

NIMMSS



2011

Users Annual Training Meeting

San Diego, CA  
May 17-19, 2011

Accountability

Accuracy

Compliance

# Input for NRC SNM Rule Making

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# Input for NRC SNM Rule Making

- Presentation in 2010 Users Annual Training Meeting
  - NRC rulemaking actions of 10 CFR Part 74 (MC&A of Special Nuclear Material)
- Asked for suggestions from the industry
- Opportunity for changes to Part 74

# Input for NRC SNM Rule Making

- Prompted feedback to NRC on 10CFR74.19(a)(1)
- 10CFR Part 74.19(a)(1)
  - “Each licensee shall keep records showing the receipt, inventory (including location and unique identity), acquisition, transfer, and disposal of **all** special nuclear material in its possession regardless of its origin or method of acquisition.”

# Input for NRC SNM Rule Making

- Current wording of 10CFR74.19(1)(a) has led it's requirements to be applied to ALL SNM
- This has led to the same requirements being applied to both large quantities of SNM (e.g. fuel) and minute quantities of SNM (e.g. fission chamber detectors)

# Input for NRC SNM Rule Making

- Input for rulemaking:
  - The quantity of SNM in an item should be used to determine the level of control required for the item
  - Items with higher amounts of SNM should be controlled more rigorously than item with low quantities of SNM
  - This would lead to a better use of industry (and regulatory) resources on items that have an associated risk
  - Large amounts of SNM have a plausible security risk
  - Minute quantities of SNM have a negligible security risk

# Input for NRC SNM Rule Making

- Precedence exists in the Code of Federal Regulations (CFR) in using a specific quantity of SNM in an item to apply a different level of control to the item
  - First, low quantities of SNM (less than 1 gram of various isotopes and less than 0.1 gram of Plutonium 238) can be transferred between Reporting Identification Symbol (RIS) facilities with no record of the transfer recorded to the NMMSS database

# Input for NRC SNM Rule Making

- Precedence in CFR (continued)
  - The shipment itself is excluded from the requirements of classification as fissile material as defined in 10CFR71.15(a)
    - If the item being transported contains 2 grams or less of fissile material, then the item is “exempt from classification as fissile material and from the fissile material package standards of Sec. 71.55 and 71.59”
  - Once the item (< 2g of fissile material) is irradiated, and no longer in use, it can be shipped out with the same limited restrictions (i.e. no special requirements due to it containing SNM)
    - Shipped as radioactive waste

# Input for NRC SNM Rule Making

- Regularly receive shipments of detectors with SNM that contains no hazardous material labels, placards and no special requirements for the SNM contained (other than a UN2911 label)

# Input for NRC SNM Rule Making

- Example:
  - Movable Incore Detectors contain 0.0044 grams of Uranium enriched to 93% of  $^{235}\text{U}$
  - 0.0041g  $^{235}\text{U}$
  - after irradiation, these items contain even lower quantities of SNM
  - Need more than 200 of these items for 1g of SNM

# Input for NRC SNM Rule Making

- This has created a perplexing situation in the commercial nuclear industry with respect to SNM
- An item with small quantities of SNM is received with no special requirements (due to SNM) and shipped out after irradiation with no special requirements (due to SNM)
- Yet, while the item is at a commercial nuclear facility it is treated with the same rigger as an item with significant quantities of SNM

# Input for NRC SNM Rule Making

- Consequences:
  - The process required to inventory irradiated items is resource intensive due to the radiation associated with the item, regardless of the amount of SNM in the item
  - The process to inventory irradiated items causes dose to individuals inventorying the item
  - Resources are required to continuously track the item (e.g. move sheets, ICA storage areas)

# Input for NRC SNM Rule Making

- Need to evaluate the benefits of tracking and inventorying items that contain milligrams (and sometimes micrograms) of SNM, when these items have little to no security risk associated with them
- This is where the rule change to 10CFR74 can better focus resources on SNM that does have a security risk

# Input for NRC SNM Rule Making

- Proposed Change to 10CFR74:
  - Control of an item with SNM be tied to the security risk the item poses
  - Determination of the security risk can be driven by the existing regulation
  - If the item contains a reportable amount of SNM (as per NUREG/BR-0006) then the item is subject to 10CFR74
  - If the item contains less than a reportable amount, it can be excluded from the requirements of 10CFR74

# Input for NRC SNM Rule Making

- The requirements to track items with less than a reportable amount of SNM is a topic that has been brought up repeatedly at NMMSS meetings
- This rule change can resolve issues that has led to confusion in the CFR about SNM
- This rule change can create an environment that is more secure by focusing resources on items that truly pose a risk

# Input for NRC SNM Rule Making

## ■ SOME EXAMPLES:

- Moveable Incore Detectors – 0.0041 g of  $^{235}\text{U}$
- Fixed Incore Detectors – 0.00082 g of  $^{235}\text{U}$
- Vessel Flux Detectors – 0.013 g – 0.0615 g of  $^{238}\text{U}$