



April 27, 2022

Subject: "Preliminary Proposed Rule Language Part 73 of Title 10 of the Code of Federal Regulations (10 CFR)" (RIN-3150-AK19; NRC-2017-0227)

Dear Chairman Hanson and Commissioners Baran and Wright,

We write to express concern regarding the NRC staff's regulatory posture in proposed language for a limited-scope change to Title 10 *Code of Federal Regulations* (CFR) Part 73.55, "Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage," and a proposed conforming change to § 50.54, "Conditions of licenses." Our concerns and recommended actions to correct proposed and existing rule language are discussed in detail herein.

DISCUSSION

In short, the proposed change perpetuates confusion, a long-standing misapplication of "**high** assurance of protection" for physical security, and regulatory overreach beyond NRC's legal mandate for nuclear security, which is no different than its mandate for safety: to provide **reasonable** assurance of **adequate** protection of public health and safety. The proposed rule language violates the Plain Writing Act of 2010, defies prior Commission direction, disregards the "NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness" (NRC's Vision and Strategy)¹, ventures beyond the regulatory basis for the limited-scope rule change, and contravenes the NRC's Principles of Good Regulation.

The phrase "**high** assurance of protection" should be replaced with "**reasonable** assurance of **adequate** protection" in the proposed new rule language for § 73.55. To prevent recurrence of a high assurance standard for nuclear security in new regulations, the Commission should order NRC staff to replace the term "high assurance" with "reasonable assurance" throughout 10 CFR Part 73. Corrections to the current rule are surgical, and justification for the corrections exists in prior Commission direction. The Commission should similarly direct NRC staff to incorporate conforming changes in all associated program, policy and guidance documents and procedures.

I. "High Assurance of Protection" is Not Plain Writing

The limited-scope rule change proposes language for § 73.55(s)(2)(ii)(A)(4) and includes the following provision:

The licensee must fully describe in the safeguards contingency plan the role that law enforcement or other offsite responders will play in the licensee's protective strategy when relied upon to fulfill the interdiction and neutralization capabilities required by § 73.55(b)(3)(i). The description must provide sufficient detail to enable the NRC to

¹ NRC ADAMS No. ML16356A670, Executive Summary

*determine that the licensee’s physical protection program provides **high** [emphasis added] assurance of protection² against threats up to and including the DBT of radiological sabotage.³*

The insertion of a “high assurance of protection” standard implies a level of assurance that exceeds “reasonable assurance.” *Reasonable* is defined as “not extreme or excessive; moderate or fair.”⁴ By contrast, *high* is defined as “of greater degree, amount, cost, value, or content than average, usual, or expected.”⁵ Stated differently, *high* implies a greater degree of assurance than *reasonable*. The Commission has made it crystal clear that this is not the intent of the regulations in 10 CFR Part 73 (discussed in Section III of this letter).

Since the terms “reasonable assurance” and “high assurance” are not equivalent in plain language, commingling these divergent assurance standards in regulations creates confusion. It also fails to meet either the letter or the spirit of the Plain Writing Act of 2010, which requires Federal agencies “to improve the effectiveness and accountability of Federal agencies to the public by promoting clear Government communication that the public can understand and use.”⁶ Furthermore, the incongruous terms undermine the NRC’s “long and proven history of supporting th[e] belief [that] plain writing is important to keeping [the public] informed of — and involved in — [its] regulatory, licensing, and oversight activities.”⁷ Treating the terms as interchangeable may lead the public to wrongly infer that “high assurance” is the appropriate threshold for *all* NRC decision-making.

II. “High Assurance of Protection” Begets Undue Regulatory Burden

Reference to “high assurance” in the new proposed security rule language perpetuates a misconception among some NRC staff that security is more important than safety. This semantic disconnect has the very real potential to expose developers of light-water small modular reactors (SMRs) and non-light-water advanced reactor technologies to regulatory overreach and undue burden.

The “high assurance” standard for licensing new reactors, particularly SMRs, can be directly traced to SECY-11-0184, “Security Regulatory Framework for Certifying, Approving, and Licensing Small Modular Nuclear Reactors (M110329).”⁸ In this SECY paper, NRC staff assured the Commission of “the adequacy of the current security regulatory framework for certifying, approving, and licensing small modular nuclear reactors (SMRs).” Supporting assertions in SECY-11-0184 included multiple references to “high assurance” for achieving regulatory and performance objectives, laying a foundational groundwork for the proposed “high assurance of protection” standard for licensing light-water SMRs and non-light-water reactor technologies.

² The NRC staff altogether omits the word “adequate” in its proposed rule language.

³ NRC ADAMS No. ML21336A004, p. 6, § 73.55(s)(2)(ii)(A)(4)

⁴ [Reasonable Definition & Meaning - Merriam-Webster](#)

⁵ [High Definition & Meaning - Merriam-Webster](#)

⁶ <https://www.govinfo.gov/content/pkg/BILLS-111hr946enr/pdf/BILLS-111hr946enr.pdf>

⁷ <https://www.nrc.gov/public-involve/open/plain-writing.html>

⁸ NRC ADAMS No. ML112991113

An “adequate protection” standard is of equal importance in the proposed § 73.55 rule language (discussed in Section VII). We seriously doubt the Commission either intended or will condone inclusion of a “high assurance of protection” standard in the limited-scope rule change. We also believe a “high assurance of protection” standard in the proposed rule should raise legal objections from NRC’s Office of General Counsel (OGC).

To pre-empt endangerment of new reactor deployment, as well as threats to continued operation of the existing fleet of power reactors, we strongly urge the NRC correct the root cause of regulatory encroachment, which is the current reference to “high assurance of protection” found today in § 73.55(b)(1). At least six equally problematic references to “high assurance” are scattered throughout 10 CFR Part 73⁹; each instance should be corrected to “reasonable assurance” as part of the instant limited-scope rule change.

Additionally, the term “high assurance of protection” occurs in a host of associated regulatory guidance documents. Each of these occurrences should be corrected to “reasonable assurance of adequate protection” within a reasonable time frame, and as the opportunity will inevitably arise, to reflect prior Commission direction (discussed in Section III) and the Principles of Good Regulation (discussed in Section VII).

III. Prior Commission Direction

The question of reasonable versus high assurance for nuclear security has already been decided by the Commission. On October 5, 2016, the Commission issued its Staff Requirements Memorandum (SRM) for Commission Paper SECY-16-0073, “OPTIONS AND RECOMMENDATIONS FOR THE FORCE-ON-FORCE INSPECTION PROGRAM IN RESPONSE TO SRM-SECY-14- 0088.” In its SRM, the Commission explicitly and unequivocally defined the assurance standard for security and directed the staff to modify its regulatory posture accordingly:

*In implementing the NRC’s regulatory program, either in **developing new regulations** [emphasis added], inspecting licensee compliance with regulations, or executing the FOF program, the staff should be mindful that the concept of “high assurance” of adequate protection found in our security regulations is equivalent to “reasonable assurance” when it comes to determining what level of regulation is appropriate. The NRC should not be applying a “zero risk” mentality to security any more than we should be doing so with respect to safety. The staff should operate under this paradigm and **eliminate ambiguity on this point** [emphasis added] in its guidance documents or other internal directives, instructions, or training materials, to the extent such ambiguity exists.*

The Commission provided this explicit direction in uncharacteristically strident terms, *sua sponte*, to curb an overly zealous regulatory posture in the NRC staff’s force-on-force exercise program.

Nevertheless, on August 1, 2018, the term “high assurance” appeared in Commission Paper SECY-18-0076, “OPTIONS AND RECOMMENDATION FOR PHYSICAL SECURITY FOR

⁹ “High assurance” appears in § 73.20(a); twice in § 73.22(f)(3); § 73.51(b); § 73.54(a); and § 73.56(c).

ADVANCED REACTORS.” Therein NRC staff asserted: “The NRC developed the existing physical security requirements to ensure that the physical protection programs and equipment at commercial power reactors provide **high assurance*** [emphasis added] of protection against the design-basis threat (DBT) of radiological sabotage.” Using a footnote* for the term “high assurance,” NRC staff acknowledged the Commission’s explicit clarification in SRM-SECY-2016-0073, yet it used “high assurance” in the Background section of SECY-18-0076.

The Commission noticed and called attention to the NRC staff’s use of “high assurance,” albeit with the footnote, in its November 18, 2018, SRM:

*The Commission... appreciates the staff’s continued recognition, as it undertakes this rulemaking effort, that the concept of “high assurance” of adequate protection found in our security regulations is equivalent to “reasonable assurance” when it comes to determining what level of regulation is appropriate.*¹⁰

Although the Commission reminded NRC staff of its prior direction, it could have been more circumspect. The footnoting in SECY-18-0076 was in reverse; **if** any clarification was necessary, the term “reasonable assurance of adequate protection” should have been used in the narrative for SECY-18-0076 with a footnote referencing SECY-16-0073 to explain the equivalence. Hence, we now contend with the term “**high assurance**” in language proposed for the instant limited-scope changes to § 73.55.

IV. NRC’s Vision and Strategy

The proposed language contravenes the NRC’s Vision and Strategy¹¹ document, which NRC staff prepared in 2016 to ensure its readiness for advanced reactor licensing reviews. The Vision and Strategy document calls for efficient, effective application of an **appropriate** level of regulation to NRC’s licensing and oversight of nuclear energy generation:

As the [NRC] prepares to review and regulate a new generation of non-light water reactors (non-LWRs), a vision and strategy has been developed to assure (sic) NRC readiness to efficiently and effectively conduct its mission for these technologies.

...

*The agency needs to be effective and **efficient** [emphasis added] as it conducts its safety, security, and environmental protection mission, **without imposing unnecessary regulatory burden** [emphasis added].*¹²

The NRC’s Vision and Strategy document reiterates the NRC’s mission “to license and regulate the civilian use of nuclear materials to ensure **adequate** [emphasis added] protection of public health and safety, to promote the common defense and security, and to protect the environment.”¹³ Yet the word “adequate” is missing altogether from the language proposed for § 73.55(s)(2)(ii)(A)(4).

¹⁰ NRC ADAMS No. ML18324A478

¹¹ NRC ADAMS No. ML16356A670, NRC Vision and Strategy

¹² NRC ADAMS No. ML16356A670, NRC Vision and Strategy, “Executive Summary”

¹³ NRC ADAMS No. ML16356A670, NRC Vision and Strategy, Section 2.0, “Background”

V. Nuclear Energy Innovation and Modernization Act of 2019

Since the NRC issued its “Vision and Strategy” in 2016, Congress passed the Nuclear Energy Innovation and Modernization Act (NEIMA) of 2019, which mandates a technology-inclusive regulatory framework that is risk-informed and performance-based, ensuring staff review efforts are commensurate with safety.¹⁴ An initial step in that direction is to establish a “reasonable assurance of adequate protection” standard in 10 CFR Part 73 (as discussed in Section VIII).

VI. Regulatory Basis for Limited-scope Rule Change

The proposed rule language diverges from the “Rulemaking for Physical Security for Advanced Reactors” regulatory basis that was issued for public comment in July 2019.¹⁵ Specifically, the regulatory basis document states:

*As described in SECY-18-0076, the NRC intends this limited-scope rulemaking to provide alternatives for advanced reactors to specific regulations and guidance related to physical security, while providing **reasonable assurance of adequate protection** [emphasis added] of public health and safety and the common defense and security, and protecting the environment.*

The regulatory basis document also reiterates and clarifies the inverted footnote in SECY-18-0076:

Pursuant to 10 CFR 73.55(b)(1), the physical security protection program’s primary performance objectives are to provide high assurance that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to public health and safety. As described in SECY-18-0076 and the related SRM, “the concept of ‘high assurance’ of adequate protection found in our security regulations is equivalent to ‘reasonable assurance’ [of adequate protection] when it comes to determining what level of regulation is appropriate.”

Despite these guard rails, the regulated industry remains vulnerable to slippery slope and undue regulatory burden as long as the term “high assurance” appears *anywhere* in 10 CFR Part 73. To ensure regulatory reliability and public understanding, the reference to “high” should be replaced with “reasonable” throughout the existing rule (discussed in Section VII).

VII. NRC’s Principles of Good Regulation

Lastly, a “high assurance of protection” standard is contrary to the NRC’s Principles of Good Regulation. It upends the established application of “**reasonable** assurance of **adequate** protection of public health and safety” to regulatory decision-making, thereby destabilizing the very basis upon which licensing and other regulatory decisions are anchored. Additionally, the proposed language omits altogether the pivotal qualifier “**adequate**” and effectively raises the bar for licensing SMRs and advanced reactor technologies.

¹⁴ <https://www.congress.gov/115/plaws/publ439/PLAW-115publ439.pdf>

¹⁵ NRC ADAMS No. ML19099A017

On March 7, 2011, Commissioner William C. Ostendorff spoke at length on the importance of “adequate protection” in accord with the NRC’s Principles of Good Regulation during a meeting with the NEI Lawyers Committee. During his address, Commissioner Ostendorff explained the significance of this qualifier. “Finally, and perhaps the most important principle: ‘**adequate protection**’ [emphasis added] does not mean ‘zero risk.’” Commissioner Ostendorff’s analysis of “adequate protection,” and its foundational importance to NRC regulatory decisions and practices, is very relevant the proposed § 73.55 rule language.

VIII. Proposed Corrective Action

The NRC’s legal mandate is to enable safe and secure civilian use of nuclear materials. This is the sole purpose of the NRC’s existence, as explained in the Energy Reorganization Act of 1974, Sec. 2. Declaration of Purpose:

*(a) The Congress hereby declares that the general welfare and the common defense and security require effective action to develop, and increase the efficiency and reliability of use of, all energy sources to meet the needs of present and future generations, to increase the productivity of the national economy and strengthen its position in regard to international trade, to **make the Nation self-sufficient in energy** [emphasis added], to advance the goals of **restoring, protecting, and enhancing environmental quality** [emphasis added], and to assure public health and safety.¹⁶*

An excessive regulatory posture in security poses a threat to not only global climate, but to bipartisan efforts to deploy new nuclear generation and secure energy independence, protect national security interests, and reestablish a prominent role for US innovation in the burgeoning international energy market.

A. Near-term Narrow Changes to Rule and Guidance

History has shown here that institutional knowledge of what the term “high assurance” means in regulations evolves into staff practices based on the literal words in the regulation and long-standing tribal knowledge. As Commissioner Ostendorff noted in his vote sheet for SECY-16-0073, which was referenced and enclosed in Commissioner Kristine L. Svinicki’s September 19, 2016, vote:

... there is scant explanation in our regulatory history of the basis for the standard of "high assurance" used in Part 73 to ensure adequate protection of public health and safety. It is the Commission's responsibility to provide direction to the staff, and this vote paper offers an appropriate means to clarify what "high assurance" is... Thus, the regulatory standard for security is the same as the regulatory standard for safety – reasonable assurance of adequate protection of public health and safety – and the Commission sets the standard.¹⁷

In this vein, and to avoid future confusion of the assurance standard for physical security, we strongly urge the Commission to nip in the bud further muddling of divergent

¹⁶ [Energy Reorganization Act of 1974.pdf \(psu.edu\)](#)

¹⁷ NRC ADAMS No. ML16279A400, Voting Record for SECY-16-0073

assurance standards in NRC’s regulatory lexicon and direct the NRC staff to promptly correct the current language in § 73.55(b)(1) as follows:

*(b)(1) The licensee shall establish and maintain a physical protection program, to include a security organization, which will have as its objective to provide ~~high~~ **reasonable** assurance of **adequate** protection that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety*

We also urge to Commission to promptly direct the NRC staff to replace the term “high assurance” with “reasonable assurance” throughout the rule – in the proposed draft language for § 73.55 as well as all seven¹⁸ instances in which the incorrect term currently exists in 10 CFR Part 73.

In concert with this direction, the Commission should direct the NRC staff to timely develop and submit an action plan to incorporate conforming changes to regulatory policy, guidance, inspection manual chapters, inspection procedures, and any other NRC (or NRC-sponsored) documents that contain a similarly unfounded and precipitous “high assurance” standard. The plan should include monitoring and tracking of firm, practicable milestones for completing these corrections and restoring a reliable and transparent regulatory framework of “reasonable assurance of adequate protection” for nuclear security.

B. Future Regulatory Reform and Restructuring of 10 CFR Part 73

As mandated by NEIMA, the Commission should consider foundational changes to modernize 10 CFR Part 73 applying risk-informed and performance-based approaches. The groundwork for such an initiative is the “Strategic Assessment and Re-baselining” activity that culminated in SRM-SECY-98-0144, “White Paper on Risk-Informed and Performance-Based Regulation.” In its direction to the NRC staff, the Commission observed that “a regulation can be either prescriptive or performance-based” and expressed a preference for the latter, driving fundamental changes to NRC’s regulatory oversight, inspection and performance assessment programs under the Reactor Oversight Process (ROP).

Regulatory reforms that began in the late 1990s never reached the prescriptive language in 10 CFR Part 73. Performance-based modernization of 10 Part 73 should be risk-informed by the offsite dose consequences from sabotage of design-specific target sets to the extent such target sets exist. We urge the Commission to undertake full-scope modernization of 10 CFR Part 73 using risk-informed and performance-based approaches, consistent with SRM-SECY-98-0144 and NEIMA.

SUMMARY AND RECOMMENDATIONS

The NRC staff should be rightsizing its regulations for light-water SMRs and non-light-water advanced reactor technologies – commensurate with passive safety features, lower risk profiles and smaller site footprints. The NRC staff’s proposed § 73.55 rule language is neither efficient nor effective in applying an appropriate level of regulation to the licensing and eventual oversight of new reactors. Moreover, it appears to codify regulatory overstep; raise the bar for emission-free, reliable, and

¹⁸ It appears in § 73.20(a); twice in § 73.22(f)(3); § 73.51(b); § 73.54(a); § 73.55(b)(1); and § 73.56(c).

inherently safer reactor technologies; and disincentivize new reactor deployment to the detriment of Society.

To preclude future confusion, and to align NRC staff practices with the Principles of Good Regulation, we urge the Commission to direct NRC staff to implement the following **near-term actions**:

1. Replace the term “high assurance” with “reasonable assurance” in the proposed draft language for § 73.55 as well as all seven instances in which “high assurance” currently exists in 10 CFR Part 73.
2. Revise § 73.55(b)(1) as follows: “(b)(1) The licensee shall establish and maintain a physical protection program, to include a security organization, which will have as its objective to provide ~~high~~ **reasonable** assurance of **adequate** protection that activities involving special nuclear material are not inimical to the common defense and security and do not constitute an unreasonable risk to the public health and safety.”
3. Prepare a publicly available action plan with milestone dates to make conforming changes to all other policy and program documents pertaining to nuclear security.

To encourage innovation and modernization of nuclear security licensing and oversight for the operating fleet and new reactors, we further recommend the Commission direct NRC staff to undertake a **longer-term and timely full-scope rule change**:

4. Modernize 10 CFR Part 73 consistent with SRM-SECY-98-0144 and NEIMA.

CONCLUSION

In closing, the Administration has called upon all Federal agencies to be “climate agencies.” The NRC is no exception. Safe and secure nuclear energy is a vital component of climate warming mitigation and national energy independence. The near-term and longer-term recommendations herein present a unique opportunity for NRC to exhibit transformational agency, correct problematic rule language, and halt long-standing NRC staff practices that place undue regulatory burden on the currently operating fleet and present unnecessary barriers to new nuclear deployment.

We urge the Commission to seize this moment to modernize and right-size nuclear security regulations and practices for nuclear power facilities (including demonstration reactors).

Sincerely,



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The Breakthrough Institute



Steven P. Nesbit, P.E.
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NRCExecSec Resource

From: Rani Lea Franovich <rani@thebreakthrough.org>
Sent: Wednesday, April 27, 2022 4:18 PM
To: NRCExecSec Resource
Cc: Steven Nesbit; Adam Stein; Ted Nordhaus
Subject: [External_Sender] Letter to NRC Commissioners from Breakthrough Institute and the American Nuclear Society Re 10 CFR Part 73
Attachments: April 27, 2022, BTI and ANS Letter on Part 73 Limited-scope Rule Language.pdf

Dear Madame Secretary,

The subject letter is attached for the Commissioners' consideration. I respectfully request the letter be made publicly available in ADAMS.

Kind regards,

Rani

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