NOTATION VOTE

SECY-00-0063

March 9, 2000

FOR: The Commissioners

FROM: William D. Travers /RA/
Executive Director for Operations

SUBJECT: STAFF RE-EVALUATION OF POWER REACTOR PHYSICAL PROTECTION REGULATIONS AND POSITION ON A DEFINITION OF RADIOLOGICAL SABOTAGE

PURPOSE:

To obtain Commission approval of the staff's (a) approach to re-evaluation of the power reactor physical protection regulations, and (b) definition of radiological sabotage by providing design criteria as the basis for physical protection regulations.

BACKGROUND:

In the Staff Requirements Memorandum (SRM) of November 22, 1999, the Commission approved the staff's recommendation in SECY-99-241 (Rulemaking Plan, Physical Security Requirements for Exercising Power Reactor Licensees' Capability to Respond to Safeguards Contingency Events, October 5, 1999) to begin a comprehensive review of 10 CFR 73.55 and associated power reactor physical protection regulations, and directed the staff to provide position papers on: (a) the attributes of the design basis threat, and (b) the definition of radiological sabotage. The first is used to define the weapons and equipment used by the design basis threat and clarify the intent of the regulations concerning the response strength and strategy of the licensees' security organizations. The purpose of the second is to precisely state what sabotage-induced event sequences the licensees are expected to protect against. This paper addresses the second request regarding development of a position paper on radiological sabotage at reactors.

DISCUSSION:

In accordance with the Staff Requirements Memorandum dated November 22, 1999, the staff began consideration of the fundamental issues that would guide a re-evaluation of the power reactor physical protection requirements, including conducting several public meetings with stakeholders on the subject. This process highlighted a longstanding issue with the implementation of 10 CFR 73.55 requirements at power reactors. Specifically, the implementation of these requirements assumed that compliance with the prescriptive requirements of the physical protection plans written in accordance with 10 CFR 73.55(b) through (h) would provide the high assurance required by 10 CFR 73.55(a). In fact, results of force-on-force drills conducted pursuant to the Regulatory Effectiveness Review (RER) program and the Operational Safeguards Response Evaluation (OSRE) program cast doubt on the validity of this assumption, due in part to the way the requirements were (a) understood by the licensees and (b) inspected and enforced by NRC. However, overall site security and the security organization's readiness to respond to an adversary attack were tested and confirmed during regional inspection activity and OSREs.

The staff examined approaches and principles used in existing NRC regulations, including the use of margin of safety. The staff also integrated appropriate results of previous analyses, such as the study to re-evaluate the guidelines and bases used to determine vital equipment and areas to be protected in nuclear power plants as documented in "Vital Equipment/Area Guidelines Study: Vital Area Committee Report," NUREG-1178.

In the attachment to SECY-99-241, the staff proposed to review the definition of radiological sabotage and consider ways to clarify the issue in a way that is meaningful for the protective strategy and enhances the process of performance evaluation. After considerable discussion, the staff determined that a definition of radiological sabotage at power reactors in the new rule may not be necessary if the regulation could more clearly delineate performance criteria to be used as the basis for the new physical protection regulations. A series of public meetings were conducted, including representatives from Nuclear Energy Institute (NEI), Nuclear Control Institute (NCI), and media, from which the staff developed a set of physical protection performance criteria in terms of public protection that are consistent with criteria used in other areas of nuclear power plant regulation. These performance criteria would provide the risk-informed basis for the comprehensive review of 10 CFR 73.55 and associated power reactor physical protection requirements, including the exercise requirement.

These performance criteria are based on ensuring that a plant retains the capability to safely shutdown the reactor and assure long-term heat removal in the face of a malevolent act by the design basis threat against the facility. The staff is developing

performance criteria and requirements for 10 CFR 73.55(a) to protect the plant against a malevolent act by protecting critical safety functions, including appropriate margin of safety, including:

(1) reactivity control,
(2) reactor coolant makeup for maintaining reactor and spent fuel pool inventory,
(3) reactor and spent fuel pool heat removal,
(4) containment of radioactive materials,
(5) process monitoring necessary to perform and control the above functions, and
(6) actions necessary to support the operation of the equipment used for safe shutdown.

These performance criteria would clarify the scope of radiological sabotage against which licensees are expected to protect. 10 CFR 73.55(b) and succeeding paragraphs would provide specific performance criteria for the physical security organization and response elements. As described in SECY-99-241, a new sub-section of 10 CFR 73.55 would require periodic drills and exercises and corrective actions for vulnerabilities identified in the exercises.

The above performance criteria represent a new concept in formulating security programs and align security with other areas of regulation involving plant operations. This approach would provide insights on how the remainder of 10 CFR 73.55 might be revised. The staff believes that it is important to continue to have stakeholder involvement in the early stages of development of performance criteria.

OSREs have been conducted since 1992 to test licensees' performance relative to the requirements in 10 CFR 73.55(a). The last OSRE in the current cycle is scheduled for May 2000 and with the final rule not expected to be published for three years, steps have been taken by the staff to fill the gap between May 2000 and the time when the new rule is in place. In the short-term, OSREs will continue. Then, pending NRC endorsement, an industry proposal for a Self-Assessment Program will be used on a trial basis, with NRC oversight, to pilot the performance criteria envisioned in the revised physical protection regulations.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection to its content. The FTE and resource issues involved in this paper are already budgeted.

RECOMMENDATIONS:

That the Commission:

Approve (a) the staff's approach to re-evaluation of the power reactor physical protection regulations, and (b) the definition of radiological sabotage by providing design criteria as the basis for physical protection regulations.

NOTE THAT:

Upon the Commission's approval, the staff will (a) continue with this work to implement this approach in the new security regulations; (b) test these concepts in the industry Self-Assessment Program, as appropriate; and (c) publish this paper in the *Federal Register* for public comment, seeking comment on the approach described above for revising 10 CFR 73.55(a).

/RA/

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