

October 21, 2014

MEMORANDUM TO: William Gott, Chief
Fuel Cycle Transportation Security Branch
Division of Security Policy
Office of Nuclear Security and Incident Response

FROM: Alex Sapountzis, Senior Program Manager /RA/
Fuel Cycle Transportation Security Branch
Division of Security Policy
Office of Nuclear Security and Incident Response

SUBJECT: SUMMARY OF SEPTEMBER 17, 2014, PUBLIC MEETING
BETWEEN U.S. NUCLEAR REGULATORY COMMISSION AND
RESEARCH AND TEST REACTOR STAKEHOLDERS TO
DISCUSS THE DRAFT REGULATORY BASIS FOR THE TITLE
10 OF THE *CODE OF FEDERAL REGULATIONS* FOR THE
PART 73 RULEMAKING EFFORT

On September 17, 2014, the United States Nuclear Regulatory Commission (NRC) hosted a public meeting. The purpose of this public meeting was to address questions (see Enclosure 3) and obtain comments on the draft regulatory basis specific to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 73 from Research and Test Reactor (RTR) licensees. The NRC's draft regulatory basis is available in the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML14113A468. This meeting was transcribed and made available in ADAMS under Accession No. ML14280A195.

Changing and Increasing Security Regulations for RTRs

An RTR licensee clarified that 104.c of the Atomic Energy Act, states that the NRC should impose minimum security regulations for RTR licensees. The NRC stated that this is the goal of 10 CFR Part 73, and that the NRC is reviewing the security measures for RTRs based on the form of material possessed at the facility. The NRC also stated that RTR licensees have committed to performing most of the proposed security features found in the draft regulatory basis through confirmatory action letters (CALs). The NRC stated that the regulations should reflect the RTRs current security operations for the most part since these licensees are doing an adequate job in protecting special nuclear material (SNM). The NRC inferred that the basis for changing 10 CFR Part 73 is to move away from regulations that are based on facility type to more of a material based regulation that focuses on the form of the SNM that would need to be protected regardless of its location.

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Next, the discussions were focused on how RTRs were included in this material attractiveness effort. The NRC inferred that in SECY-09-0123, it referred to RTRs in considering a material attractiveness approach and the staff is fully aware of the Atomic Energy Act exemption and limiting impacts to RTR licensees to continue their research activities. Furthermore, the NRC stated that using a material attractiveness approach will provide a defensible approach to justify to other domestic and international stakeholders that the security features prescribed for RTRs are adequate. The NRC further elaborated that part of this effort is focused on capturing the security orders issued to fuel cycle facilities and the CALs issued to RTRs into the regulations.

Self-Protection

The NRC described the basis for changing the self-protecting dose rate of 100 R/hr. The NRC is considering raising the dose rate to 6,000 R/hr since at a dose of about 6,000 R over a short period, the individual may be incapacitated or may result in death. At 6,000 R/hr, the NRC stated it is confident that an adversary would not be able to steal the spent fuel from a pool. The NRC in this effort is attempting to identify which material is a theft and diversion target and which material is a radiological sabotage target in order not to have the burden of some facilities having to protect against both when its not warranted.

Defining SNM

The NRC acknowledged there were some inconsistencies with the definition of SNM that need to be corrected. With respect to weight percent, the NRC is now using a new term in the draft regulatory basis called dilution factor. The dilution factor is defined as the weight of U-235, U-233 or Pu-239, and so forth divided by the weight of the matrix material. Another related comment from a RTR licensee was on what is meant by mechanically separable. The NRC inferred that mechanically separable means you could easily remove or separate the SNM from the matrix through for example a one step process.

Plutonium-Beryllium Neutron Sources

The draft regulatory basis discussed the elimination of the current exemption for PuBe sources. PuBe sources are to be considered a plutonium source. The NRC explained that Category III facilities are those that possess greater than 15 grams of plutonium and facilities that possess less than 15 grams of plutonium are below Category III SNM and no protection is required. The NRC clarified that the draft regulatory basis is attempting to prescribe the physical protection features for small quantities of PuBe sources that are under 16 curies or under 250 grams.

Central and Secondary Alarm Stations

The next sets of discussions entailed central alarm stations (CAS) and secondary alarm stations (SAS) and if they are required at RTRs facilities. The NRC stated that it is rethinking the need to have a SAS at RTR facilities while a CAS would be required. The NRC inferred that the CAS would be located at the campus police station to assess any alarms to determine the appropriate response such as calling local law enforcement. The NRC further suggested that details regarding the CAS and involving local law enforcement will be in guidance documents.

Safety/Security Interface

The NRC elaborated in these discussions that it expects that when there is a change related to safety or security that it the change goes through a process to evaluate if the change could impact either safety or security. With respect to 10 CFR 50.59 changes, the NRC agreed with the RTR interpretation that the RTRs need to maintain the review or screening process to prove it was performed such as for security plan changes.

Please direct any inquires to Alex Sapountzis at 301-287-3660 or Alexander.Sapountzis@nrc.gov.

Enclosures:

1. Agenda for Public Meeting to Discuss the Regulatory Basis for Enhanced Security at Fuel Cycle Facilities; Special Nuclear Material Transportations; Security Force Fatigue at Nuclear Facilities
2. Attendance List
3. Research and Test Reactor Items for Clarification in Proposed 10 CFR Part 73 Changes

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U.S. NUCLEAR REGULATORY COMMISSION (NRC)
Agenda for Public Meeting on the Regulatory Basis for 10 CFR Part 73 Regarding Enhanced Security

September 17, 2014
12:00 P.M. – 4:00 P.M.

Teleconference: 888-790-9143; pass code: 7485919#
Webinar link: <https://www1.gotomeeting.com/register/277038424>

PURPOSE: To provide an opportunity the Research and Test Reactors (RTRs) to ask questions and comment on the NRC's draft regulatory basis to update security regulations within Title 10 of the *Code of Federal Regulations* (10 CFR) Part 73.

Note: This is a Category 2 meeting. The public will be provided the opportunity to participate in this meeting at designated points identified during the meeting by the NRC.

September 17 2014 (times are approximate)

12:00 P.M.	Opening remarks, introduction and meeting focus (NRC)
12:15 P.M.	Interacting/answering RTR questions related to the draft regulatory basis (NRC & RTRs)
2:00 P.M.	Break
3:15 P.M.	Comments/Questions to NRC Staff on the Draft Regulatory Basis (All)
3:45 P.M.	Closing remarks (NRC)
4:00 P.M.	Adjournment

Attendance List

On September 17, 2014, the NRC met with Research and Test Reactor stakeholders to obtain comments on the NRC's efforts to develop a draft regulatory basis to update 10 CFR Part 73.

Name	Organization
John Adams	Nuclear Regulatory Commission/Nuclear Reactor Regulations
Leo Bobeck	University of Massachusetts Law
Kristi Branch	Pacific Northwest National Laboratory
Janet Bryant	Pacific Northwest National Laboratory
Andy Carrera	Nuclear Regulatory Commission/Federal State Materials and Environmental Management Programs
Daniel Cronin	University of Florida
Michelle DeSouza	Nuclear Regulatory Commission/Nuclear Reactor Regulations
Devon Englemen	SHINE Medical Technologies
Les Foyto	University of Missouri
Bill Gott	Nuclear Regulatory Commission/Nuclear Security and Incident Response
Larry Harris	Nuclear Regulatory Commission/Nuclear Security and Incident Response
Tim Harris	Nuclear Regulatory Commission/Nuclear Security and Incident Response
Merri Horn	Nuclear Regulatory Commission/Federal State Materials and Environmental Management Programs
Menna Khanna	Nuclear Regulatory Commission/Nuclear Reactor Regulations
Melinda Krahenbuhl	Reed College of Oregon
Timothy Koeth	University of Maryland
Edward Lau	Massachusetts Institute of Technology
David McIntyre	Nuclear Regulatory Commission/Public Affairs
John Morgoven	Neal R. Gross
John Nakoski	Nuclear Regulatory Commission/Research
Tom Newton	Massachusetts Institute of Technology
Sean O'Kelly	National Institute of Standards and Technology
Steve Reese	Oregon State University
Beth Reed	Nuclear Regulatory Commission/Nuclear Reactor Regulations
Joe Rivers	Nuclear Regulatory Commission/Nuclear Security and Incident Response
Jonathan Rund	Nuclear Energy Institute
Michelle Romano	Nuclear Regulatory Commission/Region II
Alex Sapountzis	Nuclear Regulatory Commission/Nuclear Security and Incident Response
George Smith	Nuclear Regulatory Commission/Nuclear Security and Incident Response
Al Tardiff	Nuclear Regulatory Commission/Nuclear Security and Incident Response
Mark Trump	Pennsylvania State University
Mitzi Young	Nuclear Regulatory Commission/General Counsel
Tom Young	Nuclear Regulatory Commission/Federal State Materials and Environmental Management Programs

Research and Test Reactor Items for Clarification in Proposed 10 CFR Part 73 Changes

- A rational explanation of why changes are necessary... to protect from theft or in-place sabotage? The main argument presented is it is a good idea to make regulations more consistent (that is not a part 104.c rational reason) and eliminate security orders (which most RTRs do not have). The document says (several times) that the current protections at RTRs are adequate. Therefore what is the basis for increased regulation?
- Definition of special nuclear material in the draft basis vs. everywhere else in the regulations
- Use of the unit "weight percent" (the draft basis has weight percent special nuclear material, which normally means wt% uranium not wt% U-235)
- Regulatory impact on PuBe sources
- Please address the concept of aggregate qualities as it applies to the proposed regulation and security. I.e. what protection is required for a single Pu foil when separated from the Pu inventory.
- Method of calculation of mass of U-235 and other SNM
- CAS and SAS in context of RTRs
- Difference between immediate, prompt and timely detection in context of RTRs
- Redundant communications in the context of RTRs (hard line vs radio? Radio vs cell? Encrypted vs non-encrypted?)
- Changes to 50.59 in the context of RTRs
- Page 27 Please explain the lead-in on operating experience which states it is RTR experience but then only quotes power reactor problems. This appears to be part of a false justification process used in more than one area of the document.
- Re-emphasis that table 4-1 is a meaningless intermediate step that was abandoned. Explain the new requirements (preferably with a table) outlined in page 35.
- Please explain the new safety/security interface (page 59) requirements/expectations and how they apply to RTRs. Such processes and training likely do not exist at our facilities.
- Sections 1 and 2 - Non-power reactor facilities are not within the scope of COMSECY-04-0037 or SRM-COMSECY-04-0037. Please provide the background, regulatory history, and reference to Commission direction that is driving the inclusion of RTRs within the scope of this effort.
- Section 2.1, paragraph 1 – Previous regulatory precedence was intended to "...exclude those licensed facilities which used small research quantities of SNM". Please explain why it is no longer in the public interest to exclude these licensed facilities. Please evaluate the impact of reduced SNM related research and explain why this is necessary in order to better protect the health and safety of the public.
- Section 3.2, top of page 16 – Please describe the process that will be used to ensure consistency and compliance with AEA Section 104c under this rulemaking effort. What role (if any) does the licensee play in the NRCs 104c compliance process?
- Section 3.3, paragraph 2 - What "new vulnerabilities and risks" have been identified? What actions, if any, are being taken to address these new vulnerabilities and risks today? Have the affected licensees been formally notified of these new vulnerabilities and risks? Are these "new vulnerabilities and risks" associated with both HEU and LEU, or only HEU?
- Section 3.3, paragraph 2 - All current RTRs fall into the "moderately dilute" category under the draft proposal. Given this, explain how the material attractiveness approach will result in more risk-informed regulation for RTR licensees. How will this approach result in "rightsizing" of physical protection regulations for RTR licensees?

- Section 3.3, paragraph 2 – The large majority of current Class 104c licensees fall into proposed Category III. Material attractiveness / dilution level is not considered in proposed Cat III. Given this, explain how the proposed changes result in more risk-informed regulation for Cat III RTR licensees. How will the proposed changes result in “rightsizing” of physical protection regulations for Cat III RTR licensees?
- Section 8.2, paragraph 1 – Please provide examples illustrating how current RTR “overall burden would be reduced”. Please provide examples where consideration of material attractiveness would be “especially” advantageous for current non-power reactor licensees.
- General Comment - In addition to fully describing the proposed regulatory changes, the NRC should submit a technical basis for each proposed change. This basis should include an analysis or assessment that demonstrates how each proposed change provides a level of protection (public health and safety) superior to that which already exists in the current regulations.