Take - Aways

• NAVAIR operates full-service, highly instrumented ranges in realistic environments

• Customers are supported from all of the Services, many Agencies & beyond ...

• Risks are managed for a broad array of high hazard testing & training events

• Land & Sea Ranges have the experience & unique resources for HEL & HPM T&E
NAVAIR Ranges

Weapons Division

Aircraft Division

Atlantic Test Range

Off-Shore Warning Areas

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Weapons Division Mission Support

**Surface-to-Surface**
Land attack: launch occurs on the Sea Range with impact at SCI, China Lake, or further inland

**Satellite and Strategic Missile Launch Support**

**Surface-to-Air**

**Air-to-Air**

**Air-to-Surface**

**Electronic Warfare**

**DE Weapons**

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We have a diverse customer base ...

**Land Range**

- NAVAIR: 66%
- NAVY (Other): 10%
- FMS: 8%
- AIR FORCE: 6%
- COMMERCIAL: 2%
- OTHER: 2%

**Sea Range**

- NAVAIR: 8%
- NAVY (Other): 31%
- AIR FORCE: 35%
- FMS: 14%
- COMMERCIAL: 2%

* Does not include the Electronic Combat Range
Land Range Complex, China Lake

- Realistic air, land & electronic operational environment
- 1,722 sq mi of land space
- 20,000 sq mi of controlled airspace
- Comprehensive instrumentation set includes TSPI, telemetry, optical, communications, ...
- Air, land, & ARM targets
- Ordnance storage, handling, and assembly facilities
- Range safety, security, and environmental support
- Two major EOD groups for IED RDT&E support and training
- Proximity to Ft. Irwin, 29 Palms, Nellis AFB

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Airspace Control – R2508

Secured airspace in R-2505 and R-2524 from ground level up

Restricted airspace in R-2508 from 20K ft and up
Land Range Role

• Weapons & weapons system RDT&E
• Have tested most of the U.S. air-to-air & air-to-ground tactical weapon systems & many from our Allies
• Heavily involved in air vehicle mission systems testing (e.g., testing associated with the F-18 weapons sys S/W support lab)
• Also test ground-launched systems including guns, artillery, & missiles
• Accomplish component level testing: rocket motors, fuzes, sensors, & warheads
DE Testing at Land Range

• Environmental documentation is in place to support HEL & HPM testing

• HPM Experience
  – RF weapon survivability testing for OSD Live Fire T&E Office
  – Non-lethal HPM
  – Commercial infrastructure RF susceptibility testing
  – Counter IED Interoperability/Compatibility test site

• HEL Experience
  – Airborne Laser Lab & high energy laser damage effects testing
  – Demonstrated above-horizon laser engagement capability
Land Range

Darwin Wash
Explosive-driven HPM T&E & Combat Mobility & Small Unit Tactics Training Range

Etcharren Valley Range
High Power Microwave, GPS Anti-Jamming/Jamming, & Radar Cross Section T&E

Land Range
Aircraft Systems Integration, UAS, Kinetic Weapons, Laser T&E

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Look Down Facility at over 8200 MSL

Target Facilities at 5400 MSL
Sea Range, Point Mugu

- Realistic maritime operational environment
- 36,000 sq mi of controlled sea / airspace
- Over 220,000 sq mi instrumented sea & airspace
  - TSPI, telemetry, communications, geophysics ...
- Operations & range control
- Data processing & display system
- Air, sea, littoral targets
- Ordnance storage, handling, and assembly facilities
- Range safety, security, & environmental support
- Aircraft support
- Adjacent to Port Hueneme & NAVSEA Self Defense Test Ship
Airspace Control

- NAVAIR WD is scheduling authority for Sea Range airspace, including Restricted Airspace over SNI
- Can close CAE-1177 for continuous air & sea operations between Sea Range and SCORE Range
Sea Range operational footprint expands to meet program needs

Demonstrated Operational Areas

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San Nicolas Island
“Cornerstone of the Sea Range”

• Under Navy ownership since 1933
• 3.6 miles wide X 9 miles long
• Highest point = 907 ft
• 65 miles from Pt Mugu, 85 miles from L.A.
• 10,000 foot airfield with daily passenger & logistics flights
• High Bandwidth fiber optic comm to Pt Mugu & other DoD ranges

• Secure facility / hanger
• Inert impact area
• Beach landing areas
• Nearing completion of an Environmental Assessment for conducting HEL ops
• SNI can be used as a backstop for laser energy
Sea Range Role

• Support the T&E of a wide variety of weapons, ships, aircraft & specialized systems for a broad spectrum of military, Homeland Defense, NASA, foreign Allies, & private sector programs

• Almost every weapon system in the Navy's inventory has been tested or used at the Sea Range, including those launched from aircraft, surface vessels, & submarines

• Coordinated air, surface, & submarine operations including carrier strike group exercises

• Long-range, large hazard pattern weapons T&E & experimental vehicle testing

• Support ICBM, missile defense, & Polar-orbit satellite launches

• Multi-service, multinational T&E & training exercises
DE Testing at Sea Range

• An Environmental Assessment is nearing completion that will permit laser testing/training in general
  – Will be able to execute a wide variety of events, including surface-to-surface, surface-to-air, air-to-air, & air-to-surface
  – Broad range of wavelengths, & power levels to 1 mega watt, supported

• Airborne Laser is testing under their own EIS, including target launches from San Nicolas Island

• What’s unique?
  – Maritime/Littoral environment
  – Ability to use San Nicolas Island, as a test venue & as a backstop for laser energy to help mitigate safety issues
  – NAVSEA’s Self Defense Test Ship (SDTS) can host laser systems & can provide an at-sea, remotely controlled, T&E platform for the conduct of advanced self defense combat systems & weapons evaluation without risk to personnel
SNI Altitude Contours

Laser Target Site
Self Defense Test Ship

Formerly the USS PAUL F. FOSTER (EDD 964)

DISTRIBUTION STATEMENT A. Approved for Public Release; distribution is unlimited.
Self Defense Test Ship

- Ample shipboard real estate
- Manned or unmanned operations at-sea and/or in-port operations
- Speed: Capable of 33 Knots (typically < 15 Knots to conserve fuel)
- Sea State: No Limits
- Electric Power
  - 8,000kW/440V/60Hz
  - 450kW/440V/400Hz
- Chilled Water
  - Three Chilled Water Plants x 500 GPM
- Ordnance handling & storage, Secure operations
- At-Sea passenger embarkation/disembarkation
- Berthing/messing/laundry, 100 ship-riders (34 crew)

DISTRIBUTION STATEMENT A. Approved for Public Release; distribution is unlimited.
Environmental Stewardship

- 1.1 million acres
- 4,500 acres of coastline and wetlands
- 650 species of plants
- 340 species of animals
- 40 species of marine mammals
- Coso Rock Art National Historic Landmark
- San Nicolas Island historic sites
- Point Mugu lagoon and estuary

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