NAVSEA
NAVAL SEA SYSTEMS COMMAND

NAVSEA Technical Authority and the CAD/PAD Technical Warrant Holder

12 JULY 2022

Prepared by:

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CAD/PAD TECHNICAL WARRANT HOLDER
NAVSEA 05E4

Agenda

- Why is Technical Authority important
- Origin of Technical Authority
- What is Technical Authority
- Technical Authority's Scope
- NAVSEA Types of Authority
  - Red Box – Blue Box
  - Roles and Responsibilities
  - CAD/PAD Technical Warrant Holder
- Backup

Why is Technical Authority Important?

1963 — 

USS THRESHER — World's 1st nuclear submarine to be lost. World's worst submarine disaster in terms of lives lost → **SUBSAFE**

1967 — 

USS FORRESTAL — Electrical anomaly discharged a Zuni rocket on the flight deck
134 dead and 161 more injured → **NOSSA/WSESRB**

1979 — 

THREE MILE ISLAND — Worst accident in American commercial nuclear power generation → **NRC inspections**

1986 — 

CHALLENGER — Faulty design - launched under unsafe conditions/ O-ring defect → **Shuttle Safety Panel**

1997 COMNAVSEA Technical Authority Memo

2002 — 

USS DOLPHIN — Fire and flooding was beyond the ability of the crew to control

2003 — 

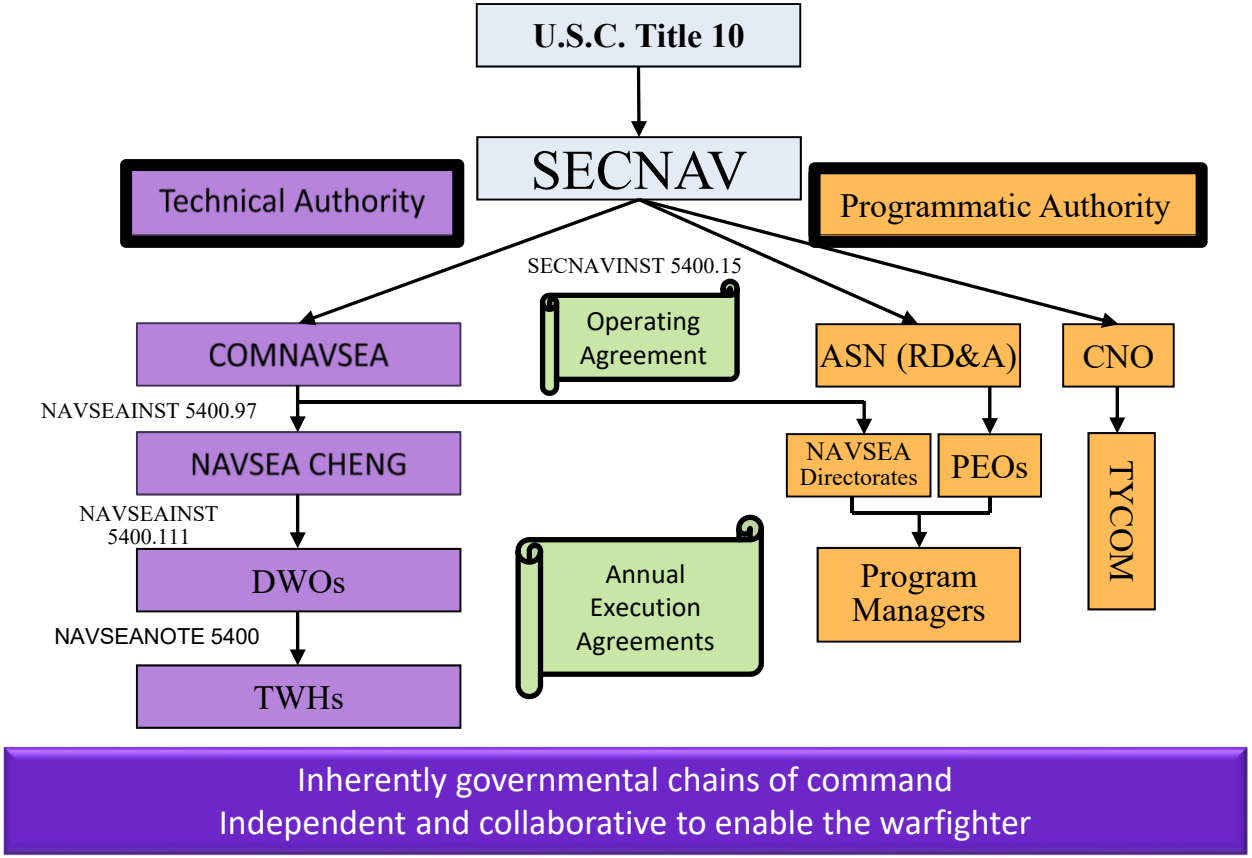
COLUMBIA — Heat shield damage on the shuttle's left wing

2007 SECNAV Technical Authority Instruction

2010 — 

DEEPWATER HORIZON — Defective cement job
Systematic failure in safe practices; lack of training

Origin of Technical Authority



Inherently governmental chains of command
Independent and collaborative to enable the warfighter

US Navy Technical Authority

DEPARTMENT OF THE NAVY
NAVAL AIR SYSTEMS COMMAND, PATUXENT RIVER, MD 20670-1547
NAVAL SEA SYSTEMS COMMAND, WASHINGTON NAVY YARD, DC 20376-4065
NAVAL SUPPLY SYSTEMS COMMAND, MECHANICSBURG, PA
NAVAL FACILITIES ENGINEERING COMMAND, WASHINGTON NAVY YARD, DC 20374-5065
SPACE AND NAVAL WARFARE SYSTEMS COMMAND, SAN DIEGO, CA 92110-3127

IN REPLY REFER TO

SPAWARINST 5400.1A	NAVFACINST 5400.10	NAVSUPINST 5400.15
SPW 05A	FAC CI	SUP 31
31 Oct 2006	7 Nov 2006	12 Dec 2006
NAVSEAINST 5400.97C		NAVAIRINST 5400.158A
Ser TAB/018		AIR-4.1
27 Nov 2006		31 Jan 2007

VIRTUAL SYSCOM JOINT INSTRUCTION - VS-JI-22A

From: Commander, Naval Air Systems Command
Commander, Naval Sea Systems Command
Commander, Naval Supply Systems Command
Commander, Naval Facilities Engineering Command
Commander, Space and Naval Warfare Systems Command

Subj: VIRTUAL SYSCOM ENGINEERING AND TECHNICAL AUTHORITY POLICY

What is Technical Authority?

The *authority*, *responsibility*, and *accountability* to establish, monitor, and approve *technical standards*, *tools*, and *processes* in conformance to higher authority policy, requirements, architectures and standards.

Is independent of programmatic authority

Provides adequate checks and balances to ensure safety, reliability, interoperability, and accuracy of costs

Supports PMs and the Fleet, providing best value engineering and technical products

Provides technically feasible options to PM

Technical Authority's Scope

- Oversight of core processes
- Work toward most efficient infrastructure to support systems and operations
- Establish standard policies, technical specifications, and processes
- Introduce advanced technology and lessons learned
- Provide trained and qualified personnel

Technical Authority is independent of organizational boundaries and is accountable for managing risks across SYSCOMs

NAVSEA Types of Authority

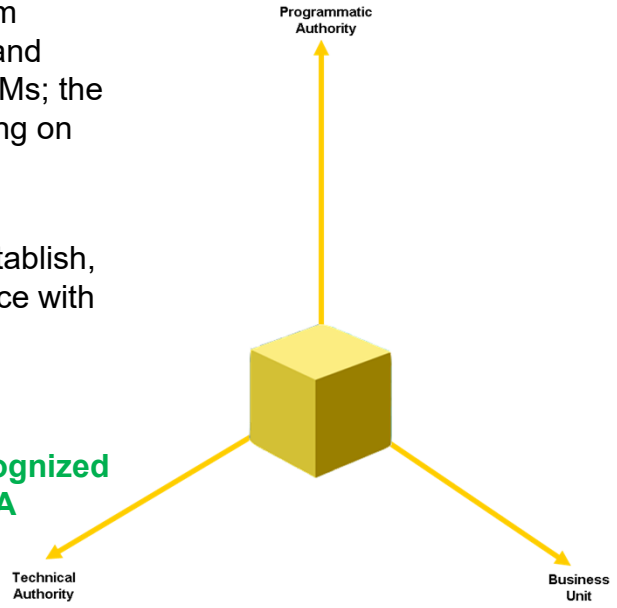
- Business Unit (BU): organizations that have line management responsibility for people, facilities, and operations

- Programmatic Authority (PA): manages all aspects of assigned programs from concept to disposal, including oversight of cost, schedule, and performance, and direction of life cycle management. Programmatic authority is exercised by PMs; the Commander, Navy Installations Command (CNIC); and by the Fleet, depending on funding and program assignments

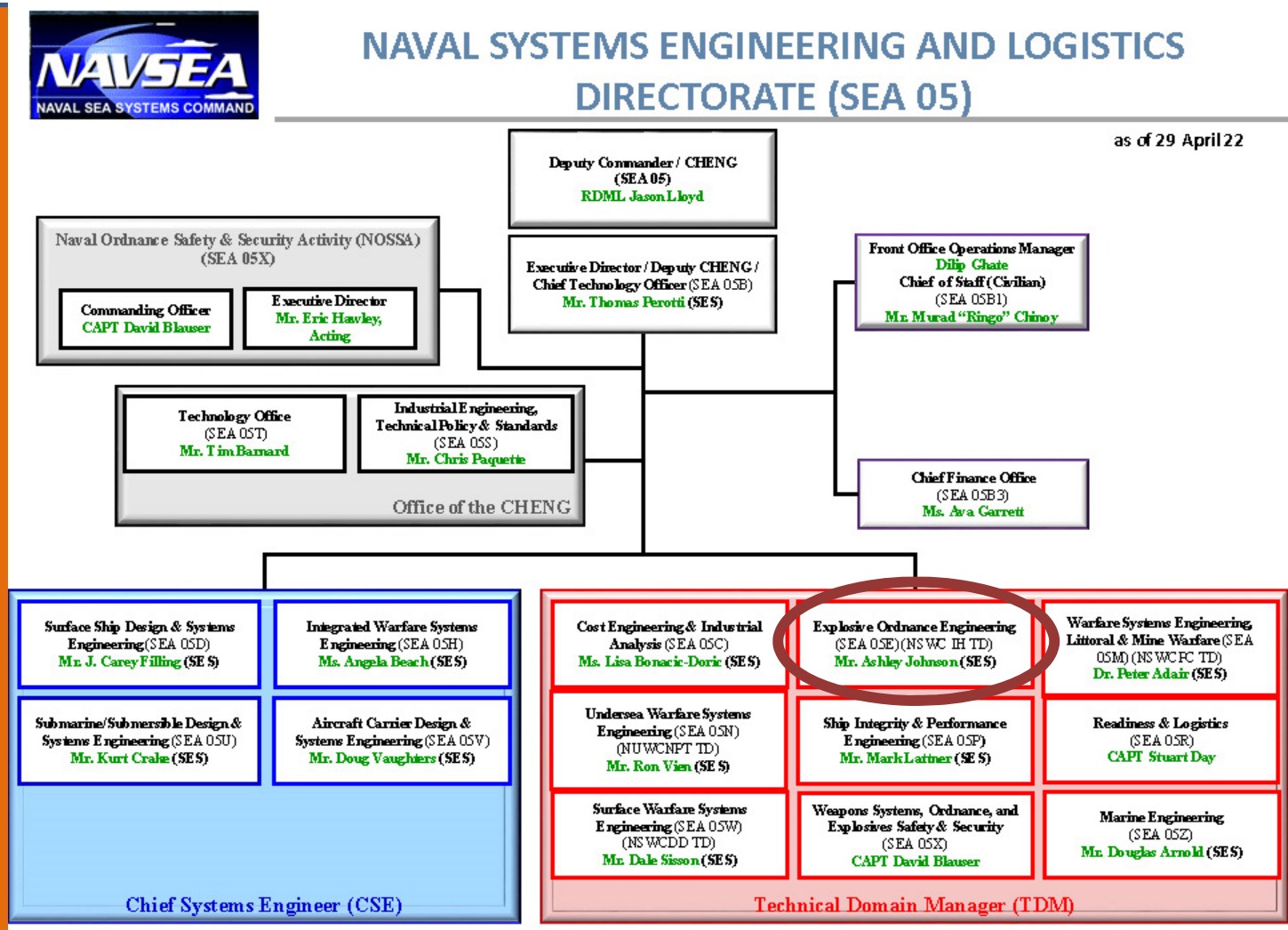
- Technical Authority (TA): the authority, responsibility, and accountability to establish, monitor, and approve technical standards, tools, and processes in conformance with higher-authority policy, requirements, architectures, and standards

- Certification Authority (CA): **the authority to certify that products meet established standards. Specific certification authority is defined or recognized by the technical process documentation established by the cognizant TA**

Note: Technical authorities, programmatic authorities, and others may be certification authorities, depending on what the specific technical process documentation defines



Naval Systems Engineering Directorate (SEA05)



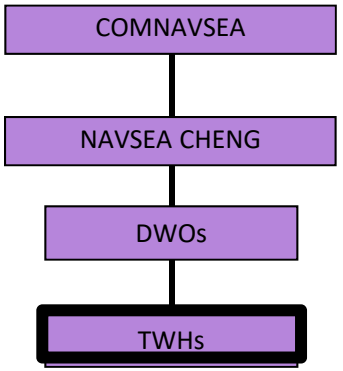
Roles and Responsibilities of DWOs

Chief Systems Engineers (CSEs)	CSEs and TDMs	Technical Domain Managers (TDMs)
Generate and coordinate Annual Execution Agreements (AEAs)	Endorse Warranted Technical Area definitions	Develop and maintain polices, standards and processes within their technical domain
Provide input and review of technical standards	Approve Engineering Agent Responsibilities Documents (EARDs)	Identify investments required to mitigate technical authority risks
Co-Chair Systems Engineering Technical Reviews (SETRs) and ensure proper technical support by SDMs/SIMs and cross program TWHs	Implement technical authority policies and oversee execution of technical authority.	Provide independent technical authority support for SETRs under the coordination of the CSEs
Lead program test, evaluation, certification, and ensure specialty engineering analyses are accomplished	Engage in risk assessments	Define technical authority Science and Technology needs

Red and Blue boxes have equivalent authority

Technical Warrant Holder Responsibilities

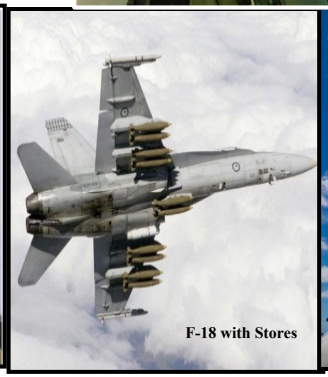
1. Set Technical Standards
2. Maintain Technical Area Expertise
3. Ensure Safe and Reliable Operations
4. Ensure Effective and Efficient Systems Engineering
5. Provide Judgement in Making Unbiased Technical Decisions
6. Steward Engineering and Technical Capabilities
7. Maintain Accountability and Technical Integrity



TWHs lead technical efforts throughout DON in their Warranted Technical Areas

CAD/PAD Technical Warrant Holder

- Current TWH: John Burchett (30 April 2017)
- Warranting Letter 22 November 2019
- Experience in CAD/PAD in aircraft, weapons, and other systems across all services
- Joined CAD/PAD in 1984
- MSc Explosive Ordnance Engineering
- BS Mechanical Engineering
- DAWIA Level III - Engineering



CAD/PAD TWH – At a glance

Completed/Current Initiatives

- Worked with Indian Head, NOSSA, and others to update key processes, instructions, specs, and standards
- **Coordinated to enable use of NAVSEA CDMD-OA MK/MOD process for CAD/PAD (JSF/subs**)
- **Worked with Indian Head and other TWH to evaluate safety and reliability issues (HARs)**
- **Worked on NAVSEA Risk Management working group to update NAVSEA risk management policy and processes**
- **Worked with NAVSEA and Indian Head to address backlog in over age specifications**
- Coordinated with NAVSEA and Indian Head to train personnel to utilize DOD wide spec management tools
- Teamed with Indian Head to update procedures on processing of configuration documents
- Worked with CAD/PAD Technology Roadmap Team to update roadmap processes, content, and use
- Participated in SETR events (PDRs, CDRs, Design Certification Reviews)
- Worked with NATO partners to develop a guidance document on qualification of CAD/PAD

CAD/PAD TWH – At a glance

Ongoing/Future Initiatives

- Work with Indian Head and Commands to define and update key processes regarding CAD/PAD
- Work with NAVSEA and Indian Head to address backlog in over age specifications
- Team with USN and other organizations to establish or update CAD/PAD related standards
- Team with Indian Head and industry to encourage new technologies and obsolescence replacements
- **Work with other TWH and SMEs to establish workforce CAD/PAD technical training**
- Work with other TWH and related programs to establish better engagement with CAD/PAD
- Increase more robust participate in SETR events
- Assist in transition to MBSE and MBPS tools
- Monitor/review key production variances, engineering change proposals, and engineering change orders, service life extensions, and risk assessment quantities and trends
- **Establish mentoring opportunities for less seasoned employees**

CAD/PAD TWH – Summary

- Look for….
  - changes in specs and standards to streamline requirements, reduce costs, and provide a clearer and more consistent understanding of technical requirements
  - Streamlining of Certification Processes across CAD/PAD community
  - Increase in technical discipline and engineering rigor
  - Better definition and understanding of Systems Engineering Technical Reviews (SETR) and other engineering processes
  - Better use of engineering artifacts (Objective Quality Evidence, OQE)

Thank you *in advance for your help and suggestions. This is an impossible job without your contributions.*

Questions?

BACKUP

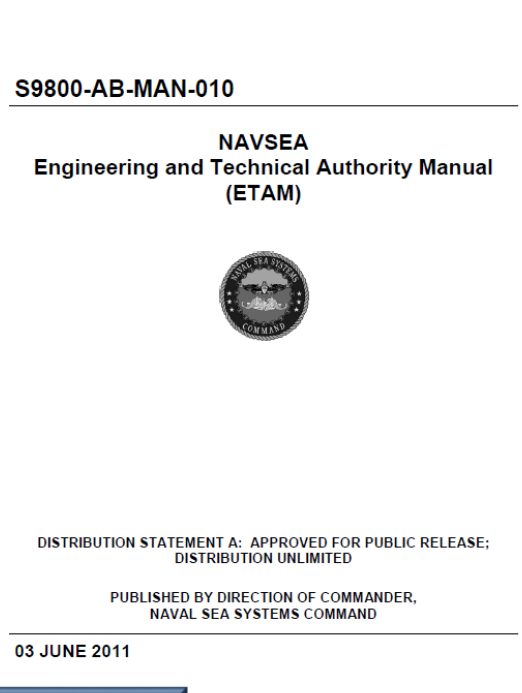
Certification Authority

- Certification Authority (CA) is the authority to certify that products meet established standards
- Specific certification authority is defined or recognized by the technical process documentation established by the cognizant TA
- Technical authorities, programmatic authorities, and others may be certification authorities, depending on what the specific technical process documentation defines
- Warfare systems, combat systems, and element certifications formally confirm meeting a standard and/or specification

NAVSEAINST 5400.97

NAVSEA ETAM

- Implements:
  - NAVSEAINST 5400.97 – Virtual SYSCOM Engineering and Technical Authority Policy
  - NAVSEAINST 5400.111 – NAVSEA Engineering and Technical Authority Policy
- Provides NAVSEA CHENG's direction and guidance to the NAVSEA engineering community
- Serves as a training tool and reference document for engineers, technical authorities, and those dependent on TA



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(ETAM)

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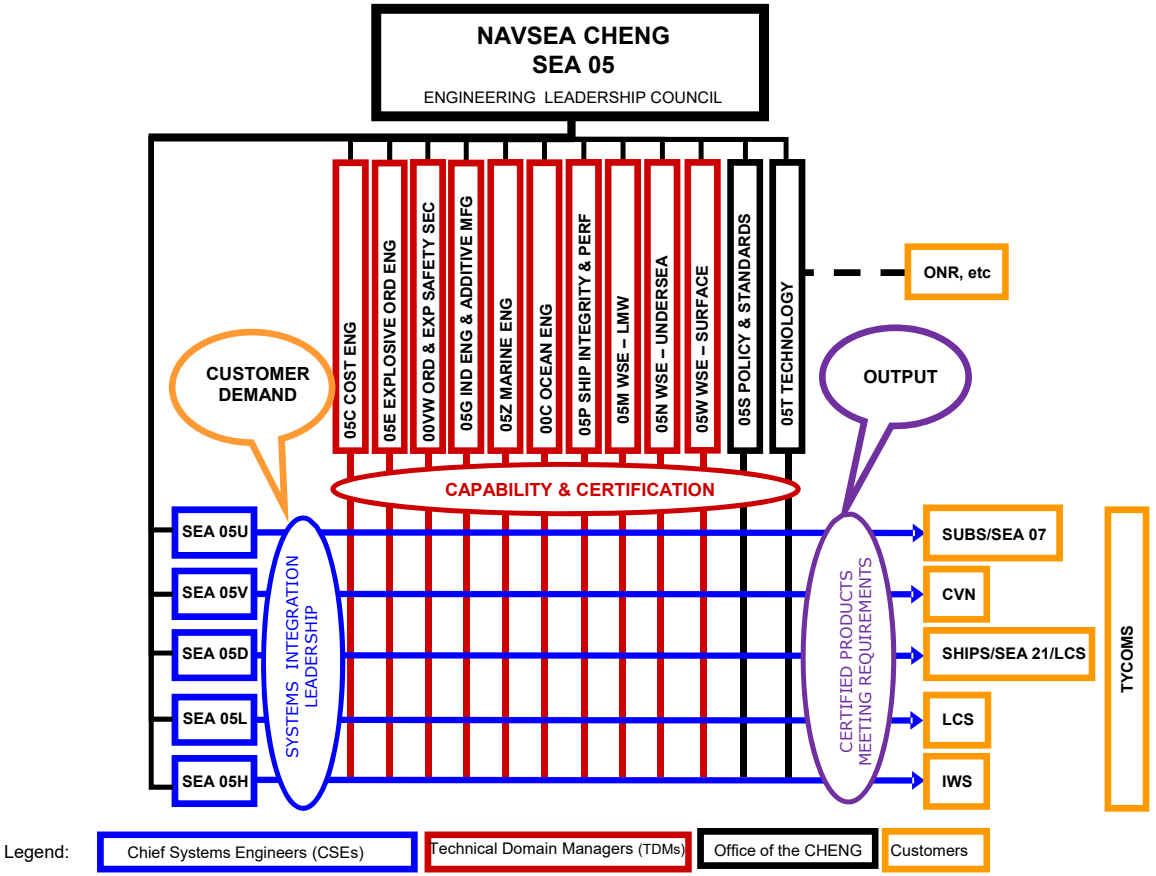
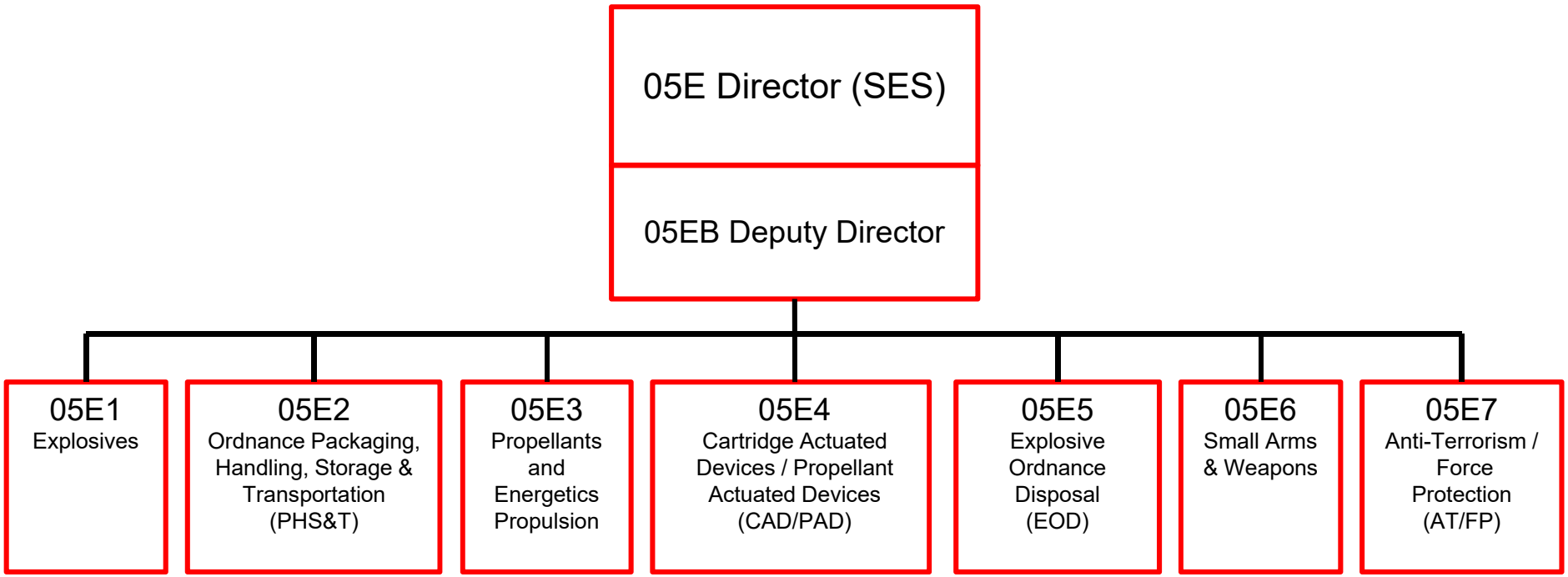
TDMs and CSEs within NAVSEA



NAVSEA 05E


05E Director (SES)
05EB Deputy Director
05E1
Explosives
05E2
Ordnance Packaging, Handling, Storage & Transportation (PHS&T)
05E3
Propellants and Energetics Propulsion
05E4
Cartridge Actuated Devices / Propellant Actuated Devices (CAD/PAD)
05E5
Explosive Ordnance Disposal (EOD)
05E6
Small Arms & Weapons
05E7
Anti-Terrorism / Force Protection (AT/FP)