



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 2, 2017

MEMORANDUM TO: Victor M. McCree
Executive Director for Operations

FROM: Edwin M. Hackett, Chairman */RA/*
Committee to Review Generic Requirements

SUBJECT: COMMITTEE TO REVIEW GENERIC REQUIREMENTS:
MINUTES OF MEETINGS NUMBER 442 AND 444

Following meetings number 442 and 444, the CRGR endorsed the Proposed Rule and Draft Regulatory Guide for Cyber Security at Fuel-Cycle Facilities (FCFs) for formal public comment.

The CRGR's two primary comments are to: (1) maintain focus on ensuring and communicating that the cost justifications are based on the quantitative assessments that were performed as opposed to qualitative factors and (2) provide appropriate clarification of the regulatory bases for FCFs licensed under Part 40 since they are not subject to backfitting protections.

BACKGROUND

By memorandum of May 24, 2017 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML17131A355), the Office of Nuclear Materials Safety and Safeguards (NMSS) requested that the Committee to Review Generic Requirements (CRGR, the Committee) review and endorse "Proposed Rule – Cyber Security at Fuel Cycle Facilities (RIN 3150-AJ64; NRC-2015-0179)," May 1, 2017 (ML17145A327). With its request, the staff provided to the Committee a discussion of regulatory, legal, and policy implications related to the backfit evaluation supporting the proposed rule.

On June 27 and July 12, 2017, the CRGR held meetings number 442 and 444 with members of the Cyber Security Rulemaking Working Group (WG) to discuss the backfit justification and evaluation included in the proposed rulemaking package. The WG is led by the NMSS Divisions of Material Safety, State, Tribal, and Rulemaking Programs (MSTR) (Cardelia Maupin and Greg Trussell) and Division of Fuel Cycle Safety, Safeguards and Environmental Review (FSCE) (James Downs, Matt Bartlett, Suzanne Ani, and, Joe Deucher). In addition, the WG members include staff members from the Office of the General Counsel (OGC) (Norman St. Armor, James Maltese, and Adam Gendelman), and the Office of Nuclear Security and Incident Response (NSIR) (Charity Pantalo and Brad Bergman). The staff's presentation materials are located in ADAMS Accession No. ML17178A305. Enclosures 1 and 2 provide the list of meeting attendees. Enclosure 3 provides a listing of the references made available to the CRGR members for review

CONTACT: Les Cupidon, RES
301-415-0956

During the meeting, the CRGR focused its discussion with the staff primarily on: (1) gaining an understanding of the cybersecurity threat posed to fuel cycle facilities related to safety and security, (2) the assumptions related to the backfitting cost and benefit estimates, (3) the regulatory basis for imposing a backfit and rule on fuel cycle facilities, and (4) the CRGR review responsibilities under its charter¹.

Summary of Proposed Rulemaking and Backfit Evaluation

By memorandum dated March 24, 2015, Staff Requirements Memo [SRM]-SECY-14-0147, "Cyber Security for Fuel Cycle Facilities" (ML15083A175), the Commission directed the staff to proceed with the proposed rulemaking for cyber security at FCFs as a high-priority rulemaking. The FCFs licensed under 10 CFR Part 70 to possess greater than a critical mass of special nuclear material (SNM) or licensed under 10 CFR 40 for source material for the use in conversion and deconversion facilities, would be subject to the proposed requirements.

The proposed rule would cover conversion, enrichment, and fuel fabrication facilities. The proposed requirements provide a graded approach based on potential consequences unique to their respective facilities. The grading is broad as determined by the following three facility categories that are licensed under 10 CFR Part 70: Category I facilities are licensed to possess strategic special nuclear material, Category II facilities (none at present) are licensed to possess moderate strategic special nuclear material, Category III facilities are licensed to possess low strategic special nuclear material. In addition, the proposed rule would include uranium hexafluoride conversion or deconversion facility licensed under 10 CFR Part 40.

Specifically, the proposed rule would require:

- FCFs to establish, implement, and maintain a cyber-security program designed to promote common defense and security and to provide reasonable assurance that the public health and safety remain adequately protected against the evolving risk of cyber attack.
- FCFs to establish cyber security programs able to detect, protect against, and respond to a cyber attack capable of causing one or more of the consequences of concern related to NRC requirements in 10 CFR Parts 70, 73, 74, 95 and Part 40 for conversion/deconversion.

The Backfit Evaluation was developed to assess whether imposing new requirements on the existing FCFs was justified. The proposed rule involves backfits for Part 70 FCFs, but no backfit provisions are specified in Part 40. The backfit analysis was developed consistent with the Commission direction on backfit in SRM-COMSECY-16-0020 (ML16334A62 and ML16355A258). The adequate protection exception to backfitting protection applies to portions of the rule while cost justifications, based upon a substantial increase in overall protection of public health and safety, are provided for the remaining portions.

¹ The CRGR charter can be found under ADAMS No. ML110620618.

June 27, 2017 - Meeting Minutes

Discussion of CRGR Introductory Remarks

- During introductions, CRGR members noted that this was the first review of a proposed rulemaking completed by the committee since 2006². CRGR role in reviewing rulemakings was eliminated by SECY-07-134, "Evaluation of the Overall Effectiveness of the Rulemaking Process Improvement Implementation Plan," dated October 25, 2017³. Subsequently, in Spring 2016, the CRGR began to pilot criteria to determine proposed rulemaking activities that would benefit from review. During the meeting, the CRGR members asked questions on the proposed rulemaking, discussed clarifications on the CRGR charter, and asked rulemaking process questions.

Discussion of Safety and Security Considerations Used to Justify the Propose Rule

- The staff discussed how cyber-security threats are constant and evolving. Cyber-security attacks and system testing are occurring constantly. Moreover, the threat posed by cyber security is fundamentally different than physical security.
- The staff stated that the scope of the rule should only impact a very limited number of assets that affect safety and security systems.
- The staff stated most licensees are likely to choose alternative means to demonstrate safety and security vs. implementing new cyber protections.
- The staff discussed that for prior physical security rulemakings, it was assumed that the event would occur (event probability = one).
- The staff relied on the National Institute of Standards and Technology (NIST) Cyber Security Standard regarding risk-management principles. The CRGR members suggested that the staff harmonize the NIST principles with NRC terminology and definitions for risk-informed approaches and methods to avoid confusion.

Discussion of Backfitting Cost Considerations

- CRGR members sought to identify industry, policy, and cost concerns. They questioned the rationale of why the level of protection for cyber and physical security are different.
- CRGR members sought clarification for the cost differences between the NRC and Industry cost estimates. The staff stated they believed that licensee cost estimates included a greater number of assets and included higher staffing levels than the NRC estimated. The staff stated that they believed licensees have not been sufficiently open with providing details of their cost estimates to understand the differences in greater detail. A CRGR member discussed that licensees are likely to conservatively implement the rule at a higher level than is required.
- A CRGR member questioned the staff assumption that no new fuel-cycle facilities will be built in the next 25 years. The staff stated that it was the best assumption based on available information and noted that the future applicants are not afforded backfit protection.
- A CRGR member asked for clarification on how or what the future threat environment may look like. The staff stated that it is difficult to forecast and is likely to continue to evolve.
- CRGR members sought clarification for how industry voluntary initiatives were credited in the backfit evaluation. The staff stated that no credit was given in the backfit evaluations

² Most recent CRGR rulemaking review dated October 23, 2006 (ADAMS No. ML062990050) on the Final Rule, 10 CFR Part 73.1, "Design Basis Threat."

³ SECY-07-0134 and SRM-SECY-07-0134 can be found under ADAMS Nos. ML071780644 and ML072980427, respectively.

because either the benefits were limited or they were already required of the licensees. The staff provided the specific example that unclassified systems are required to have a fairly high level of protection. CRGR members asked the group to enhance the discussion on voluntary initiatives.

Discussion of Backfitting Regulatory Requirements

- CRGR members asked for a better understanding of how the backfit is allocated between enhancements that are required for adequate protection and those that are considered cost beneficial (this was also discussed during the July 12, 2017 meeting).

Discussion of CRGR Charter and Responsibilities in the Review of Rulemaking

- CRGR members discussed their charter and the committee's role in the reviewing rulemaking. While the primary role of the CRGR is backfitting, CRGR members often provide suggestions to the staff regarding correctness and clarity.

July 12, 2017 - Meeting Minutes

Discussion of Capturing Costs of Evolving Cyber-Security Threats

- CRGR members challenged the staff if they had considered the cost impacts the continuously evolving cyber-security threat. The staff assumed that cyber threats will evolve with technology, and protective strategies will adapt accordingly. Costs associated with these revisions are assumed to be high to support the annual review update and configuration control of cyber assets. The staff noted that their experience with the reactor cyber-security rule is that, since 2010, the performance-based guidance has not required change to address new cyber vulnerabilities.
- CRGR members commented that the staff should be explicit in the proposed rule and Commission SECY that costs include and assume the cyber-security protection scope may change to address creditable threats.

Discussion on Cost Justification and Threshold Analysis

- A CRGR member noted that it is inappropriate to consider costs for measures needed for adequate protection. The staff clarified that the values were for illustration and comparison only.
- The staff discussed the maximum impact event included in the licensee facility Integrated Safety Assessment.

Discussion of Quantitative and Qualitative Factors

- The CRGR members recommended that the staff base its recommendation solely on the quantitative assessment. A CRGR member observed that the qualitative factors appear to double count benefits and are not tied to health and safety. However, the qualitative factors omitted the unique strategic and economic importance of fuel-cycle facilities to the Nation. The staff noted that Category III licensees expressed concerns that they are different from Category 1 facilities and should be treated in a graded manner.
- The staff clarified that safety concerns were required to be cost justified and security concerns were considered adequate protection.
- The staff clarified that the present value of a statistical life of \$9 million was used in the cost benefit analysis. In addition, it was noted that licensee personnel are included in the cost benefit analysis for fuel-cycle facilities unlike reactor facilities.

Discussion of Differences of Cyber and Physical Security

- The CRGR members questioned the staff rationale for why the level of protection for cyber and physical security are different. The staff responded that cyber threats can involve anonymous organizations, can be repeated and, unlike physical security threats, can remain a latent vulnerability without detection.

CRGR Concluding Decision and Comments

- The CRGR endorsed the Proposed Rule and Draft Regulatory Guide for Cyber Security at Fuel-Cycle Facilities to go forward for formal public comment.
- The CRGR members noted that the review package, which includes the rulemaking package, backfit analysis, and guidance, was comprehensive and thorough. The CRGR members believed that the staff's graded approach and rationale supported thoughtful decisionmaking and would facilitate development of the final rule.
- The CRGR provided two primary comments:
 - (1) Maintain focus on ensuring and communicating that the cost justifications are based on the quantitative assessments that were performed as opposed to qualitative factors and
 - (2) Provide appropriate clarification of the regulatory bases for FCFs licensed under Part 40 since they are not subject to backfitting protections.

Enclosures:

1. List of Attendees for Meeting No. 442
2. List of Attendees for Meeting No. 444
3. List of References

CRGR MEETING No. 442
LIST OF ATTENDEES
(June 27, 2017)

CRGR Members

K. Steven West, Chairman
Edwin M. Hackett, RES
Anne T. Boland, RES
Brian J. McDermott, NRR
Scott W. Moore, NMSS
John D. Monninger, NRO (for Vonna Ordaz, NRO)
Edward L. Williamson, OGC
Leonard D. Wert, RII

Les R. Cupidon, CRGR Staff

NRC Staff

Charity Pantalo, NSIR/DPCP/CSB
Suzanne M. Ani, NMSS/FCSE
Joseph H. Deucher, ASLBP for NMSS/FCSE
Samantha Crane, OCM/KLS
Nicholas J. DiFrancesco, RES/FO
Mary F. Woods, OGC
Alan L. Frazier, OCM/KLS
Maxwell C. Smith, OCM/KLS
James W. Andersen, NSIR/DPCP
R. Fred Schofer, NRR/DPR
Howard A. Benowitz, OGC
Kristina Z. Jamgochian, NSIR
Jacob Zimmerman, NMSS/FCSE/ECB
Kimyata Morgan-Butter, NMSS/FCSE/RPMB
James R. Downs, NMSS/FCSE/ECB
Matthew A. Bartlett, NMSS/FCSE/ECB
James L. Maltese, OGC
Adam S. Gendelman, OGC/RAR/DAGC
Tracey L. Stokes, OCM/SGB
Catherine E. Kanatas, OCM/KLS
Daniel S. Collins, NMSS/MSTR
Craig G. Erlanger, NMSS
Lisa G. London, OCM/JMB
Geary S. Mizuno, OGC/RMR

Enclosure 1

CRGR MEETING No. 444
LIST OF ATTENDEES
(July 12, 2017)

CRGR Members

Edwin M. Hackett, Chairman
Darrell J Roberts, NSIR
Brian J. McDermott, NRR
Scott W. Moore, NMSS
John D. Monninger, NRO (for Vonna Ordaz, NRO)
Edward L. Williamson, OGC
Leonard D. Wert, RII

Les R. Cupidon, CRGR Staff

NRC Staff

Charity Pantalo, NSIR/DPCP/CSB
Suzanne Ani, NMSS/FCSE
Joseph H. Deucher, ASLBP for NMSS/FCSE
Samantha Crane, OCM/KLS
Nicholas J. DiFrancesco, RES/FO
Alan L. Frazier, OCM/KLS
R. Fred Schoffer, NRR/DPR
Jacob Zimmerman, NMSS/FCSE/ECB
Kimyata Morgan-Butter, NMSS/FCSE/RPMB
Matthew A. Bartlett, NMSS/FCSE/ECB
James L. Maltese, OGC
Adam S. Gendelman, OGC/RAR/DAGC
Daniel S. Collins, NMSS/MSTR
Craig G. Erlanger, NMSS
Lisa G. London, OCM/JMB
Meena Khanna, NRR/PRMB
Gregory R. Trussell, NMSS/MSTR/RPMB
Cardelia Maupin, NMSS/MSTR/RPMB
Eric M. Thomas, NRR/DIRS/IOEB
James D. Beardsley, NSIR/DPCP/CSB

Enclosure 2

CRGR MEETING Nos. 442 and 444 LIST OF REFERENCES

U.S. Nuclear Regulatory Commission, Meeting Slides for CRGR on Fuel-Cycle Cyber-Security Rulemaking, June 27, 2017 (ADAMS Accession No. ML17178A305, [non-public])

Advisory Committee on Reactor Safety, Letter on Draft Proposed Rulemaking 10 CFR 73.53, "Requirements for Cyber Security at Nuclear Fuel-Cycle Facilities," Related Parts 70, 73, and 40, and Draft Regulatory Guide DG-5062, "Cyber Security Programs for Nuclear Fuel-Cycle Facilities," June 21, 2017 (ML17171A209)

Nuclear Energy Institute, Letter on "ACRS Review of the Proposed Fuel-Cycle Facility Cyber-Security Rulemaking NRC Docket: NRC-2015-0179," June 8, 2017 letter (ML17166A15)

U.S. Nuclear Regulatory Commission, "Proposed Rule – Cyber Security at Fuel-Cycle Facilities (RIN 3150-AJ64; NRC-2015-0179)," May 1, 2017 (ML17145A327).

U.S. Nuclear Regulatory Commission, Draft Regulatory Guide DG-5062, "Cyber-Security Programs for Nuclear Fuel-Cycle Facilities," May 2017 (ML17145A340).

U.S. Nuclear Regulatory Commission, *Federal Register* Notice, "10 CFR Parts 40, 70, and 73 [NRC-2015-0179] RIN 3150-AJ64, Cyber Security at Fuel-Cycle Facilities," May 1, 2017 (ML17145A342).

U.S. Nuclear Regulatory Commission, SRM-SECY-14-0147, "Staff Requirements – SECY-14-0147 – Cyber Security for Fuel-Cycle Facilities," March 14, 2015 (ML15083A175).

U.S. Nuclear Regulatory Commission, "Draft Backfit Analysis and Documented Evaluation for Proposed Rule: Cyber Security at Fuel-Cycle Facilities (10 CFR 73.53)," May 1, 2017 (ML17145A330).

U.S. Nuclear Regulatory Commission, "Draft Regulatory Analysis for Proposed Rule: Cyber Security at Fuel-Cycle Facilities (10 CFR Part 73)," May 1, 2017 (ML17145A336).

U.S. Nuclear Regulatory Commission, "Draft Environmental Assessment and Finding of No Significant Impact for the Proposed Rule: Cyber Security at Fuel-Cycle Facilities," May 1, 2017 (ML17145A333).

Nuclear Energy Institute, "ACRS Subcommittee Review of the Proposed Fuel-Cycle Facility Cyber Security Rulemaking," October 26, 2016 (ML17166A092).

SUBJECT: COMMITTEE TO REVIEW GENERIC REQUIREMENTS: MINUTES OF MEETINGS
NUMBER 442 AND 444

DISTRIBUTION:

Chairman Svinicki
 Commissioner Baran
 Commissioner Burns
 Annette L. Vietti-Cook, SECY
 Victor M. McCree, EDO
 Michael R. Johnson, DEDR
 Fred D. Brown, DEDM
 Robert J. Lewis, AO
 Andrea D. Veil, ACRS
 Marc L. Dapas, NMSS
 Scott W. Moore, NMSS
 Vonna L. Ordaz, NRO
 John D. Monninger, NRO
 Brian E. Holian, NRR
 Brian J. McDermott, NRR
 K. Steven West, NSIR
 Darrell J. Roberts, NSIR
 Margaret M. Doane, OGC
 Edward L. Williamson, OGC
 Hubert T. Bell, OIG
 David A. Castelveter, OPA
 Eugene Dacus, OCA
 Patricia K. Holahan, OE
 F. Paul Peduzzi, OE
 Michael F. Weber, RES
 Edwin M. Hackett, RES
 Les R. Cupidon, RES
 Daniel H. Dorman, Region I
 Catherine Haney, Region II
 Leonard D. Wert, Region II
 Cindy D. Pederson, Region III
 Kriss M. Kennedy, Region IV
 CRGR r/f

ADAMS Accession No.: ML17200A101

OFFICE	RES/TA	CRGR	Tech Editor	CRGR
NAME	N. DiFrancesco	L. Cupidon	J. Zabel	E. Hackett
DATE	07/13/17	07/26/17	07/18/2017	08/02/2017

OFFICIAL RECORD COPY