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IAEA Technical Meeting on Instrumentation and Control and Computer Security for
Small Modular Reactors and Microreactors
February 21-25, 2022

U.S.A. Regulatory Efforts for Cyber Security of Advanced Reactors

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Cyber Security Specialist

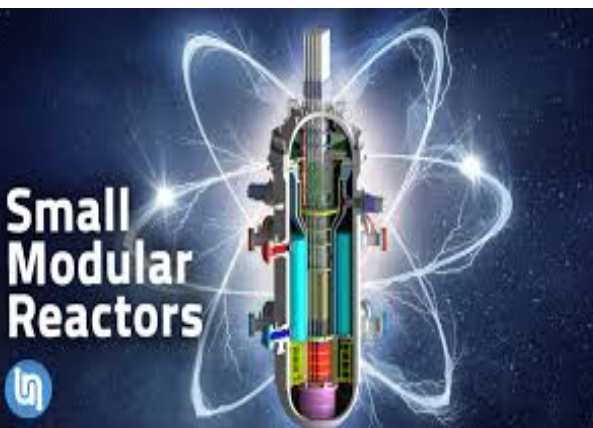
U.S. Nuclear Regulatory Commission

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Michael T. Rowland

Sandia National Laboratory



Draft Cyber Security Requirements for Advanced Reactors



Background – Power Reactors Cyber Requirements

- 🛡 Found in [10 CFR 73.54](#)
- 🛡 Protect digital assets that perform specified functions
- 🛡 Protect from cyber attacks up to an including a DBT

Proposed New Cyber Requirements



10 CFR Part 53
development for
Advanced Reactors

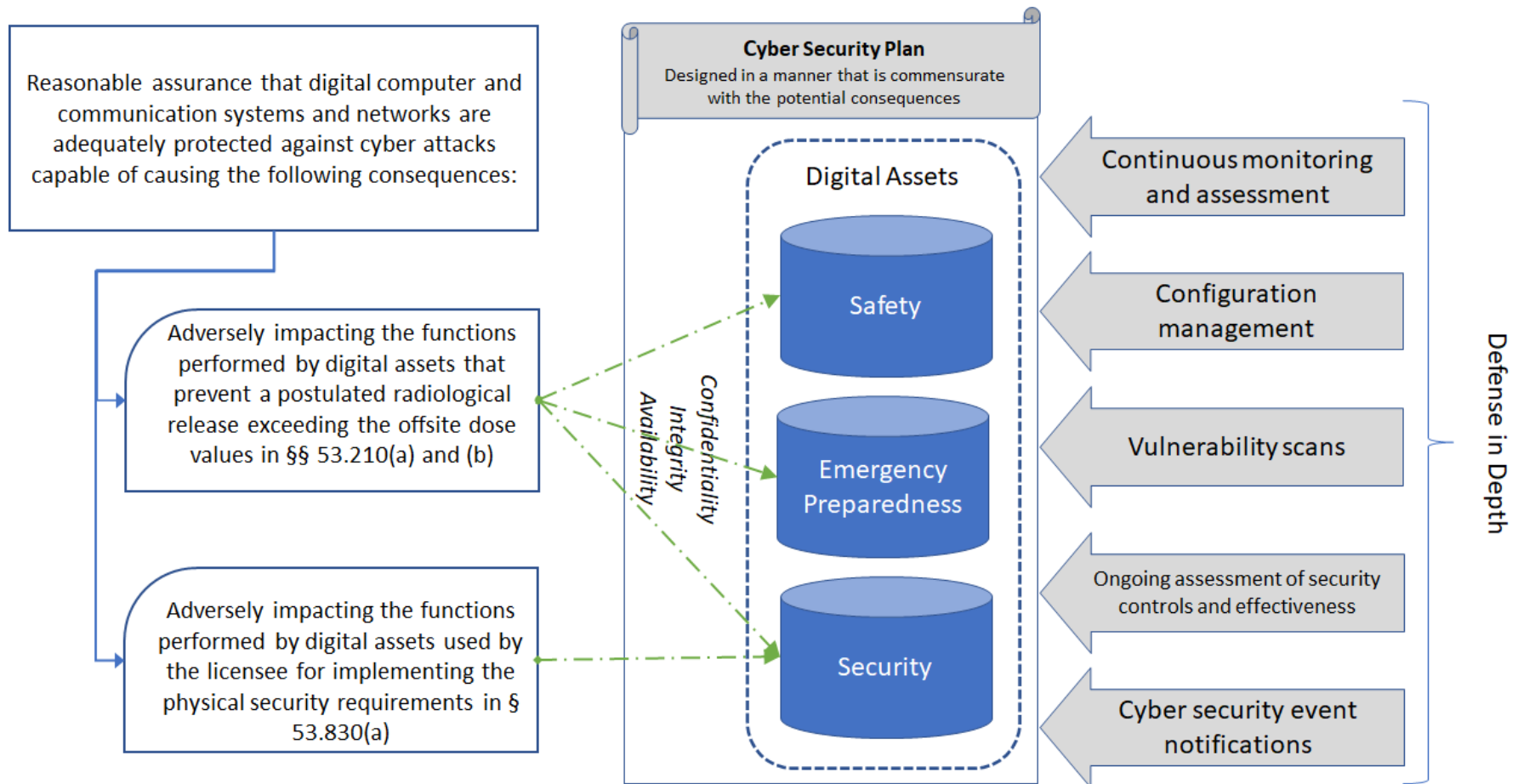


Preliminary
Proposed Rule
Language
Publicly Available



New Cyber
Requirements in
Proposed Rule

Preliminary Proposed Cyber Requirements



A man in a blue shirt is working on a laptop. The background is a dark blue digital space filled with binary code (0s and 1s) and various data visualizations like bar charts and pie charts. There are also some glowing circles and lines, giving it a high-tech, data-driven feel.

10 CFR 73.110

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Draft Regulatory Guide Concepts

Draft Regulatory Guide Development



An acceptable approach for meeting the 10 CFR 73.110 requirements



Effective guidance to support a performance-based regulatory framework

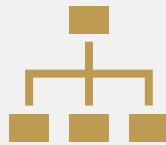


Leverage IAEA and IEC security approaches

Draft
Regulatory
Guide –
Three-Tier
Analysis
Approach



Facility Level



Function Level

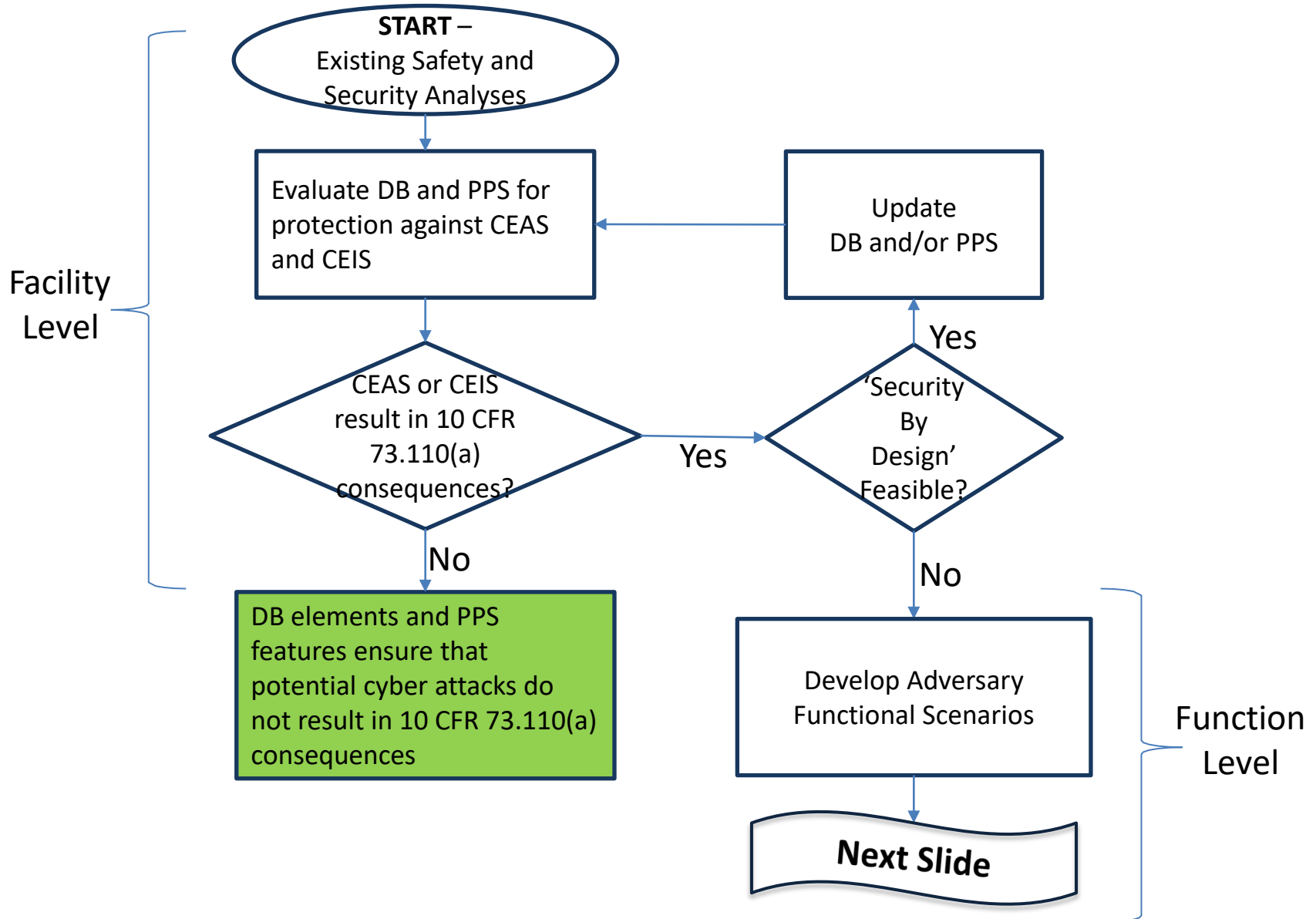


System Level

Important Terminology

- 🛡️ CEAS: Cyber-Enabled Accident Scenario
- 🛡️ CEIS: Cyber-Enabled Physical Intrusion Scenario

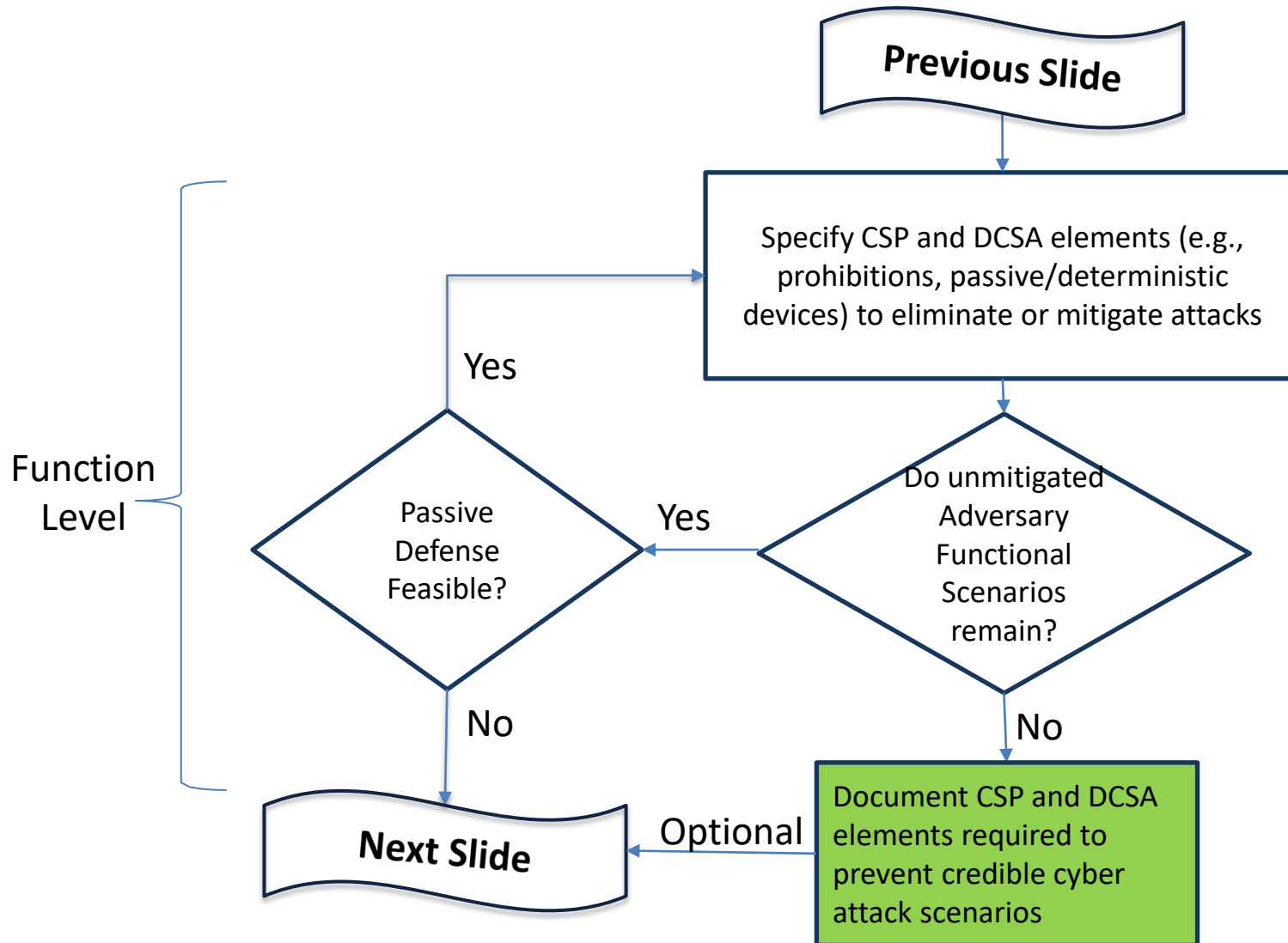
Overview of Draft Regulatory Guide Performance-based/Risk Informed Approach



DB – Design Basis
CEIS- Cyber Enabled Intrusion Scenario

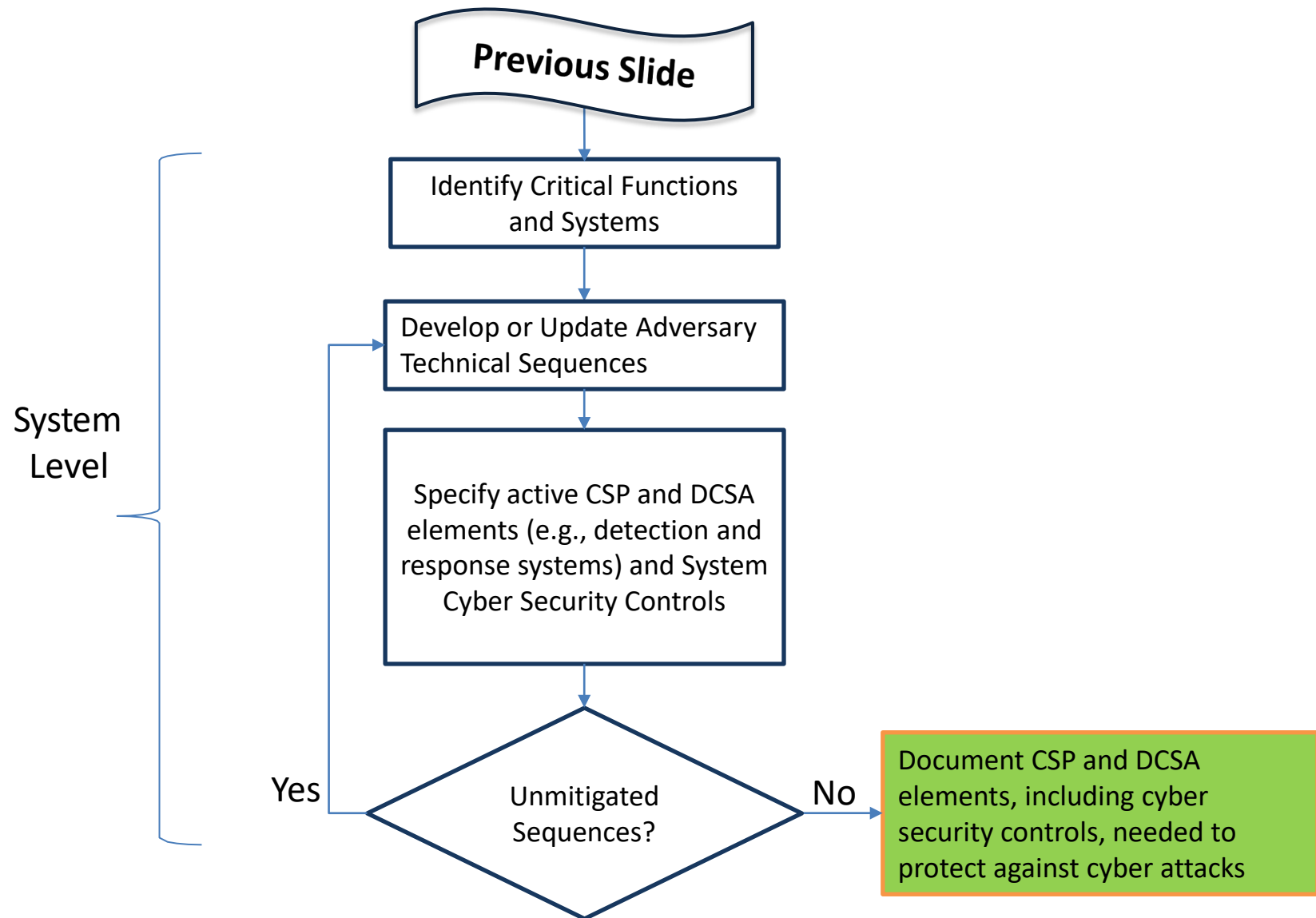
PPS- Physical Protection Systems
CEAS- Cyber Enabled Accident Scenario

Overview of Draft Regulatory Guide Performance-based/Risk Informed Approach (Cont.)



CSP- Cyber Security Plan

DCSA- Defensive Computer Security Architecture



Future Work

- 🛡️ Continue work on Proposed Cyber Requirements and draft Regulatory Guide
- 🛡️ Inclusion in Part 53 rulemaking package

