An Integrated Approach to Managing the Safety/Security Interface

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• U.S. Nuclear Regulatory Commission (USNRC) mission, strategic goals, and regulatory framework

• Safety-Security Interface:
  - Importance
  - Regulatory framework/oversight
  - Considerations for improvement
NRC Mission Statement: “To license and regulate the nation’s civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment”
Regulatory Framework

- Regulations
- Licensing
- Oversight
  - Inspection
  - Enforcement
Definitions (IAEA Glossary)

- **Nuclear Safety:** *The achievement of proper operating conditions, prevention of accident or mitigation of accident consequences, resulting in protection of workers, the public, and the environment from undue radiation hazards.*

- **Nuclear Security:** *The prevention and detection of, and response to, theft, sabotage, unauthorized access, illegal transfer or other malicious acts involving nuclear materials, other radioactive substances or their associate facilities.*
Safety-Security Interface

What is it?

- The interaction between various plant disciplines (particularly operations and security) before making changes to plant configurations, facility conditions or security, to ensure potential adverse effects are considered and managed.
Why is the Safety-Security Interface Important?

• Ineffective management of a safety/security interface could potentially result in:
  – Delays of scheduled activities
  – Unintended security vulnerabilities
  – Unintended impacts to safety systems
  – Unintended impacts to emergency response activities
Regulations & Guidance

- NRC established regulatory requirements for Safety-Security Interface in Title 10, Code of Federal Regulations, Section 73.58 (10 CFR 73.58), *Safety/Security Interface Requirements for Nuclear Power Reactors*

- Guidance for implementing this requirement is in USNRC Regulatory Guide 5.74, *Managing the Safety/Security Interface*
US Regulatory Requirements

• 10 CFR 73.58 requirements for the safety/security interface for nuclear power reactors:
  • Assess and manage the *potential* for adverse effects on safety and security, including the site emergency plan, before implementing changes
  • Where the potential conflicts are identified, communicate them to appropriate licensee personnel and take compensatory and/or mitigative actions to maintain safety and security
How Can Safety Security Interface Be Effectively Managed?

- Leverage existing programs, controls, and processes to manage both planned and emergent activities/conditions
  - Plant Operations Review Committee
  - Work planning and control
  - Design control and configuration management
  - Quality assurance and audit
Managing Safety-Security Interface

• Factors to consider in determining if a planned change will adversely affect safety or security:
  • Decrease system reliability or availability
  • Increase response times of emergency or security personnel
  • Interfere with the detection and assessment function
  • Decrease the effectiveness of security plans
Cyber and Safety-Security Interface

- Must consider safety/security interface for any cyber-related changes
- Cyber Security Teams must consider any adverse impact to safety-related, important-to-safety, security, and emergency preparedness functions
- When safety, important-to-safety, and critical support systems are involved, physical security and access control must be maintained to avoid the introduction of malware that could impact any of these functions
Cyber Security Examples

• Stuxnet
  – Compromise of a physical security control with a direct adverse impact on safety systems

• Digital upgrades
  – Many variables to contend with in assessing replacement of analog systems with digital upgrades
  – Multiple attack vectors including supply chain, physical security, and access control
Summary

• Safety and Security are equally important
• Requires effective planning and communication at all organizational levels
• Measurable steps can be taken to improve safety-security interfaces
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