routine Inspections of Nuclear Vendors”
 - Provides guidance to ensure NRC staff observes and assesses the vendor’s actual implementation to meet the licensee’s contractual / procedural requirements



Vendor Inspection Observations

- Several licensee purchase orders to a vendor requiring:
 - No harmful code or malicious logic: vendor shall have appropriate procedures in place to ensure that no viruses, malicious code or unintended code is transported into the production environment or the operational environment
- Vendor did not have a documented cyber security program in place to meet procurement document requirements

Vendor Inspection Observations

- Information Notice 2016-01 Allen Bradley Relays
 - Manufacturer redesigned a relay to use a complex programmable logic device (CPLD)
 - Use of a CPLD led to loss of safety function
 - The plant was unaware of modifications to the basic component, so electromagnetic compatibility was not evaluated



Questions?



ADAMS Accession Numbers

- Inspection Procedure 43002
 - ML13148A361
- Cyber Vendor Inspection Report
 - ML15342A429
 - ML17123A085
 - ML18018A989
- Allen Bradley Information Notice
 - ML15295A173



ADAMS Accession Numbers

- SECY-03-117, “Approaches for Adopting More Widely Accepted International Quality Standards”
 - ML031490421
- SECY-11-015, “Agencywide approach to Counterfeit, Fraudulent and Suspect Items”
 - ML112200150