BSSDP Industry Insights for Phase II

February 20, 2025

NUCLEAR ENERGY INSTITUTE

Presentation Overview

- Background
- Recommended approach
- Human performance (HU) v. programmatic issues
- Suggested risk-informing criteria
- Potential improvements to existing figures
- Reoccurring events
- Summary

Background

- SECY-23-0032 (ML23026A346): the objective of the assessment is to “determine whether there are any aspects of the BSSDP [baseline security significance determination process] that can be improved or further risk-informed”

Public meetings:

- March 20, 2024, to discuss the staff’s progress on initiatives related to the evaluation of the BSSDP
- June 24, 2024, to provide an update on the NRC's progress on the effort to evaluate the BSSDP
- December 18, 2024, to share the results of the BSSDP Phase I activities, including an overview of the working group’s recommended path forward in Phase II.

Stakeholder input from public meeting 6/4/24

- Consider changes to the entry and exit criteria for the Significance Screen for Physical Protection (Figure 4) within Inspection Manual Chapter 0609, Appendix E, Part 1.
- Evaluate the exportability gap between human performance errors and programmatic issues as they relate to a licensee's defense-in-depth.
- Contemplate additional risk questions related to physical security findings that could lead to further risk informing the BSSDP.
- Consider providing the public more detailed information and rationale to better understand the proposed changes and have a more fulsome discussion.

Current Significance Screen

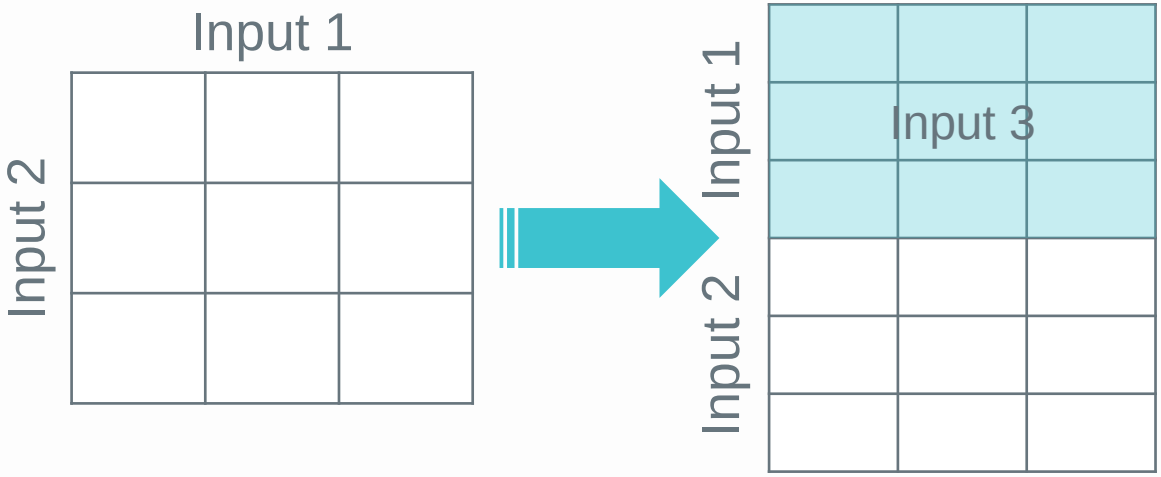
- The IPPP/Time Matrix of Step 4 in Figure 4 uses impact to the physical protection program (IPPP) and duration (time) to determine significance.
- These parameters give the 9-box significance determination table shown to the right.

Step 4 Impact to Physical Protection Program/Time Matrix			
	High	Medium	Low
< 30 Days	WHITE	GREEN	GREEN
< 1 Year	WHITE	WHITE	GREEN
≥ 1 Year	YELLOW	WHITE	WHITE

An expanded table would allow for additional risk-informing criteria…

Benefits of using 18-box table

- Allows for additional insights to be included in the decision process
- Maintains the ease-of-use of the current decision table



Human performance v. programmatic issues

- Performance deficiencies arising from HU errors should be screened as less significant than those associated with programmatic issues
  - It is virtually impossible for an adversary to predict and exploit an HU error
- A revised BSSDP could determine into which category the deficiency falls and have separate tables for determining the significance
- The tables could include insights discussed in the June 2024 public meeting, such as accounting for the:
  - Defense-in-depth of a site protective strategy,
  - Comprehensive set of requirements in all site security plans, and
  - Degree of information availability to an adversary.

Potential HU Significance Screen

- Assessed independent of programmatic aspects
- Keeps the current user-friendly table presentation but has 18 blocks instead of 9
- Maintains impact and time inputs, but these could be further risk-informed
- Accounts for licensee's access control programs and time available for exploitation
- Opportunity to include consideration of licensee-identified issues

Figure 5 – Significance Screen Human Performance

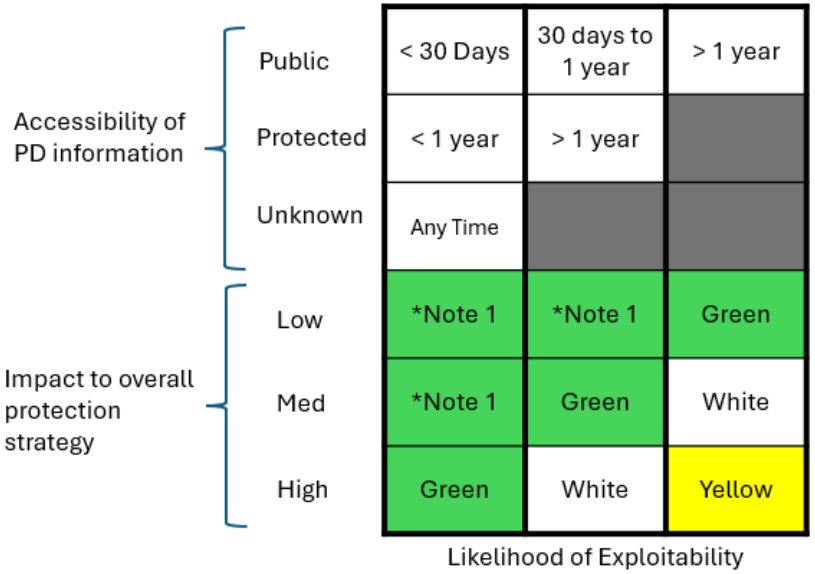
		Likelihood of Exploitability		
		< 24 hours	24 hours to 30 days	> 30 Days
Licensee Access Programs	Visitor			
	UA/UAA	< 30 Days	> 30 Days	
	Critical Group	Any Time		
Impact to overall protection strategy	Low	*Note 1	*Note 1	Green
	Med	*Note 1	Green	White
	High	Green	White	White

Note 1: IMC 0612, including IMC 0612 Appendix E could be evaluated for elements that would otherwise be identified in these areas. VLSSIR could also be evaluated for those items that are not clear violations.

Potential Programmatic Significance Screen

- Assessed independent of human performance aspects
- Keeps the current user-friendly table presentation but has 18 blocks instead of 9
- Maintains impact and time inputs, but these could be further risk-informed
- Accounts for information availability to an adversary and time available for exploitation
- Opportunity to include consideration of licensee-identified issues

Figure 6 – Significance Screen Programmatic



Note 1: IMC 0612, including IMC 0612 Appendix E could be evaluated for elements that would otherwise be identified in these areas. VLSSIR could also be evaluated for those items that are not clear violations.

Impact to the physical protection program (IPPP)

Working group recommendation to the commission:

- Explore additional entry criteria (Figure 4) and further define low/medium/high thresholds

Low/medium/high thresholds in the current SDP reflect actual events and not potential events

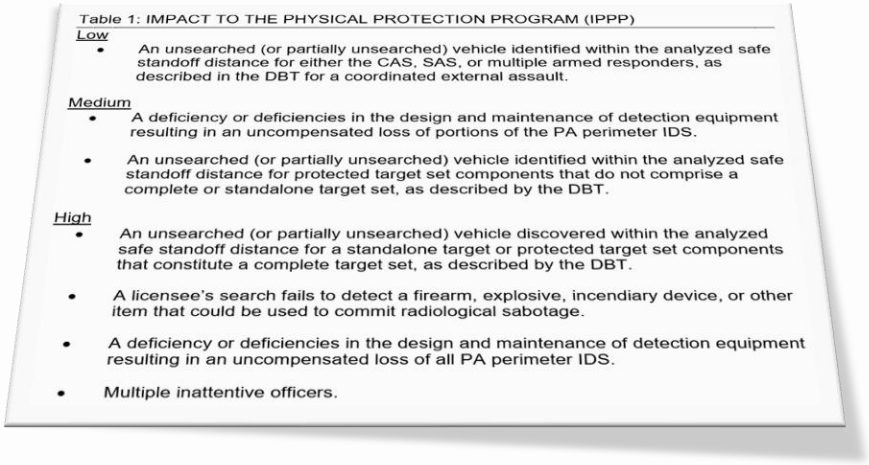


Table 1: IMPACT TO THE PHYSICAL PROTECTION PROGRAM (IPPP)

Low

- An unsearched (or partially unsearched) vehicle identified within the analyzed safe standoff distance for either the CAS, SAS, or multiple armed responders, as described in the DBT for a coordinated external assault.

Medium

- A deficiency or deficiencies in the design and maintenance of detection equipment resulting in an uncompensated loss of portions of the PA perimeter IDS.
- An unsearched (or partially unsearched) vehicle identified within the analyzed safe standoff distance for protected target set components that do not comprise a complete or standalone target set, as described by the DBT.

High

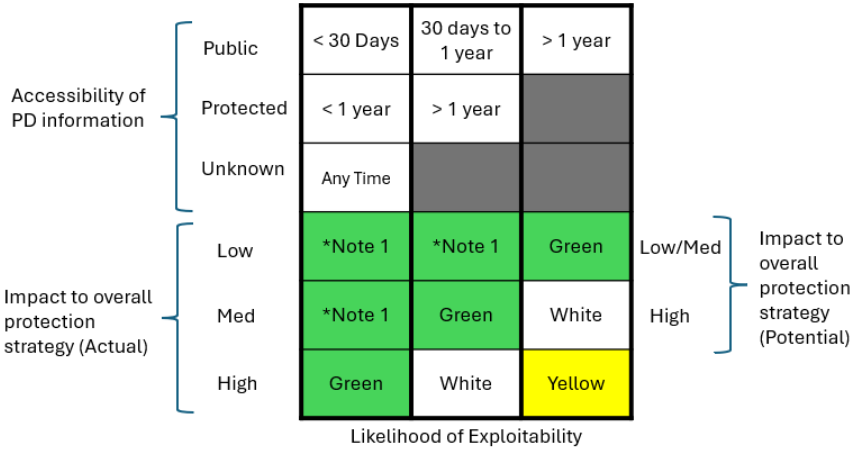
- An unsearched (or partially unsearched) vehicle discovered within the analyzed safe standoff distance for a standalone target or protected target set components that constitute a complete target set, as described by the DBT.
- A licensee's search fails to detect a firearm, explosive, incendiary device, or other item that could be used to commit radiological sabotage.
- A deficiency or deficiencies in the design and maintenance of detection equipment resulting in an uncompensated loss of all PA perimeter IDS.
- Multiple inattentive officers.

Impact to the physical protection program (IPPP)

Potential events could be incorporated by:

- Development of examples in a separate table, or
- Adjusting impact on proposed table based on actual v. potential events

Figure 6 – Significance Screen Programmatic



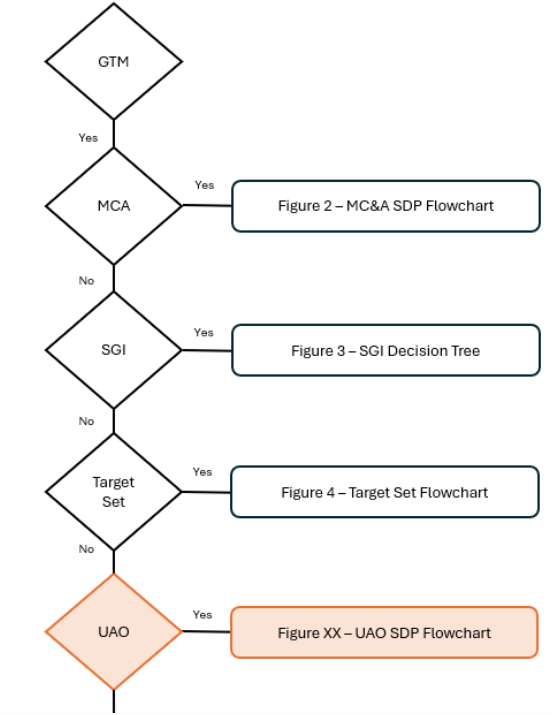
Decision Tree for Unsecured Safeguards Information

- Opportunity to include credit for licensee performance, consistent with ADVANCE Act goal of considering existing performance
- Reflect current FOF exercise practice of a licensee providing any requested SGI to the adversary team
- Assess the degree to which the effectiveness of a site protective strategy is compromised when determining the significance of a loss of SGI control

Baseline Security Significance Determination Process Flowchart

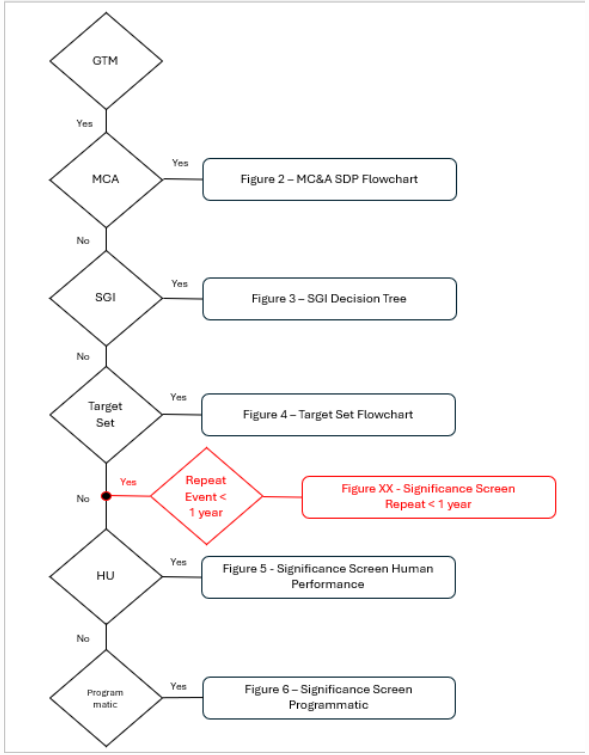
The unattended opening (UAO) decision tree could be:

- maintained and revised to add criteria from the proposed HU error and programmatic issues tables (time available for exploitation), or
- incorporated into the proposed HU error and programmatic issues screening



Significance Screen Repeat < 1 year

- Option to include a process for assessing issues that repeat in less than a year
- Focus on most risk-significant / high impact performance deficiencies
- Have clear criteria to identify repeat events to ensure alignment and consistency



Summary

- 18-box table incorporates additional insights for determining significance
- Human performance and programmatic issues are evaluated separately
- Suggested approach considers site protective strategy defense-in-depth, totality of security plan requirements, and degree of availability of information to an adversary
- Opportunities to credit licensee-identified performance deficiencies
- Significance determination for mishandled SGI considers practices and performance in FOF exercises
- Repeat issues process places focus on the most risk-significant / high impact performance deficiencies

Questions?

