



Defense Nuclear Security National Nuclear Security Administration

UNSCR 1540 Physical Protection Measures



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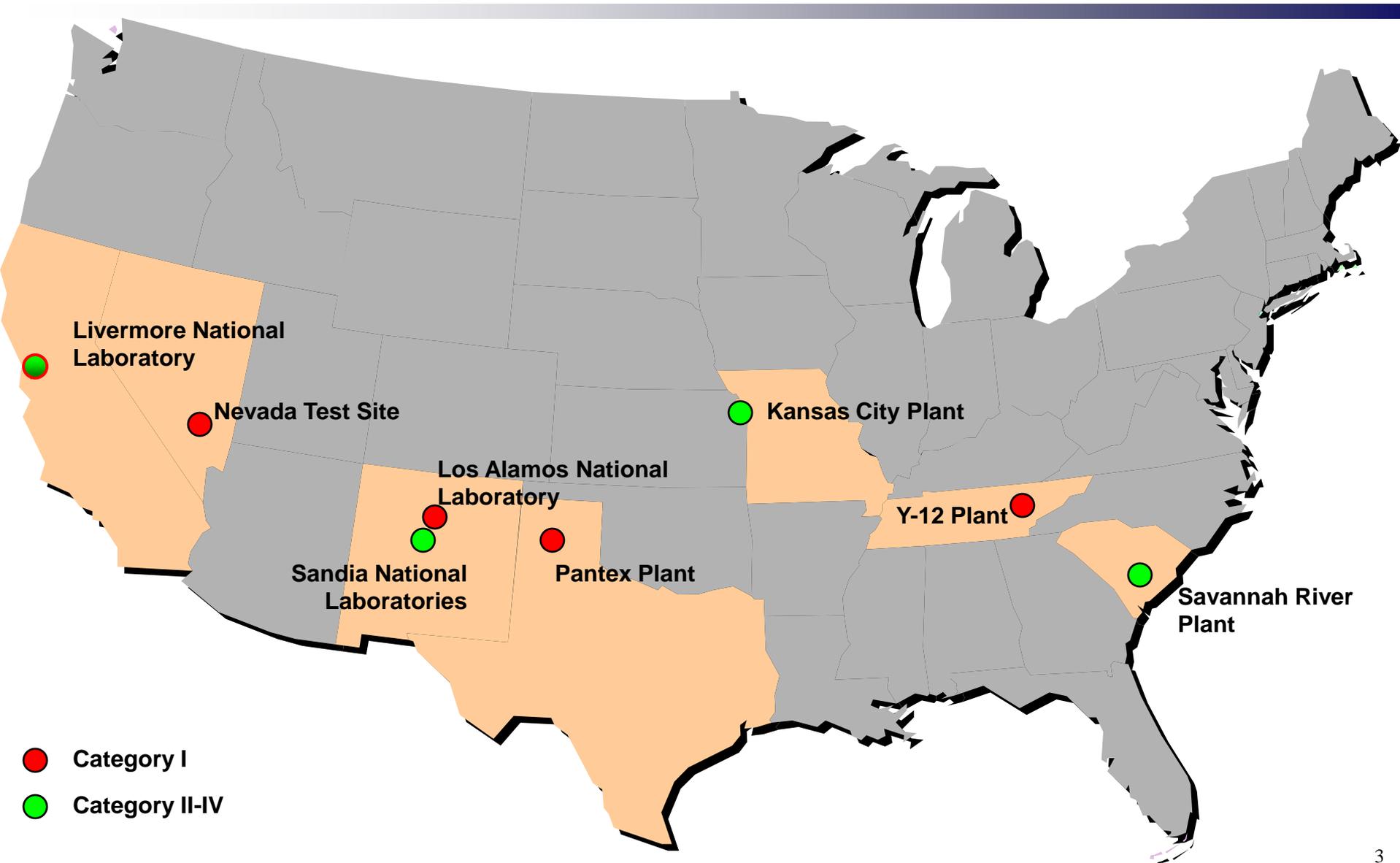


Briefing Overview

- **NNSA overview, problem statement, and security objectives**
- **DOE's Design Basis Threat policy and our physical security approach**
- **Recent physical security and protective force upgrades**
- **Nuclear materials consolidation and new facility initiatives**
- **Conclusion and "take-away" messages**



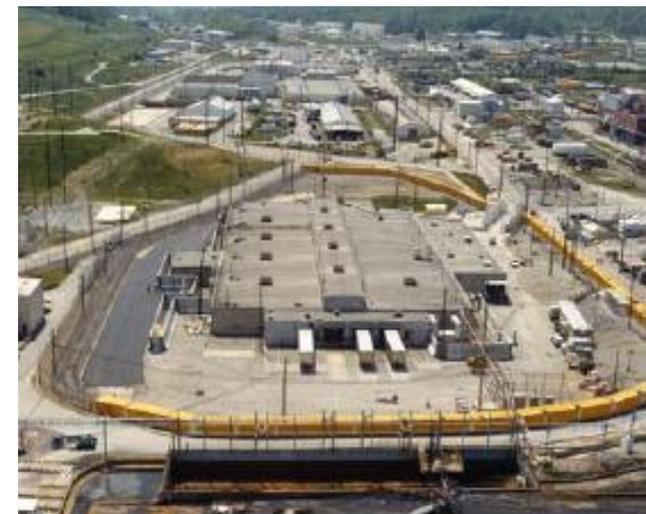
NNSA Nuclear Weapons Complex





Problem Statement

- **NNSA sites contain a variety of special nuclear materials and nuclear weapons that are of great value to our adversaries**
- **The scale of the physical protection program is larger than it needs to be:**
 - **More material than we need for the mission**
 - **Too many storage locations at too many sites**
 - **Soft buildings that are hard to secure**
 - **High cost of operating and securing the NNSA Complex**
- **Sustained efforts are needed to improve the physical protection posture, including reduction of SNM holdings and investment in new facilities to consolidate operations and storage of special nuclear materials**





Security Objectives

- **Our security objectives are:**
 - Prevent unauthorized nuclear detonation
 - Prevent theft of nuclear weapon or material
 - Prevent scatter of nuclear material
 - Prevent adverse effects on public health and safety

- **To accomplish these we must:**
 - Deter an attack from occurring
 - Deny access to the weapon/material
 - Prevent use of the weapon/material
 - Prevent theft of the weapon/material





Design Basis Threat (DBT) Policy

- Departmental policy designed to provide consistent and appropriate security system performance specification that Departmental elements must meet
 - It is **NOT** an intelligence assessment, it **IS** a risk-based policy statement
- Assets are categorized into four “Threat Levels” based on the general consequences of loss, destruction, or impact to public health and safety of employees, the public, and the environment
 - Threat Level 1: Theft, sabotage, unauthorized nuclear detonation of:
 - 1A: Nuclear weapons, nuclear test devices, nuclear weapon components
 - 1B: Category I quantities of SNM
 - Threat Level 2: Sabotage of radiological, biological or chemical materials;
 - Threat Level 3: Theft, sabotage or espionage at critical facilities;
 - Threat Level 4: Theft, Sabotage or Espionage at Non-Critical Facilities



Physical Protection Approach

- The goal is to achieve assured protection
 - Provide security at a very high confidence level
- Improvements in physical security and protective forces have been the primary focus
 - Detection, delay and interdiction are key elements of the security system
 - Work from the inside-out until the security system is optimized and provides highest possible level of effectiveness
- The long term thrust must be in:
 - Reducing the amount of materials requiring protection
 - Consolidating material storage locations
 - Building newer, more secure facilities



Recent Physical Security Upgrades

- **Protective Force lethality**
 - M-134 Dillon Gatling Gun
 - MK-19 Grenade Launcher
 - M107 .50 Caliber rifle
- **Protective Force survivability**
 - Armored vehicles
 - Hardened fighting positions
- **Detection and assessment**
 - Expanding detection zones around critical areas
- **Target hardening – delay and denial**
 - Major efforts taken to increase vehicle and personnel delay/denial around zones
 - Increased physical delay through field expedient target hardening





Recent Protective Forces Upgrades

- Eliminate “law enforcement” model by adopting a “paramilitary force structure
- Organize into tactical teams, with static defense posts and quick response patrols
- Concentrate forces around critical facilities
- Improve command and control
- Improve training and exercises
 - Tactical leadership skills
 - Dedicated training elements
 - Force-on-force exercises





Recent SNM Consolidation Initiatives

- ~12 metric tons of Special Nuclear Material removed from NNSA sites
 - Much of the material is intended for down-blending for commercial reactor use
- Large reduction in SNM storage at NNSA sites
 - De-inventory of sites at Los Alamos – nine facilities reduced to one
 - Removal of Category I SNM from Sandia, New Mexico in 2008
 - Reduction in the number of storage locations at the Y-12 Plant
 - SNM de-inventory in progress at Livermore – below Category I/II by 2012





The Need for New Facilities

- **Current facilities provide limited opportunities for technology solutions – reliance on guns & guards**
- **The long term answer rests with the construction of new facilities capable of providing substantial delay and denial**
- **New facilities represent an opportunity to build security into the design and construction**
- **Improved delay and better access control reduces the reliance on protective forces**
- **New facilities offer the opportunity to eliminate the inherent vulnerability of perimeter protection**
- **Underground, bermed, and heavily reinforced facilities should have greatest impact on security challenges**





New Facility Initiatives

- **New facilities planned or proposed:**
 - **Highly Enriched Uranium Materials Facility**
 - **Chemical Metallurgy Research Replacement**
 - **Nuclear Materials Safeguards & Security Upgrades Project**
 - **Mixed Oxide Facility**
 - **Pit Disassembly & Conversion Facility**
 - **Uranium Processing Facility**
 - **Zone 12 Underground Storage Facility, closure of Zone 4 at Pantex**





Take-Away Messages

- **NNSA sites are, and must remain, among the most well protected facilities in the world**
- **Addressing new threats and sustaining improvements will require tremendous effort – strategic vision and tactical execution**
- **Consolidation of SNM storage sites and facilities is essential**
- **Investments in new “purpose-built” facilities are needed to address the long term sustainability of our security posture**
 - **Construction of hardened facilities will improve security, reduce risk, and reduce security costs**



Questions?





Back-Up Slides



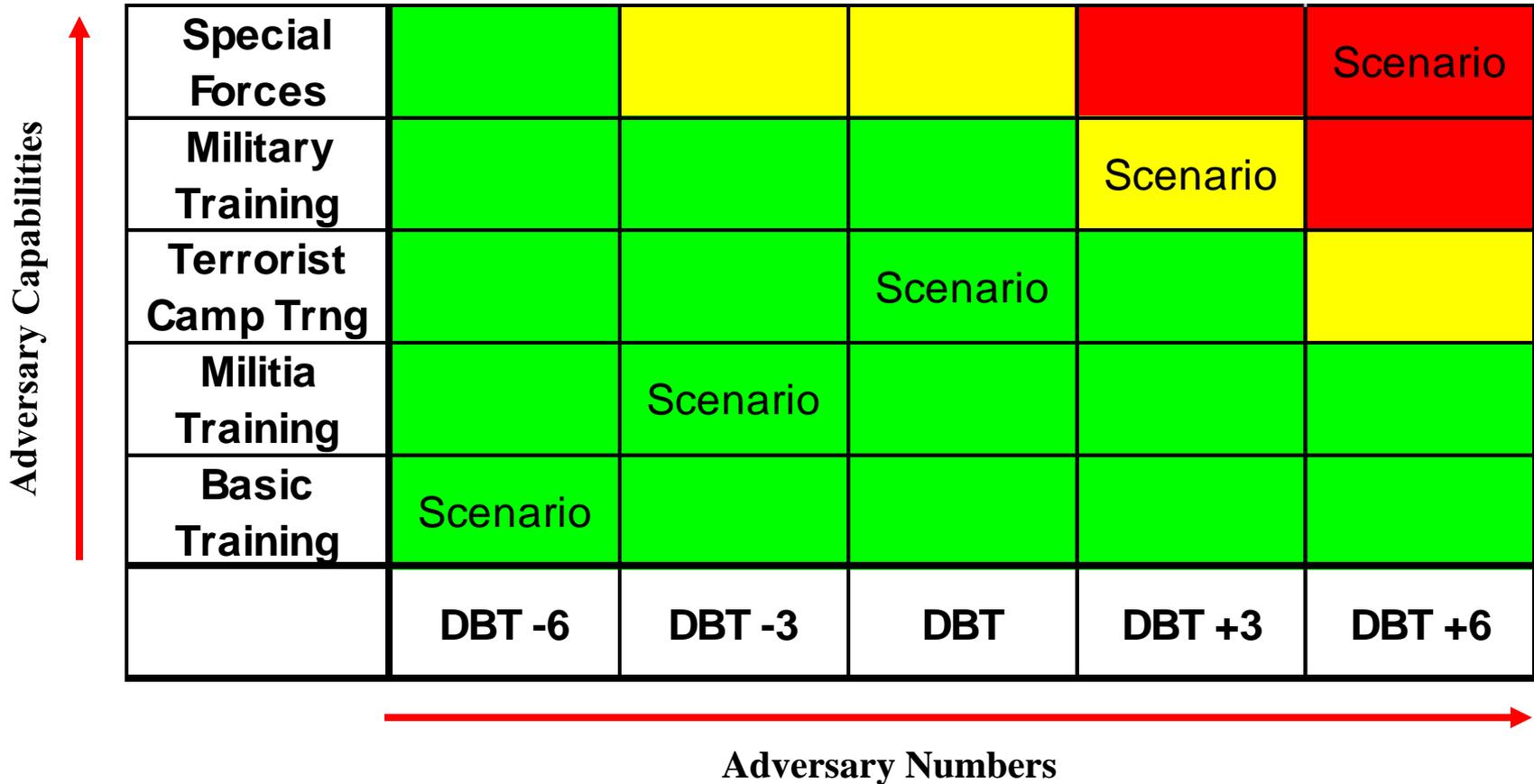


DOE DBT History

- **First incarnation – 1973**
- **Formalized process starting in 1987**
 - **Multi-agency effort**
 - **Initial link to national “Postulated Threat Statement”**
- **Mandated annual review – 1994**
- **Dates of issue: 1978, 1983, 1987, 1992, 1994, 1997, 1998, 1999, 2003, 2004, and 2005**
- **May 2003: Revised DBT is approved based on the events of 9/11.**
 - **Compliance by the end of FY2006**
- **April 2004: Improvised Nuclear Device Annex – Denial Strategy**
 - **Compliance by the end of FY2006**
- **November 2005 Revised DBT**
 - **Phased compliance by the end of FY2011**



Threat Spectrum Scenarios





The Promise of New Facilities

Adversary Capabilities ↑

Special Forces					Scenario
Military Training				Scenario	
Terrorist Camp Trng			Scenario		
Militia Training		Scenario			
Basic Training	Scenario				
	DBT -6	DBT -3	DBT	DBT +3	DBT +6

→ Adversary Numbers