



2010 DoD Strategic Plan For T&E Resources Nuclear Weapons Effects (NWE) Focus Area

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Overview

- TRMC Establishment
- Strategic Plan Law and Guidance
- Inputs to and Outputs of the Strategic Plan
- Strategic Plan Systems Engineering Approach
- Domain and Focus Area Working Groups
- 2010 Strategic Plan & CBRN T&E Standards
- 2010 Strategic Plan & The NWE “Focus Area”
 - Strategic Plan & Strategic Planning Process
 - Linkage To The CSOG-N & CSOG-N T&E Sub-Group – 2010 Strat Plan & Future Strat Plans
 - NWE Infrastructure Per The 2010 Strategic Plan
- Where We Are Today In The CSOG-N Process – *TRMC Perspective*



TRMC Establishment

- The 2003 NDAA, directed the SecDef to establish a DoD-level resource management organization
- DoD Directive (DoDD) 5105.71 established the TRMC as a DoD Field Activity under the authority, direction, and control of the USD(AT&L)
 - Review and provide oversight of proposed DoD budgets and expenditures for T&E facilities and resources
 - **Develop a biennial Strategic Plan reflecting the needs of DoD with respect to T&E facilities and resources**
 - Review the Services' proposed T&E budgets for adequacy and certify that they are in compliance with the Strategic Plan
 - Administer CTEIP and the Test And Evaluation/Science And Technology Program
- **Nuclear Weapons Effects (NWE) has been a "Focus Area" in the last three DoD Strategic Plans (2007,2009, 2010) and will continue as a "Focus Area" in Strategic Plans – 2012 and beyond as long as there is a NWE requirement**



Strategic Plan Law and Guidance



U.S. Code Title 10, Section 196 (d)

“... The strategic plan shall be based on a comprehensive review of the test and evaluation requirements of the Department and the adequacy of the test and evaluation facilities and resources of the Department to meet those requirements....”

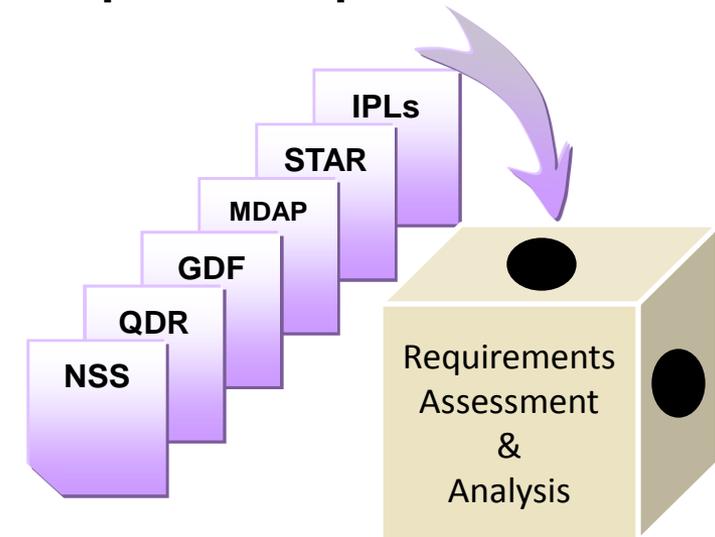
Six statutory requirements:

- (1) An assessment of the T&E requirements of the Department for the period covered by the plan.
- (2) An identification of performance measures associated with the successful achievement of T&E objectives for the period covered by the plan.
- (3) An assessment of the T&E facilities and resources that will be needed to meet such requirements and satisfy such performance measures.
- (4) An assessment of the current state of the T&E facilities and resources of the Department.
- (5) An itemization of acquisitions, upgrades, and improvements necessary to ensure that the T&E facilities and resources of the Department are adequate to meet such requirements and satisfy such performance measures.
- (6) An assessment of the budgetary resources necessary to implement such acquisitions, upgrades, and improvements.



Inputs to and Outputs of the Strategic Plan

Top-Down Inputs



Strategic Plan



T&E Capability Needs:

- ✓ T&E Facilities
- ✓ T&E Workforce
- ✓ T&E Investments



Inform Congress for Appropriations and Legislation



T&E Operations and Investments



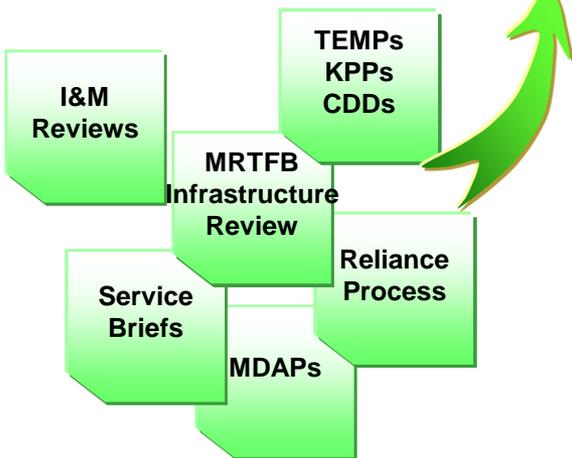
T&E Budget Certification



T&E Investments



Bottom-up Inputs





Strategic Plan Systems Engineering Approach



Translating Statute into Process

Legal Requirements of Statute

Comprehensive Review

Assessment of primary DoD T&E Requirements

Assessment of T&E facilities and resources

Itemize upgrades and improvements

Assessment of budgetary resources

Review MDAPS and National-level priorities; Assess for impacts to DoD T&E

What are the primary DoD T&E requirements?

What is the current state of DoD T&E Infrastructure?

What facilities and resources are needed to meet T&E requirements?

What investments are needed to fulfill resource demands?

Strategic Planning Goal 1:

Strategic Planning Goal 2:

Strategic Planning Goal 3:

Strategic Planning Goal 4:

Strategic Planning Goal 5:

Research Areas and Working Group Outreach

Identify DoD T&E Requirements

Review current T&E Infrastructure

Identify T&E Capability Needs

Provide Recommended Actions

Systematically Map End-to-End



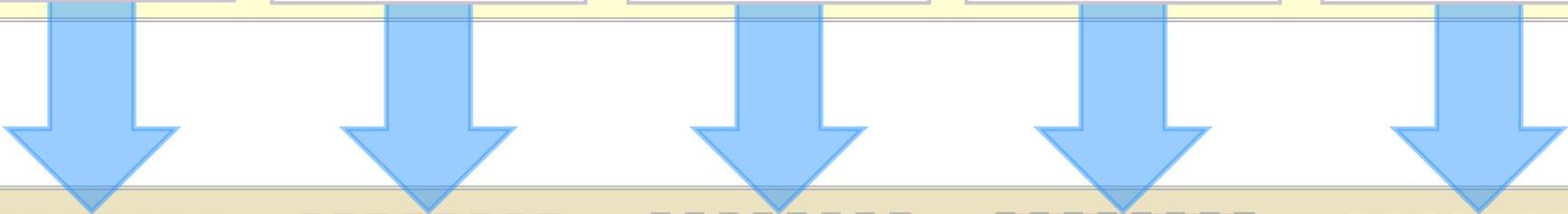
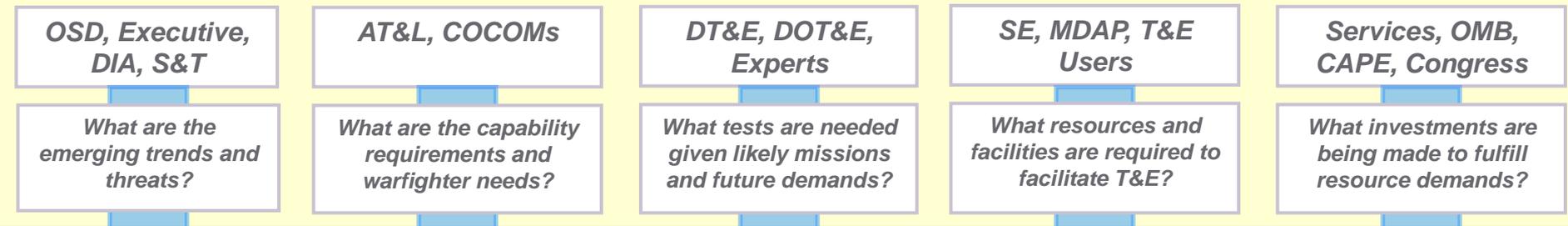
Strategic Plan

Systems Engineering Approach



*Institutionalize approach establishing a standard to link:
Warfighter requirement needs → testing → back to mission capability*

Stakeholder & Interests



Systematically Map End-to-End





Domain and Focus Area Working Groups



Capability Areas	Served by established DoD Working Groups
Air, Land, Sea	Reliance Panels
Space and Missile Defense	SMD JAT, IIPT, OIPT, WG Successor to JAT/OIPT
Cyberspace	IO EXCOM
Artificial Intelligence	Strategic Planning Working Group
Biometrics	DoD PEO Biometrics T&E WIPT
Chemical-Biological Warfare	CSOG-ChemBio, Rad/Nuc T&E Standards - DUSA TE CBRND TECMIPT
Directed Energy	DETEC Working Group
Electronic Warfare / C-IED / Anti-Access	Strategic Planning Working Group, JIEDDO, and JTB
Hypersonics	Joint Technology Office on Hypersonics IPT
Nuclear Weapons Effects	CSOG-N, Defense Science Board
Spectrum Stewardship	Range Spectrum Requirements Working Group (RSRWG) and the C-Band Working Group
Testing in Joint, Net-Centric, and Distributed Test Environments	TRMC T&E/S&T Program Net-Centric Test Technology Area, TRMC-led DIACAP Tiger Team
Targets and Threats	Threat Systems Working Group (TSWG), Target Investment Working Group (TIWG), Reliance Panel
Unmanned and Autonomous Systems	UAS Task Force, Joint Program Robotics Office, and Joint Ground Robotics Integration Team (JGRIT)



2010 Strategic Plan and CBRND T&E Standards

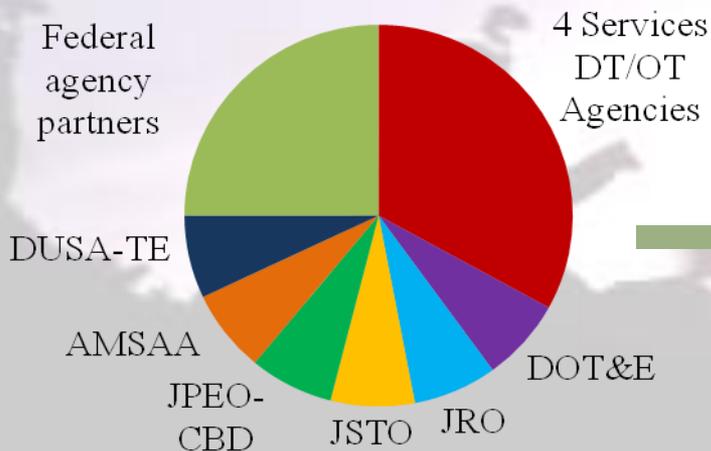


DoD Process for Establishing T&E Standards

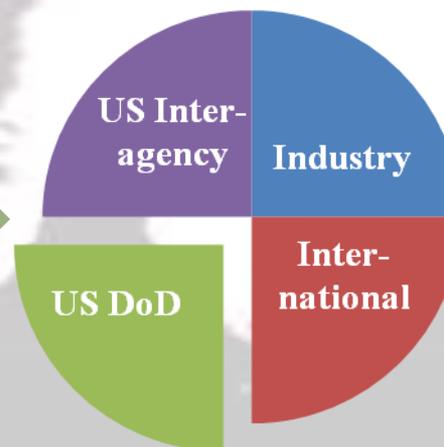


- CBRND T&E Executive establishes DoD CBRND T&E standards, through T&E Capabilities and Methodologies IPT (TECMIPT)
 - Interagency partners now participating in TECMIPT process
- SMEs in TECMIPT CBRN commodity area sub-groups provide rigor to T&E standards development

TECMIPT Members



Worldwide CBRND T&E Standards Partners





Rad/Nuc TECMIPT Sub-Group Interagency Members



DoD

- Defense Threat Reduction Agency (DTRA)
- Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD)
- Joint Requirements Office, CBD (JRO-CBD)
- Army T&E Command (ATEC)
- Air Force Operational T&E Command (AFOTEC)
- Navy Commander, Operational T&E Force (COMOPTEVFOR)
- Marine Corps Operational T&E Activity
- Naval Surface Warfare Center, Dahlgren Division (NSWC-DD)
- White Sands Missile Range (WSMR)
- US Army Radiation Standards Laboratory (RSL)
- Dugway Proving Ground (DPG), West Desert Test Center (WDTC)

Department of Homeland Security (DHS)

- Domestic Nuclear Detection Office (DNDO)

National Institute of Standards and Technology (NIST)

Environmental Protection Agency (EPA)

Department of Energy (DOE) National Laboratories:

- Pacific Northwest National Laboratory (PNNL)
- Oak Ridge National Laboratory (ORNL)



Rad/Nuc T&E Standard Near-Term Priorities



1. Review existing Rad/Nuc consensus T&E standards currently used by federal agencies. Combine, modify and/or update as necessary and provide interagency concurrence on T&E standards for:
 - a. Detection: The CAPAT has identified five detection technologies to be addressed first:
 - man-portable systems (i.e. backpacks and Radiation Isotope Identification Devices (RIIDs))
 - Aerials systems
 - Vehicle-mounted systems
 - Personal Radiation Detectors (or PRDs, also referred to as Pagers)
 - Boat-mounted systems.
 - b. Rad/Nuc personal protection systems, to include dosimeters and individual protective ensembles
 - c. Rad/Nuc decontamination systems
2. Support PM procurement of COTS items
 - a. Develop a Rad/Nuc T&E program for COTS vendor participation to reduce redundant government testing
 - b. Identify and leverage existing government test data for COTS equipment that can be shared across agencies.



Rad/Nuc T&E Standard Mid and Long-Term Priorities



1. Identify/Prioritize Rad/Nuc T&E capability gaps , develop requirements (Test and Evaluation Capability Needs (TECN) statements) for new Rad/Nuc T&E infrastructure to fill the gaps
2. Develop and/or review the validation plans and reports for the infrastructure in accordance with the “CDBP T&E Standards Development Plan” and the TECMIPT SOP.
3. Identify T&E standardization goals for:
 - Rad/Nuc pre- and post-detonation forensics
 - Effectiveness of filtration for survivability in collectively protected spaces



2010 Strategic Plan and the NWE Focus Area



TRMC Interest in DoDI 3150.09 and the CSOG-N Processes



- **Why a NWE Focus Area?**

- Genesis of TRMC interest based on *the same concerns that drove DoD to the new DoDI 3150.09 , the CSOG process, and establishment of the permanent DSB Task Force on Survivability of DoD Systems and Assets to EMP and other Nuclear Weapons Effects*
- 11 Senior, “Flag” Level Task Force Studies, and Congressional Commission Studies focused on the Department’s Nuclear Enterprise and the need for paying more attention to both the Nuclear Enterprise and the nuclear survivability requirements of systems

- ***All studies found a systemic atrophy across the Department regarding “Things Nuclear”***

- **To date, the Strategic Plans have deferred any assessment of the adequacy of the NWE test infrastructure** because the processes to refocus the Department on nuclear survivability were just beginning and “user” NWE test requirements were lacking
 - Requires assessment of “**user needs**” versus **adequacy of test infrastructure**
 - “**User test needs**” are just evolving as the Service/Agency Mission Critical Lists mature
- TRMC is collaborating with DATSD/NM in the CSOG-N process and are participating in the on-going permanent DSB on nuclear survivability
 - The Department is analyzing the Service/Agency Mission Critical Lists (2010 Version & Expected Mid Year Update) to extract NWE test infrastructure needs
- **Bottom Line Goal: To be able to assess infrastructure adequacy in future Strategic Plans based on “user needs”**



2010 Strategic Plan For T&E Resources

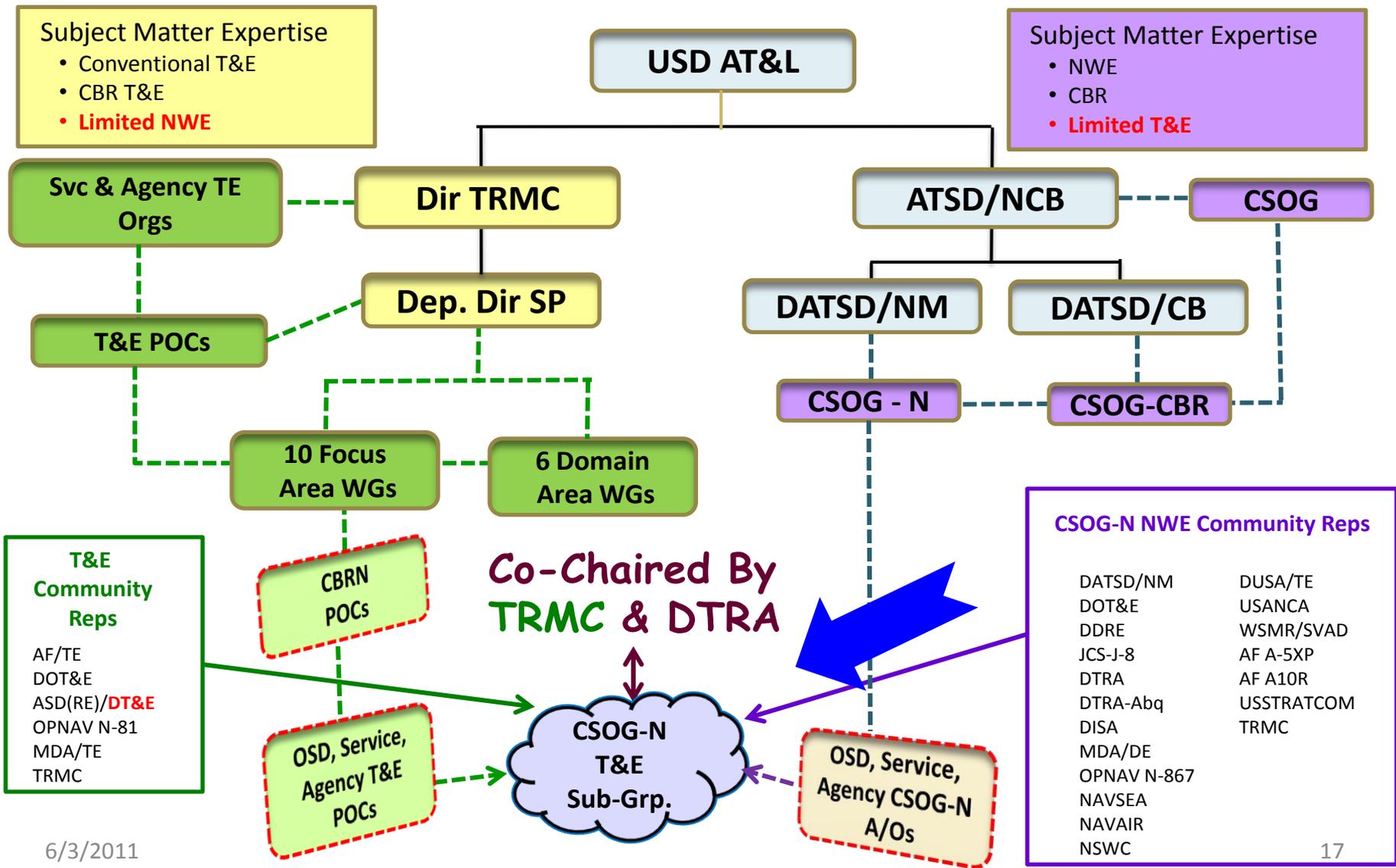
(30 November 2010)



- The 2010 Strategic Plan was developed **in-parallel** with on-going CSOG activity and released for publication on 30 Nov 10
- NWE Focus Area
 - **Documents the Department's re-emphasis on the Nuclear Enterprise**
 - Past Senior TF Studies
 - DoDI 3150.09 , CSOG-N, and DSB Implementation Plans
 - **Defers assessment of T&E Resource Adequacy** pending anticipated “requirements” evolving from the CSOG-process
- CSOG-N T&E WG formed to address T&E and T&E resource issues/needs resulting from the CSOG –N process **for future Strategic Plans**
 - Co-Chaired by TRMC and DTRA
 - Membership from T&E, OSD nuclear communities, Services, and MDA
 - Kick-off meeting held on 14 Feb 10; 2nd meeting held on 14 Jul 10
 - Will provide a “user requirements vetting forum” for EMP, X-ray, gamma ray, neutron, blast, thermal, disturbed environments simulators in the 2012 Strategic Plan
 - **Assures DoD and DOE limited set of simulators is sustained to meet anticipated testing requirements expected to evolve from the CSOG-N process**
 - Currently analyzing the 2010 MCLs and assessing the data therein
 - Process will be re-invigorated in late summer or early fall after the MCLs mature



CSOG-N T&E Sub-Group





Framework for the CSOG-T&E Sub-Group



- **The Way Ahead** – Questions we hope to be able to answer in future Strat Plans
 - Which Mission Critical Systems have **nuclear “operate though” requirements?**
 - **HEMP**, X-ray, Gamma Ray, Neutron, Blast, Thermal, Disturbed Environments
 - Will the **“operate thru” capability** be achieved by **TTP** and/or **hardening?**
 - Nuclear Command And Control (NC2) system facilities and equipment, must be nuclear hardened and have a continuing Hardness Maintenance And Hardness Surveillance (HM/HS) program
 - For systems with **nuclear hardness requirements:**
 - What is the plan to assess their **vulnerability and survivability?**
 - Which, “if any” **HEMP**, X-ray, Gamma Ray, Neutron, Blast, Thermal, Disturbed Environment simulators will be needed?
 - For legacy systems with vulnerabilities that will be resolved by “hardening,” **which simulators will be needed to assess hardening adequacy?**
 - Which simulators will be needed for any **planned or existing HM/HS programs?**
- **Output** will get more granular over time **and will feed:**
 - The development of future DoD Strategic Plans For T&E Resources
 - The Permanent DSB on Nuclear Survivability
 - Follow-on CSOG-N processes (future updates to Mission Critical Lists)



NWE Recommendations –2010 Strategic Plan

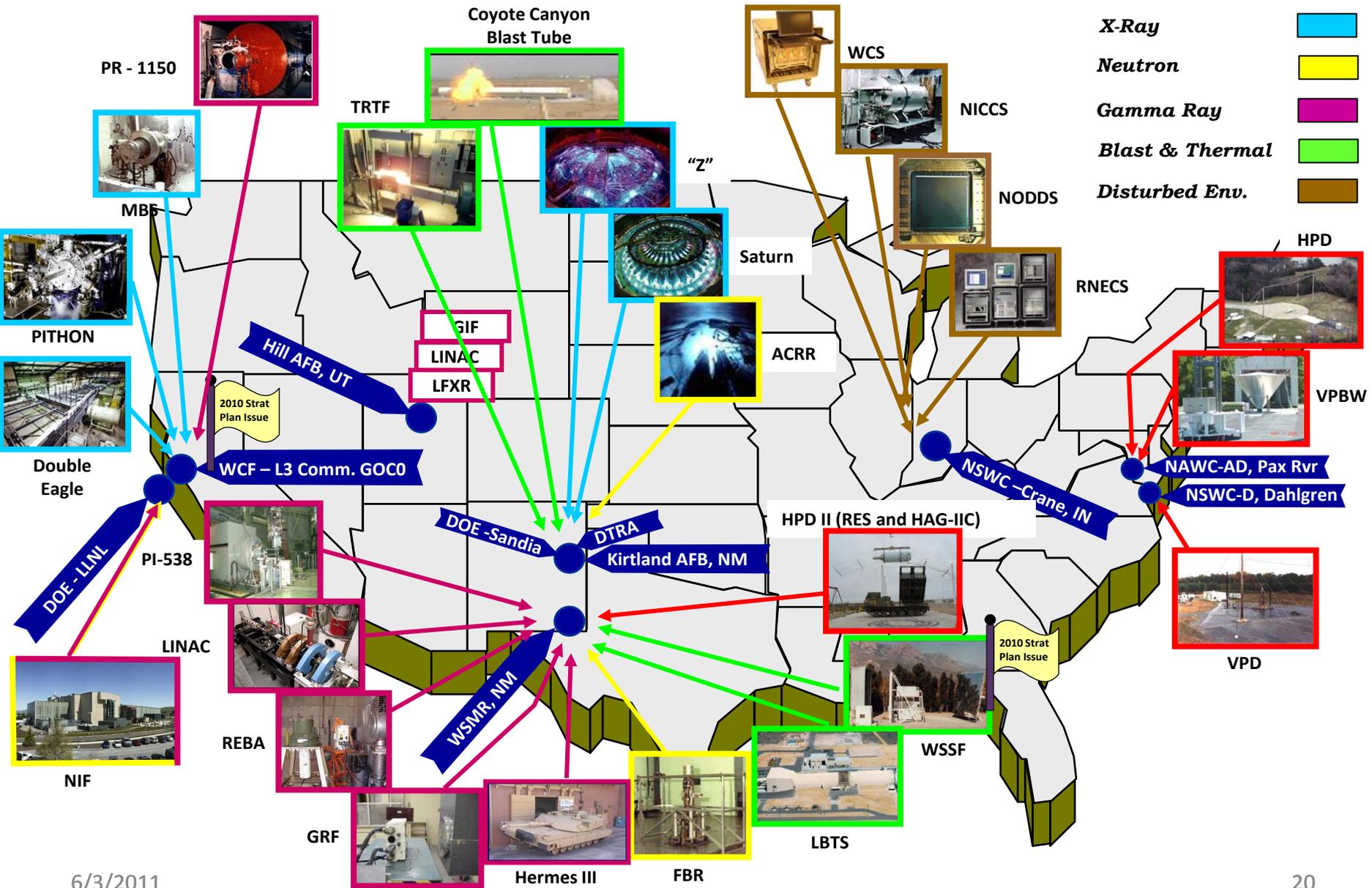


Recommended Actions *(from the 2010 Strategic Plan)*

- TRMC will continue to collaborate with DATSD (NM) through the CSOG-N, CSOG-N T&E Sub-group, and Permanent Nuclear Survivability DSB Processes over the coming years to identify NWE test requirements, assess the adequacy of the NWE simulation infrastructure, and identify capability needs of NWE test resources. **TRMC recommends the DSB monitor NWE test and simulation infrastructure, as well as the availability of a skilled workforce.**
- Infrastructure Capability Need: **White Sands Solar Furnace**
 - **Recommended Action:** TRMC monitor the Army plan to bring the Solar Furnace back to full operational capability.
- Infrastructure Capability Need: **DTRA's West Coast Facility (WCF)**
 - **Recommended Action:** DTRA (with assistance from the CSOG-N T&E Sub-group and the DSB Task Force on Nuclear Survivability) should develop and implement a new facility sustainment plan based on projected program needs before the current contract with L-3 Communications expires in January 2013.
- Identifies **an initial baseline set of core NWE T&E facilities** that need to be sustained pending the DoDI 3150.09, CSOG-N implementation process, and DSB Nuclear Survivability Task Force Review. **(see Next VGs)**

NWE Simulators Addressed in 2010 Strategic Plan

- EMP**
- X-Ray**
- Neutron**
- Gamma Ray**
- Blast & Thermal**
- Disturbed Env.**





Core Facilities that Need to be Sustained (per 2010 Strategic Plan)



NW Environment	Test Facilities	Use
Prompt and Modified Neutron	SNL SPR III (or equivalent)* SNL ACRR WSMR FBR (also combined gamma) LANSCCE, IBL, and RTNS	For nuclear warhead subsystem space simulations For nuclear warhead components For ground and air systems, missiles, satellites and interceptors For component tests and model validation
Prompt Cold X-rays (Plasma Radiation Source)	SNL Upgraded SATURN and/or DTRA WCF Double Eagle** LLNL NIF and/or SNL ZR	For space system components/optics For future RV/RB materials and interceptors
Prompt Warm/Hot X-rays (Bremsstrahlung source)	SNL Upgraded Saturn and/or DTRA WCF PITHON** DRTA WCF** & AEDC Modular Bremsstrahlung Source (MBS)	For medium dose electronics and cables For hardness surveillance and low-dose boxes
Prompt Gamma & Gamma Total Dose (GDT)	HERMES III DTRA WCF Pulserad 1150* * WSMR Pulserad 538 Hill AFB Pulserad 958 WSMR REBA WSMR LINAC GRF-GTD Eldorado-GDT	High dose-rates for strategic systems Low dose-rates for satellites and interceptors GDT for systems and large components GDT for electronic devices and components



Core Facilities that Need to be Sustained (per 2010 Strategic Plan) – cont'd



NW Environment	Test Facilities	Use
EMP	WSMR HPD-2, HAG-1 WSMR Advanced HPD (AHPD) WSMR Pulse Current Injection Fac. (PCI) NAWC HPD, VPBW	For Army systems New E1 HEMP waveform facility For life cycle HA/HM/HS testing For large ground and air systems
SREMP	HERMES III Current Injection Test (CIT)	For Army vehicles and field C3 systems For installations and equipment
Impulse	LIHE Flyer-plate (Magnetic or LIHE)*	For RV/RB internal components/mounts For future RV/RB aeroshells
Blast, Thermal, and Shock	WSMR LBTS SNL Thunder Range WSMR Solar Furnace*	For ground vehicles, structures, antennae For RV/RB systems
Disturbed Atmospheric RF/IR/Visible	NSWC Advanced Channel Scintillation (ACS) Nuclear Optical Dynamic Display System (NODDS) Radar Nuclear Corrupter & Simulator (RNECS)	For MILSATCOM, interceptor in-flight comm. and seekers
Combined Radiation Environments	WSMR Combined Radiation Environment (CRE) Facility	Provides an exoatmospheric gamma-neutron environment for synergistic testing

****Sustain until an alternative is available, tested and certified**

***Not Currently Available**



Where We Are Today In The CSOG-N Process (TRMC Perspective)



- **Services/Agencies have identified 400+ CBRN Mission Critical Systems (MCSs)**
- **What we hope to glean from the Mission Critical System Lists (MCLs) is a macro view of:**
 - MCSs with mission requirements to operate through a nuclear and/or EMP environments
 - Which have documented “Hardness Requirements” for survivability
 - Which will use TTPs for survivability
 - MCSs with HM/HS programs
 - Which MCSs have been tested for survivability and which need to be tested
 - **The MCLs are still maturing and in many cases lack detail – impetus for a mid-year update**
- **A sub-set of these systems will require DoD and/or DOE NWE simulator capabilities**
 - To assess the vulnerability of legacy Mission Critical Systems
 - To assess the hardness of Mission Critical Systems with nuclear hardness requirements (both legacy and new)
 - To Support Hardness Maintenance/Hardness Surveillance Programs
- **Depending on the system, vulnerability/hardness assessments may be required for:**
 - Electromagnetic Pulse (EMP) and High Altitude EMP (HEMP) effects
 - X-Ray Effects
 - Gamma Ray Effects
 - Neutron Effects
 - Blast & Thermal Effects
 - Disturbed Environment Effects
- **DoD and DOE have simulators for these effects but their adequacy is dependent on user requirements (capacity and technical requirements)**



NWE Conclusion –2010 Strategic Plan



- The DoD initiative to identify and correct deficiencies of systems with requirements to operate through nuclear (including EMP) environments is still at the beginning stage.
- TRMC will continue collaboration with DATSD (NM) in these activities and expects more definitive NWE test and test resource requirements to emerge over the next two years.
- For this Strategic Plan, the NWE test facilities and simulators identified in Table B9-1 require sustainment to meet evolving NWE test requirements as they emerge from the DoDI 3150.09 implementation process



Points of Contact



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Questions ?



Backup



NWE “Drivers” (Re-awakening To NWE)

Flag Level Studies Addressing NWE Within DoD



- 2004 - Rpt of Commission To Assess The Threat To The US Of EMP Attack – Dr. Graham
- Dec 06 - DSB Report on Nuclear Capabilities, - Gen Welch (Ret) /Dr. Foster
- Oct 07 - Joint DSB/TRAC TF The Nuclear Weapons Effects National Enterprise - Dr. John/Joe Braddock
- May 2007- DoD IG Report No. 07-INTEL-07, Audit of DoD EMP Testing & Survivability Capabilities (SECRET),
- Feb 08 - Permanent DSB TF on Nuclear Surety – Rpt on Unauthorized Movement of Nuclear Weapons – Gen Welch (Ret)
- April 08 - Report of Commission To Assess The Threat To The US Of Electromagnetic Pulse Attack – Dr. Graham
- Summer 08 - AF Blue Ribbon Review of Nuclear Weapons Policies & Procedures – Peyer
- Sep 08 - DSB Task Force on Nuclear Skills – ADM Chiles
- Sep 08 – AF Nuclear TF Rpt on “Reinvigorating the AF Nuclear Enterprise” – MG Alston, SecAF Donley, Gen. Schwartz
- Sep 08/Dec08 - Rpt of the SecDef TF on DoD Nuclear Weapons Mgt,– Hon. James Schlesinger
 - AF Review
 - DoD Wide Review
- Sep 08 - SecDef/SecDOE White Paper on “National Security and Nuclear Weapons in the 21st Century” – Hon. Robert Gates/Samuel Bodman
- Dec 08 - Permanent DSB TF on Nuclear Surety, Nuclear Wpns Inspections, Gen Welch (Ret)
- Sep 08 - DoDI 3150.09, Chemical, Biological, Radiological, and Nuclear (CBRN) Survivability Policy
- 2009 – Service/Agency Response To DoD EMP Action Plan & CBRN Policy – Mission Critical Facilities
- Apr 2009 – DSB Permanent Task Force on Survivability of DoD Systems & Assets To Electromagnetic Pulse EMP & Other Nuclear Effects, Dr John +