United States Nuclear Regulatory Commission

Protecting People and the Environment

Part 73 Regulatory Basis Development
Topic: Safety/Safeguards Interface

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Safety/Safeguards Interface What is it?

- IAEA Safety Glossary defines safety and security as:
  - (Nuclear) safety: "The achievement of proper operating conditions, prevention of accidents 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 material, other radioactive substances or their associated facilities."

- NRC defines Material Control and Accounting as:
  - Material control means the use of control and monitoring measures to prevent or detect loss when it occurs or soon afterward.
  - Material accounting is defined as the use of statistical and accounting measures to maintain knowledge of the quantities of SNM present in each area of a facility.

- In our context safeguards would include security and material control and accounting.

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Safety/Safeguards Interface: What They Have In Common

- Many features support the mission of both disciplines:
  - Physical structures can protect against significant releases and adversary attack;
  - Access control can help minimalize exposure and protect against unauthorized access;
  - Activities conducted within a defined structure with access control helps material control and accounting protect against lost theft and diversion.
- Both disciplines typically utilize defense in depth:
  - Prevention
  - Detection
  - Mitigation and Restoration

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Safety/Safeguards Interface: How They Differ

- Safety focuses on unintended acts, including human errors;
  - Focused on preventing errors;
  - Risk identified through deterministic and probabilistic means.

- Safeguards:

  Security focuses on malicious acts. Material Control and Accounting may encounter deliberate acts and human errors.
  - Focused on deliberate acts;
  - Risk identified primarily through deterministic means.

- Information:
  - Safety – Information sharing is generally open and collaborative;
  - Safeguards – Information access is generally controlled.

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Why is it important?

- Safety has been a primary pillar of the NRC's regulatory programs;
- The current threat environment has created a renewed focus on safeguarding SNM;
- Safety and Safeguards serve the same ultimate purpose of protecting people and the environment from unintended radiation exposure;
- The goal for managing safety/safeguards interface should be to minimize the potential for adverse impact on safety or safeguards performance while implementing changes/upgrades to either discipline.

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Interface: Other perspectives

- IAEA: "THE INTERFACE BETWEEN SAFETY AND SECURITY AT NUCLEAR POWER PLANTS" (INSAG-24)
- NRC Safety Culture activities recognize the importance of safety/security interface (Federal Register Notice, June 14, 2011, Vol. 76 #114).
- 10 CFR 73.58: Safety/Security interface requirements for nuclear power reactors.
  - Regulatory Guide 5.74 "MANAGING THE SAFETY/SECURITY INTERFACE"

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Interface Problems

- Implementation of additional security features that resulted in a negative impact on Material Control and Accounting functions;
- Failure of a redundant sampling program for safety purposes was not reviewed for possible implications for accountability measurements;
- Failure of a material control and accounting measurement function prevented implementation of an item relied on for safety;
- A significant material control and accounting issue was not shared with security or safety disciplines nor were they involved in resolution efforts;
- For safety reasons the activation speed of a barrier was adjusted, it was not readily apparent that the effects on security had been evaluated.

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Safety Security Interface: What Might It Cover

- Safety: Those aspects of safety addressed by 10 CFR Part 70 Subpart H
- Safeguards: Aspects of security and material control and accounting as applied to your facility by 10 CFR Part 70, 73, and 74
- Interface: The boundary point at which there is a interconnection/interaction between safety/safeguards configurations, conditions and/or procedural implementation;
- No expectation of a development of entire new program:
- Utilize existing programs to the extent possible
  - (i.e. configuration control,
  - prior approval of operational, safety, safeguards, corrective action(s),
  - procedural review and approval).

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Questions:

- Is this the right approach?
- Are there other approaches we should consider?
- What would be the potential impacts?
- Other things we should consider?