

Enhanced Security for Special Nuclear Material

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Topics

- Background
- Status
- Discussion on Options
- Summarize
- Questions



Background

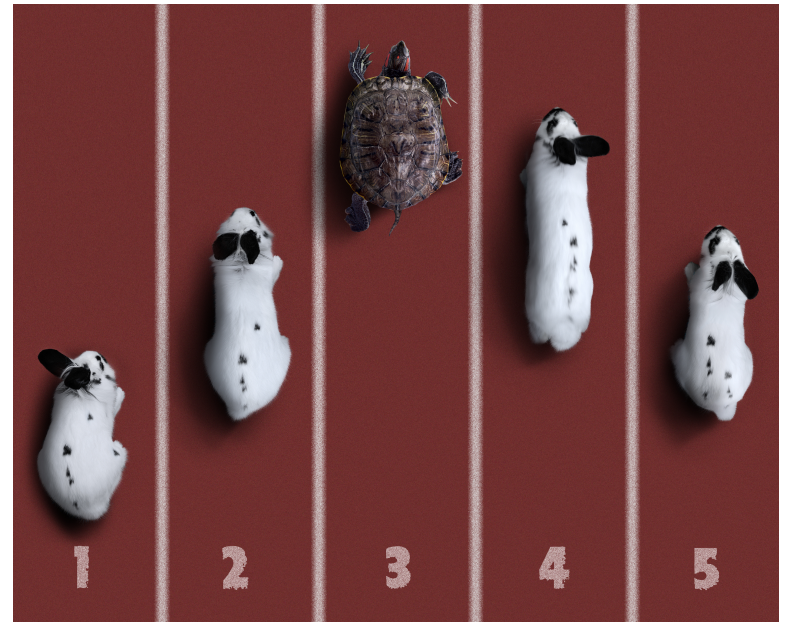
- August 2009 – [SECY-09-0123](#)
- January 2015 – Final regulatory basis ([ML14321A007](#)) and preliminary rule language
- April/June 2016 – Direction to suspend rulemaking activities and form a working group with DOE ([SRM-M160330](#) and [SRM-M160601](#))
- August 2017 – Final working group report (classified) to the Commission

Background

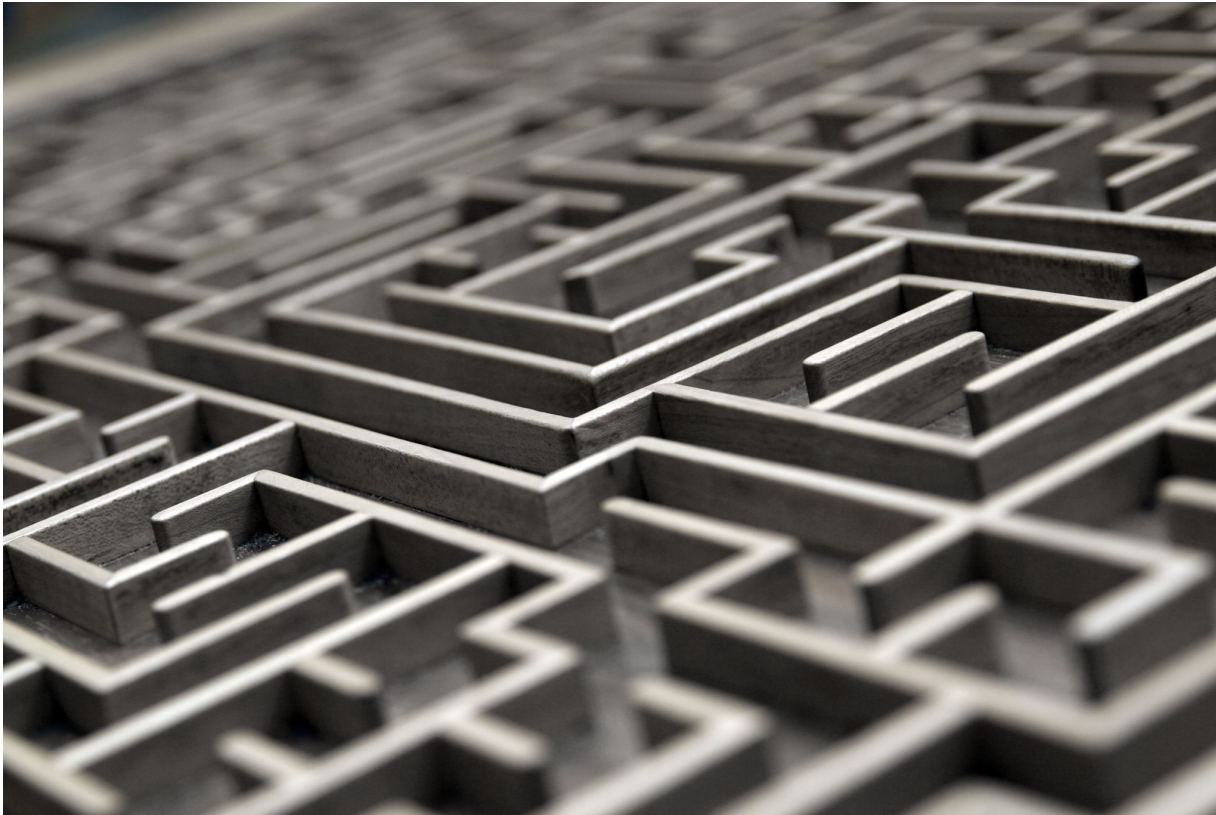
- August 2018 – SRM-COMKLS-18-0003, “Fiscal Year 2020 Budget to the Commission” – Direction to staff to complete expedited, limited-scope rulemaking, codify post-9/11 Orders
- In response to – SRM-COMKLS-18-0003 the staff submitted SECY-19-0095 in October 2019
 - Staff recommended to discontinue rulemaking
- Commission responded in August 2021 with [SRM-SECY-19-0095](#) – “Provide a notation paper with a full range of options for the scope of the rule on Enhanced Security of Special Nuclear Material and the potential regulatory, resource, and timing impacts of the options, per SRM.”

Status

- Extension/reset request was approved
- New due date to SECY – 10/2/23
- Steering Committee formed



What are the Options and What do They Mean?



Options

- Commission asked for more options than what staff previously submitted
- Includes recommendations from interagency working group (NRC, DOE, FBI)
- Not all options apply to every set of licensees
- Material Attractiveness



Why Rulemaking Options?

- Status Quo is a patchwork of Orders, CAL's, and Regulations
 - Not transparent
 - Potential waste of time and money for new applicants, negotiation of license conditions could be slow
- Application of requirements may not be consistent across licensee or applicant
- The existing regulation (10 CFR 73.67) does not consider risk insights and doesn't fully align with international guidance
 - proliferation risk identified

Objectives for Rulemaking Options

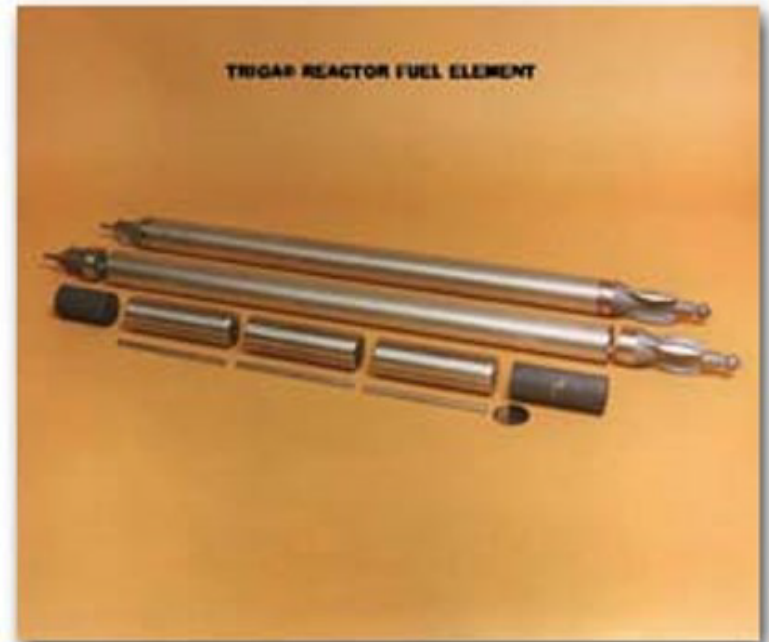
- Improve consistency and clarity
- Make generically applicable security requirements similar to those imposed on fuel cycle facilities by the security orders
- Consider risk insights, operational oversight and inspection activities, and international guidance
- Use a risk-informed and performance-based structure

Material Attractiveness

- Risk-informed concept
 - The purer the material the more attractive it is to adversaries
- Dilution Factor
 - The weight of uranium-235, uranium-233 and plutonium divided by the total weight of the SNM material and non-SNM materials which are not mechanically separable from the SNM) for solids
- Three Levels
 - Non-dilute
 - Moderately dilute
 - Highly dilute

Moderately Dilute

- Material with a dilution factor equal to or greater than 1 percent but less than 20 percent for uranium-235 and equal to or greater than 1 percent but less than 10 percent for uranium-233 and plutonium
- Certain non power reactor fuels, for example, can be considered moderately dilute SNM



Highly Dilute

- Material containing SNM but with a dilution factor less than 1 percent for uranium-235, uranium-233 and plutonium.
- HEU-contaminated processing waste, for which the recovery of SNM is uneconomic, is an example of highly dilute materials.

Options for Unirradiated SNM

- Status Quo
- Resume 2015 Rulemaking
- Update Regulations for Cat II only
- Revise Regulations for Cat I/II to be performance based; Revise Cat III regulations

Explanation of Options

- Cat II only
 - Material attractiveness
 - Non-dilute
 - Moderately dilute - fuel
- How can Cat I/II be revised to be performance based?
 - Category I doesn't apply to NPUF's
 - Focus on **what** must be achieved, rather than **how** it is achieved
 - perform timeline and tabletop analyses considering the specified adversary characteristics to demonstrate compliance with the protective strategy.

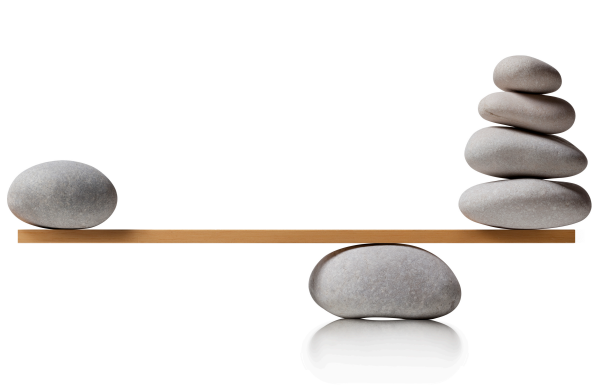
Options for Irradiated SNM

- Status Quo
- Revise regulations on physical protection of irradiated SNM, including SNF and HLW
- Revise regulations to include physical protection requirements for significant quantities of ANM
- Revise regulations to increase “self-protecting” radiation threshold above 1 Gy/hr

Explanation of Options

- Spent Nuclear Fuel (SNF)
 - Security plan to address physical security of transport, preplanning and coordination, advance notification
 - Applies for shipments of irradiated fuel
- Alternate Nuclear Material (ANM)
 - Primarily specific isotopes of Americium and Neptunium
 - DOE requires protection of these materials
- Increase “self-protecting” threshold

Options Compared to Existing Site Security



- 2015 Regulatory Basis
 - Not rule text, but is publicly available
 - Similar to CAL's and SECY for Moly production facilities
- Compare with existing Regulations, Orders, CAL's and License Conditions
- Identify what is already part of the site security plans and procedures

Example of a Comparison

Excerpt from 2015 Reg Basis

- CAS/SAS two-way redundant communication with LLEA
- Continuous communication between CAS and on-site and off-site response force
- Non-portable equipment on UPS

10 CFR 73.67, CAL, and/or Security Plan

- Provide a communication capability between the security organization and appropriate response force
- Two-way redundant communication
- One central location where alarms are sent and calls for request originate
- Uninterruptable

Example of a Comparison

Excerpt from 2015 Reg Basis

- Promptly detect attempts to remove of SNM and notify local law enforcement agencies to allow recovery of SNM

10 CFR 73.67, CAL, and/or Security Plan

- Monitor with an intrusion alarm or other device or procedure
- Promptly/Timely detect intrusion
- Provide a communication capability between the security organization and appropriate response force

Summary

- Not all options are applicable to NPUF's
- All options and draft security measures are pre-decisional and are subject to change.
- Most options that involve rulemaking may result in little or no changes to security posture at existing facilities
- Update to regulation options address:
 - The need for transparency in how the NRC regulates
 - Consistency in implementation
 - Risk-informing regulations

Questions?

