



**U.S. NRC**

UNITED STATES NUCLEAR REGULATORY COMMISSION

*Protecting People and the Environment*

**3<sup>rd</sup> NRC Workshop on Vendor  
Oversight of New Reactor  
Construction**

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**Enhancing the Integrity of the Supply Chain**

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Commissioner William C. Ostendorff  
U.S. Nuclear Regulatory Commission

June 28, 2012



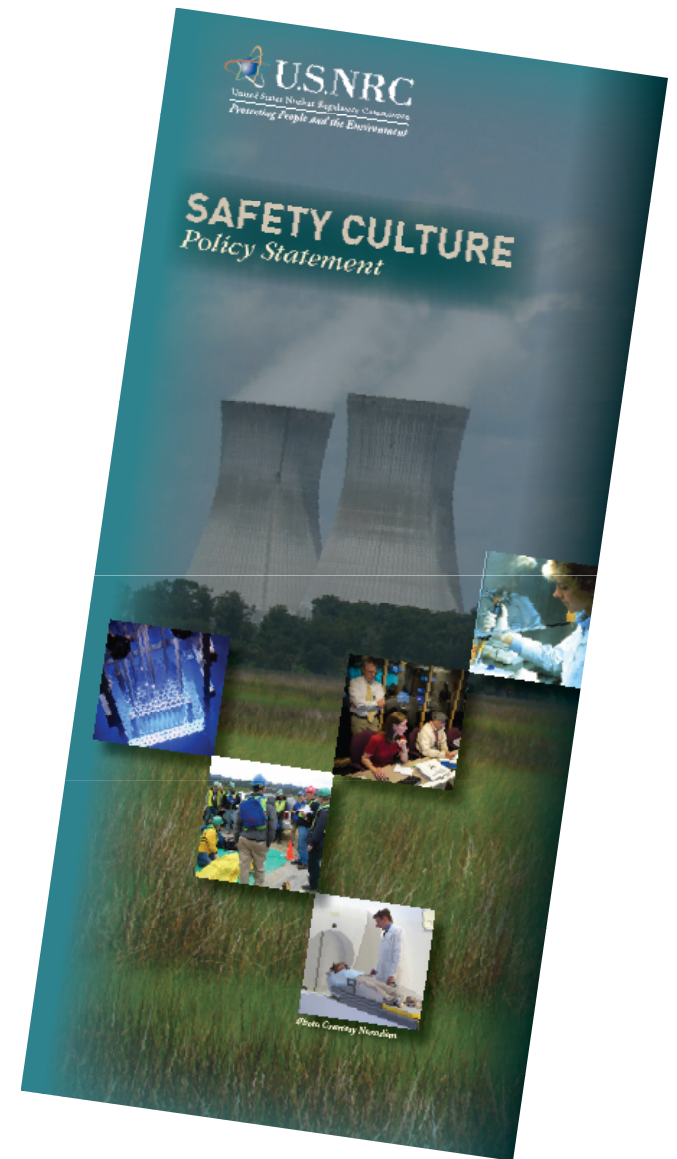
# Topic Areas

- Safety Culture
- Nuclear Supply Chain
- Increased Attention on Counterfeit, Fraudulent, and Suspect Items (CFSI)
- Current Environmental Factors
- NRC Activities



# Safety Culture

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.



# Then



Browns Ferry Unit 1





**Now**



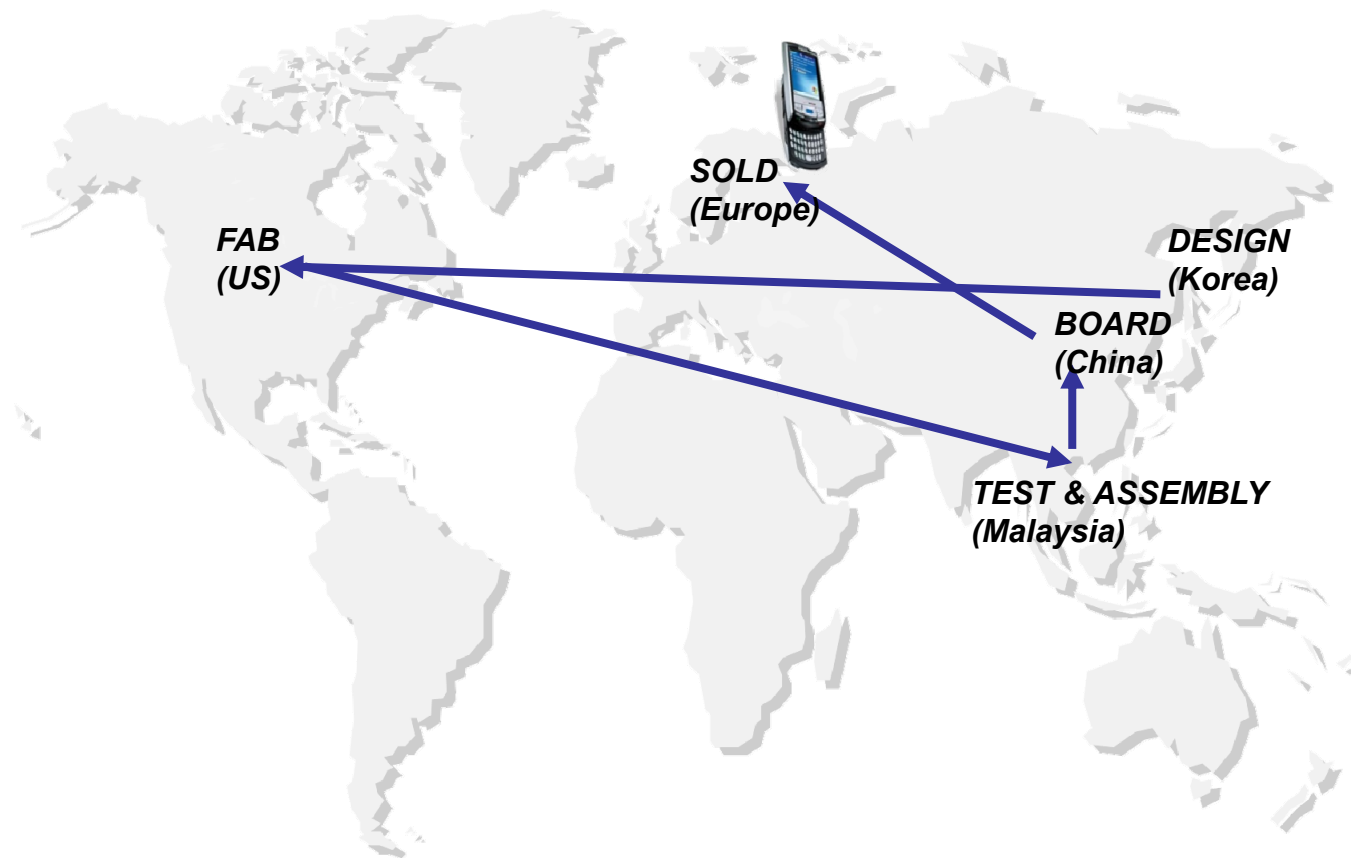
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# Nuclear Supply Chain Increasingly Global



**The supply chain from chip design to the final end customer is complex and global.**



# Nuclear Supply Chain

The integrity of the supply chain is a fundamental element of an effective quality assurance program for NRC-licensed facilities and their suppliers.







# Characteristics of Effective Procurement and Dedication

1. Involvement of engineering staff in the procurement and product acceptance processes
2. Effective source & receipt inspection, and testing programs
3. Thorough, engineering-based programs for review, testing, and dedication of commercial-grade items

# Common Counterfeits

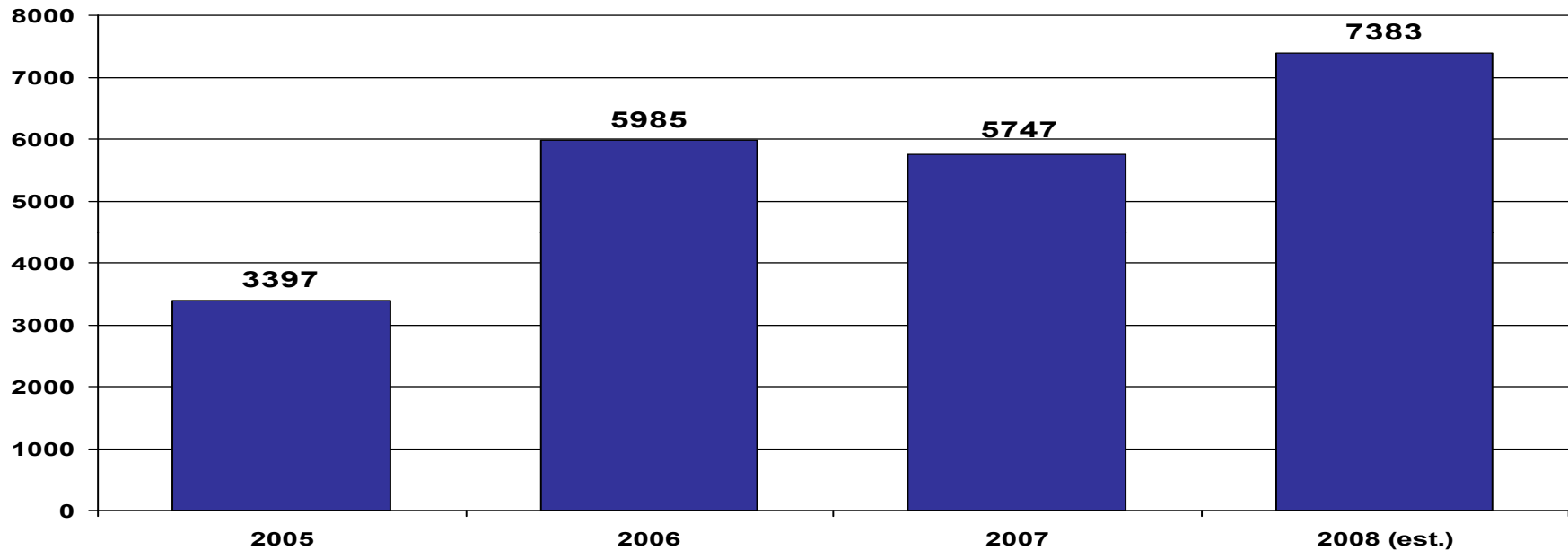




## CFSI Status

- Little or no significant counterfeit activity in commercial nuclear industry since NRC's issuance of guidance documents in 1990's.
- Other industries have seen an increase in Counterfeit, Fraudulent, and Suspect Items (CFSI) activity in recent years.

# Increased Attention on CFSI



Total Counterfeit Incidents – Original Component Manufacturers,  
Distributors, Board Assemblers – 2005 to 2008  
(Courtesy U.S. Department of Commerce)



# Current Environmental Factors

1. Material shortages (Increased opportunity/threat)
2. Diminishing Appendix B Safety-Related suppliers
3. Global supply chain
4. Advancing technology (Digital I&C)
5. High in-service failure rates (non-nuclear)
6. Lack of reporting





# Advancing Technology

## Industry Migration to Digital I&C

### U.S. Operating Reactors

- 100% of license renewal applicants are expected to migrate to Digital I&C for safety systems
- 1/3 of operating plants have already migrated for some safety systems

### U.S. New Reactors

- 100% of all new reactor designs have Digital I&C Systems

# Advancing Technology

## Advanced Counterfeiting Technology



*Small Electrical Parts  
or  
Integrated Circuits*



*Good*

*Field  
Programmable  
Gate Arrays  
(FPGAs)*



*Bad*



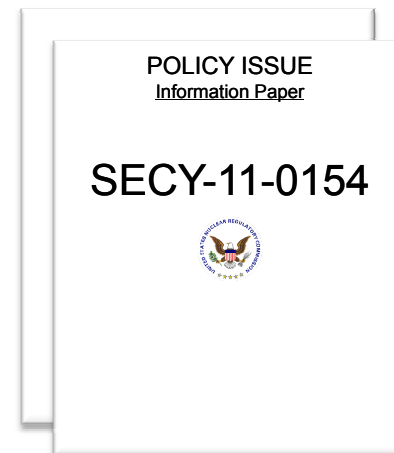
# NRC Activities

- Developing The NRC's CFSI Community
  - Continuing To Enhance The NRC Inspection Process
  - Issuance Of Information Notice 2008-04
  - Issuance Of SECY-11-0154
  
- Working with the Nuclear Community
  - Sharing Information
  - Working With NUPIC to Revise Audit Checklists
  - Working With EPRI Technical Advisory Group
  
- Cooperating with U.S. Government Agencies
  
- International Activities



## **NRC Activities - Commission Paper**

- Development of NRC's CFSI Response Strategy
  - Agencywide plan to monitor and evaluate CFSI
- Assessment of key areas:
  - Supply Chain Oversight
  - Communications
  - Agency Response Protocols
  - Malicious Products
- Continuing Activities





# Questions ?