

1.2 (U) Physical Protection Program Design In accordance with 10 CFR 73.55(b)(2) and (3), each licensee's physical protection program must be designed to prevent significant core damage and spent fuel sabotage by providing adequate protection against the DBT of radiological sabotage. A licensee demonstrates reasonable assurance by having a physical protection program that allows the site to independently defend against the DBT for a minimum of eight hours. This eight-hour time is hereinafter referred to as the "reasonable assurance of protection time" or RAPT. It is expected that the licensees will have additional resources, such as law enforcement and/or recalled off-duty personnel to provide support by eight hours. An eight-hour RAPT provides reasonable assurance through a framework that considers how the many existing layers of defense, safety and security, work together for protection of the site. **While eight hours is considered a reasonable assurance time for protection, it is possible that on a site-specific basis, a lower time could continue to provide reasonable assurance.** Significant damage to the core and/or sabotage of spent fuel would result in an unacceptable condition where the performance objective of 10 CFR 73.55(b)(1) is no longer met. Therefore, prevention of significant core damage and/or spent fuel sabotage is a measurable performance criterion against which the Commission would evaluate the effectiveness of the licensee's physical protection program.

1.2.1 (U) The design of the licensee's physical protection program should account for site specific conditions that affect the licensee's capability to perform the functions required to detect, assess, interdict, and neutralize threats. The program must include the application of defense-in-depth concepts that ensure the reliable implementation of physical protection program components (engineered systems, programs, technologies, equipment, personnel, plans, and procedures) in an integrated and layered approach, such that a component failure would not result in a failure of the entire physical protection program to provide the capability to detect, assess, interdict, and neutralize threats.

The basis for the RAPT is the following five fundamental elements of a licensee's physical protection program. These elements are inspectable within the current baseline inspection program and provide layers of defense to ensure reasonable assurance of adequate protection:

(U) Element 1: The recognition that law enforcement support will be available at some point during an attack to assist the licensee. Licensee plans and procedures for these actions should be documented to describe the site's coordination with the various levels of law enforcement response. *[10 CFR 73.55(k)(9), Appendix C, II.B.3.d]*

(U) Element 2: The recognition that licensee physical protection programs are robust programs providing tested protective measures against the DBT. Specifically, licensee protective strategies when inspected during the baseline security inspection program, including NRC performance-based FOF inspections, demonstrate reasonable assurance for protection against the DBT. Additionally, it is reasonable to assume that the DBT adversary capability will decrease over time due to personnel attrition and resource depletion. *[10 CFR 73.55 and associated Appendix C]*

(U) Element 3: The recognition that under the current regulatory framework FLEX equipment is a required part of the licensee safety program. FLEX equipment is already provided some protective measures, and some FLEX equipment that could be utilized to prevent radiological sabotage may already be included in a licensee's target sets today. Licensees should document their plans for utilizing FLEX equipment to maintain long-term core cooling, spent fuel

cooling, and containment integrity, required operator actions to align equipment for use, and the ability to conduct these actions. [EA-12-049]

(U) Element 4: The recognition that licensees have trained and qualified operators who can perform actions, such as realigning systems and equipment to ensure continued cooling capability. Licensees should have written procedures for conducting these actions. [10 CFR 73.55(f) and associated RG 5.81]

(U) Element 5: The recognition that licensees have processes in place to recall off-duty security and operations personnel. Licensees' plans and procedures demonstrating these capabilities and recalled timelines, as applicable, should be documented. [Appendix C to 10 CFR Part 73, Section B (3)(e)(ii)]

(U) While it is not one of the fundamental elements identified above, it is important to note that there is no prescribed methodology to determine a standardized time to core damage (TTCD) (irreversible), and the staff has observed variations in these calculations across industry. These variations could result in inconsistent identification of target sets across industry and the documentation of TTCD calculations for target sets should utilize a licensee-established sound methodology.

1.2.2 (U) Under 10 CFR 73.55(b)(4) and (f)(1), in determining the effectiveness of the physical protection program design, the licensee shall analyze and identify site-specific conditions, including target sets, that may affect the specific measures needed to implement the requirements. As part of this analysis, the licensee should evaluate blast effects; determine the critical point of detection (the point at which, if detection and assessment do not occur and response is not initiated, the adversary movement over time and distance is less than that of the licensee response force to a given location); and analyze and identify adversarial and response force timelines. The application of the RAPT allows a licensee to analyze target sets where the time to reach the irreversible onset of significant core damage (TTCD) is greater than eight hours and then remove those target sets or target element(s) within a set. Licensees that make changes to their target sets or target elements using the RAPT as the technical justification should document the basis for these changes and have them available for inspection.

1.2.3 (U) For security program development, a licensee demonstrates reasonable assurance of adequate protection by having a physical protection program that allows the site to independently defend against the DBT for a minimum of eight hours (RAPT). Licensees may consider the eight-hour timeframe in the development of the site's physical protection program (e.g., target sets, protective strategy, engineered protection features, etc.). Licensees should ensure a complete list of target sets and target set elements as required in 10 CFR 73.55(f) are developed and then evaluated for a TTCD that extends beyond the eight-hour RAPT (see Section 5 on target sets). Licensees may revise their protective strategy to protect target sets that have a TTCD less than or equal to eight hours. For target sets with a TTCD that is greater than eight hours, see section 1.2.2. For any changes to the licensee's physical protection program, the licensee must follow their normal process to analyze the change for the impact to the physical security program and notify the NRC accordingly. The eight-hour RAPT should not be used to change the physical protective strategies for target set equipment that is considered vital equipment.