NAVAL AIR WARFARE CENTER
Weapons Division
Point Mugu, CA

DCN 5237

Library

103-06A – NMC33 – Base Input
Navy/MC – Naval Base Ventura County – CA
BRAC COMMISSION – FY 2005
COFF: _____ DISPOSITION: Permanent

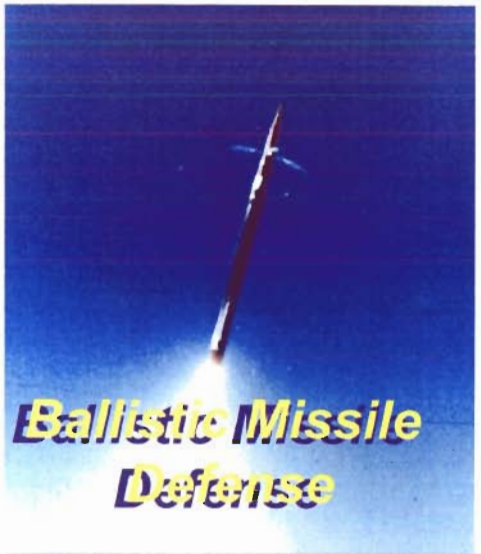
Naval Air Warfare Center Weapons Division On-Board

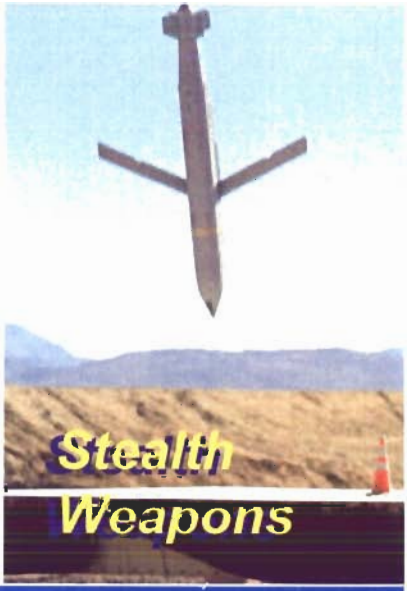
CIVILIAN	
Point Mugu*	1,540
China Lake	2,658
	4,198
MILITARY	
Point Mugu	261
China Lake	265
	526
TOTAL	4,698

*Includes Port Hueneme

2005 BASE REALIGNMENT AND CLOSURE

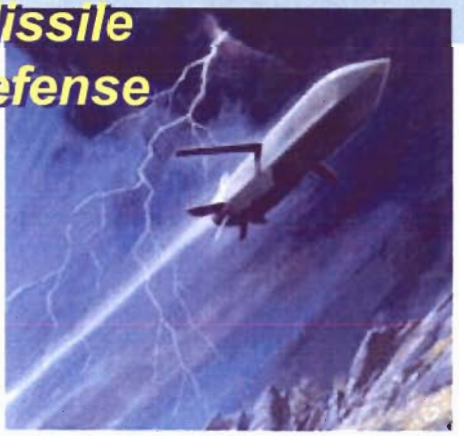
NAVAL AIR WARFARE CENTER WEAPONS DIVISION	
POINT MUGU, CALIF	
	VISITED
AIRCRAFT WEAPONS SYSTEM SUPPORT FACILITIES	
EA-6B/AEA WSSA	
ELECTRONIC WARFARE	
TACAIR EW	
EWWIS (IRON CROW)	
WEAPONS & TARGET SUSTAINMENT SUPPORT	
READY MISSILE TEST FACILITY (RMTF)	X
MISSILE HARDWARE-IN-THE-LOOP LABORATORY	X
WEAPONS SUSTAINMENT	
RADAR CROSS SECTION CHAMBER	X
THREAT SIMULATION AND TARGETS	
THEAT SIMULATORS	
AERIAL TARGETS	X
SEABORNE TARGETS	
AVIATION SUPPORT	
AIR TEST & EVALUATION SQUADRON - VX-30	
SEA RANGE COMPLEX	
RANGE INSTRUMENTATION AND FACILITIES	X
MAIN BASE	X
LAGUNA PEAK	
SAN NICOLAS ISLAND	





Major Transformational DOD Programs Depend on Key Unique Expertise and Facilities Synergistically Co-Located at Point Mugu:

- Radar Reflectivity Laboratory
- Sea Test Range
- Targets Department
- Hardware-in-the-Loop Labs
- Electronic Warfare
- T&E Engineering



EA-6B/AEA WSSA

- **FUNCTION**
  - Provide Full Life Cycle Research, Development, Integration and In-Service Engineering support for the DoD's only Tactical Jamming Aircraft, the EA-6B.

- **CAPABILITY**
  - EA-6B ICAP-II Block 89 Support
  - EA-6B ICAP-II Block 89A Support
  - EA-6B ICAP-III Support
  - EA-18G AEA System Support
  - 24/7/365 Fleet Reach back Support

- **IMPLEMENTATION CHALLENGES**
  - Continued support needed for the Nation's only EA-6B Mission Systems Capability
  - Deployed Forces Dependent on Support
  - Integrated Capability (JATO/EWDS/Mission System) Required for Fleet Support

EA-6B/AEA WSSA

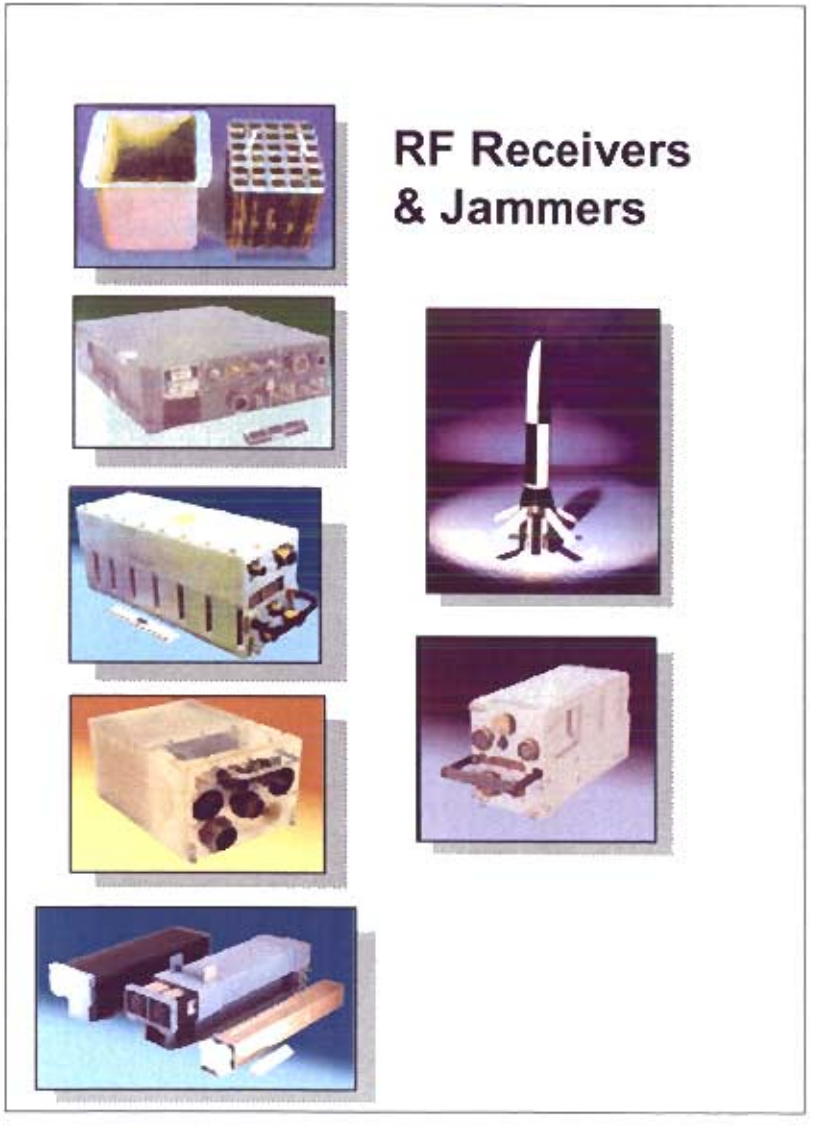
TACAIR Electronic Warfare

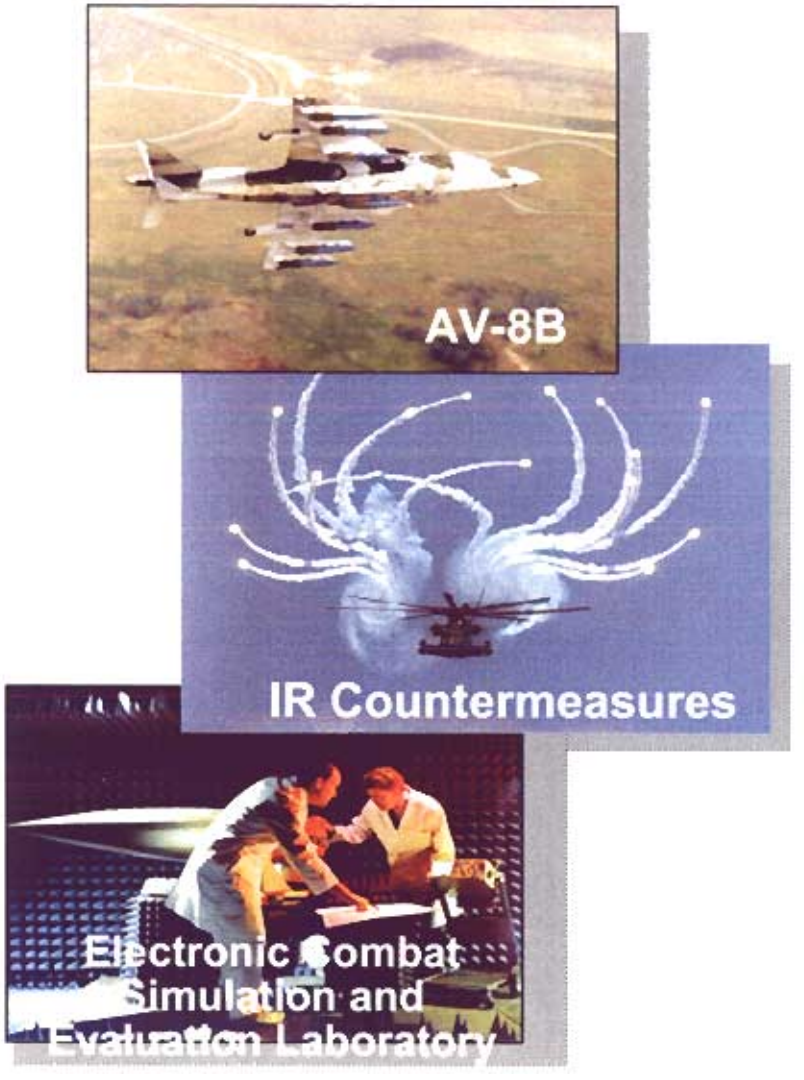
- **FUNCTION**
  - Provide Full Life Cycle Research, Development, Integration and In-Service Engineering support to all Navy Tactical Aircraft Electronic Warfare Systems and Support Systems.

- **CAPABILITY**
  - Full spectrum (RF, EO, IR) EW support
  - 10,000 sq. ft. fully shielded laboratory development environment
  - Foreign Military Sales (FMS) support
  - Navy's only TACAIR EW support capability
  - Experienced EW Workforce (Avg Exp = 20 years)
  - Direct Fleet Reach back and Quick Response Capability during Wartime

- **IMPLEMENTATION CHALLENGES**
  - Navy's only full capability R&D and In-Service Engineering asset
  - Intellectual Capital being highly leveraged for GWOT/HS/HD
  - Need to accommodate FMS and existing International Agreements

TACAIR Electronic Warfare





EW Support Equipment Integrated Support Station (ISS) ("Iron Crow")

- **FUNCTION**
  - The Iron Crow Hardware-in-the-Loop (HIL) lab and the Software Development Lab (SDL) are used in the development of O-level EW Systems Test Program Sets (OEWTPS) and Common Support Equipment (CSE).

- **CAPABILITY**
  - F/A-18A/B/C/D/RECCE, AV8B and MH-47 EW systems and A-kit hardware provide OEWTPS in service resource and TACAIR EW UDF block cycle update evaluation
  - SDL used for Joint Service Electronic Combat System Tester (JSECST) AN/USM-670 OEWTPS development for the F/A-18-all models, AV-8B, MH-47, MH-60, CV-22, ALQ-167 pod, Swiss F/A-18C/D, RAAF F/A-18A/B, Kuwaiti F/A-18C/D, and Canadian F/A-18A/B platforms
  - ISS is planned to support emerging requirements for the EA-18G, JSF, MV-22, E-2C, and EA-6B platforms

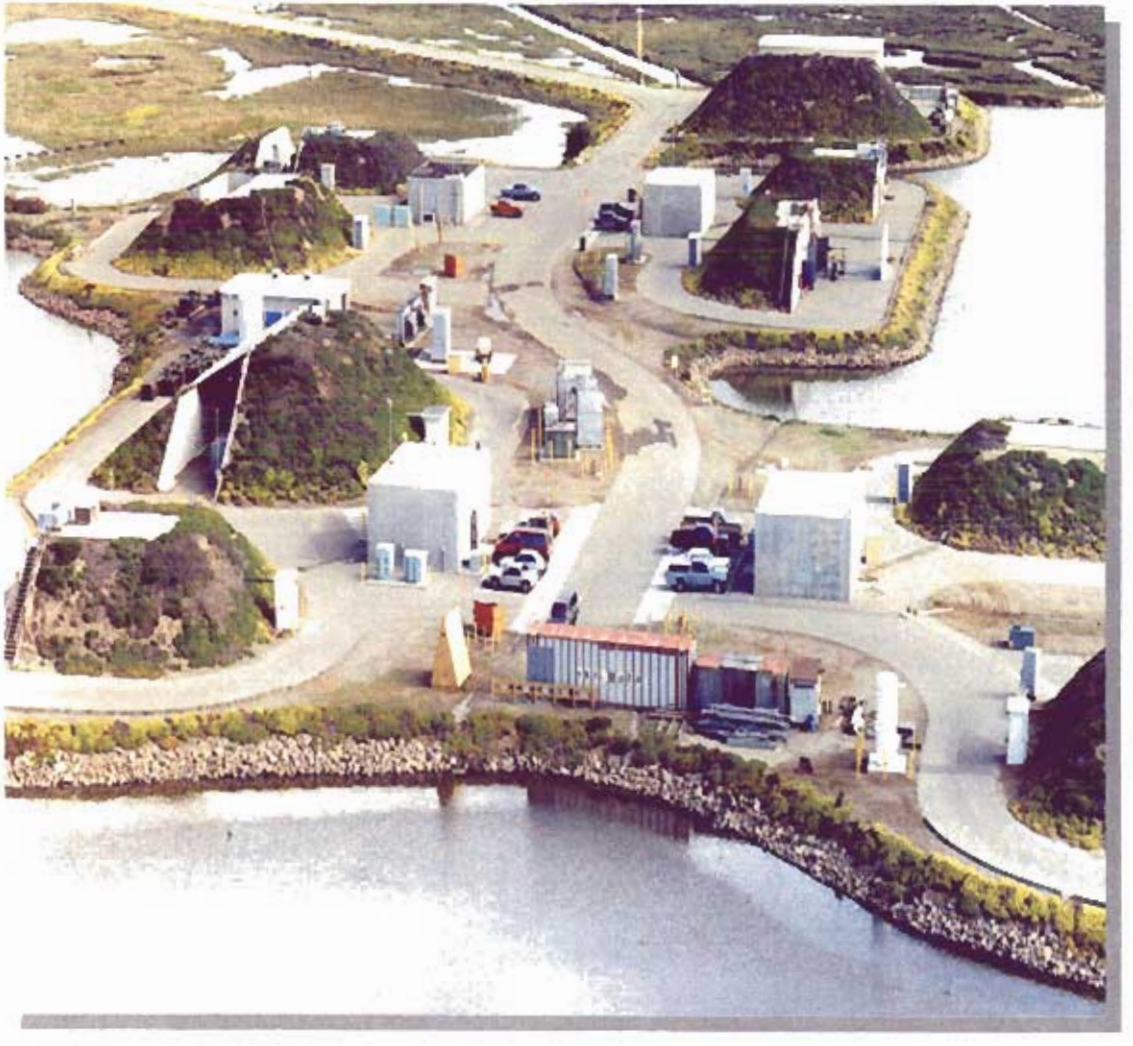
- **IMPLEMENTATION CHALLENGES**
  - Continued support needed for common support equipment acquisition programs such as Hand Held Threat Generator (HHTG) and Swept Frequency Tester (SWFT)
  - Timing of move needs to include over-lap of laboratory operations to minimize delays for In-service, block cycle updates and developmental efforts

Ready Missile Test Facility (RMTF)

- **FUNCTION**
  - Provide the capability to conduct functional testing, acoustic/dynamic testing, thermal conditioning, and assembly/disassembly of all-up-round weapons containing explosive loaded warheads and live rocket motors.

- **CAPABILITY**
  - Four (4) vibro-acoustic test cells rated at +650 lbs. of class/division 1.1 explosive
  - Capable of combining shaped acoustics to 156+ dB and mechanical shakers to cover a frequency range of 5 to 2000 Hz
  - Thermal capacity in each cell for a temperature range of –70F to +170F with LN2 boost for high cooling ramps
  - Four (4) functional test cells on site to provide the complete functional check-out of each missile in a live all-up-round configuration
  - This facility also provides an assembly/disassembly building allowing for missile inspection and build-up to support the overall command mission
  - This facility supports DoD-wide missile evaluation and Automatic Test Equipment upgrades and development
  - Only existing facility that can test simultaneously functionally and environmentally a missile in a tactical configuration
- **IMPLEMENTATION CHALLENGES**
  - Sea Range operations requires an ability to support missile build-up and check-out in a timely manner

Ready Missile Test Facility (RMTF)

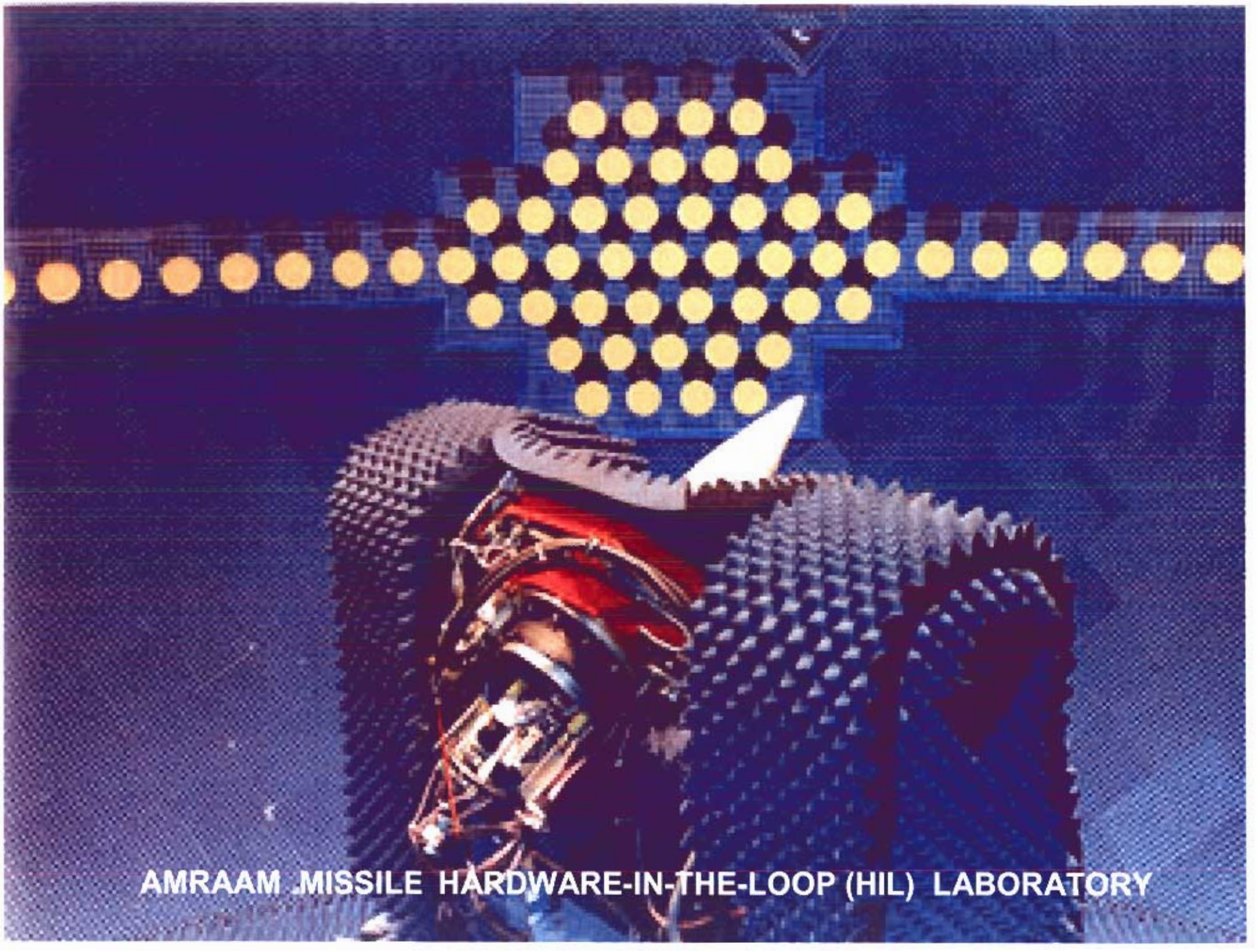


Missile Test & Evaluation Hardware-in-the-Loop (HIL) Laboratories

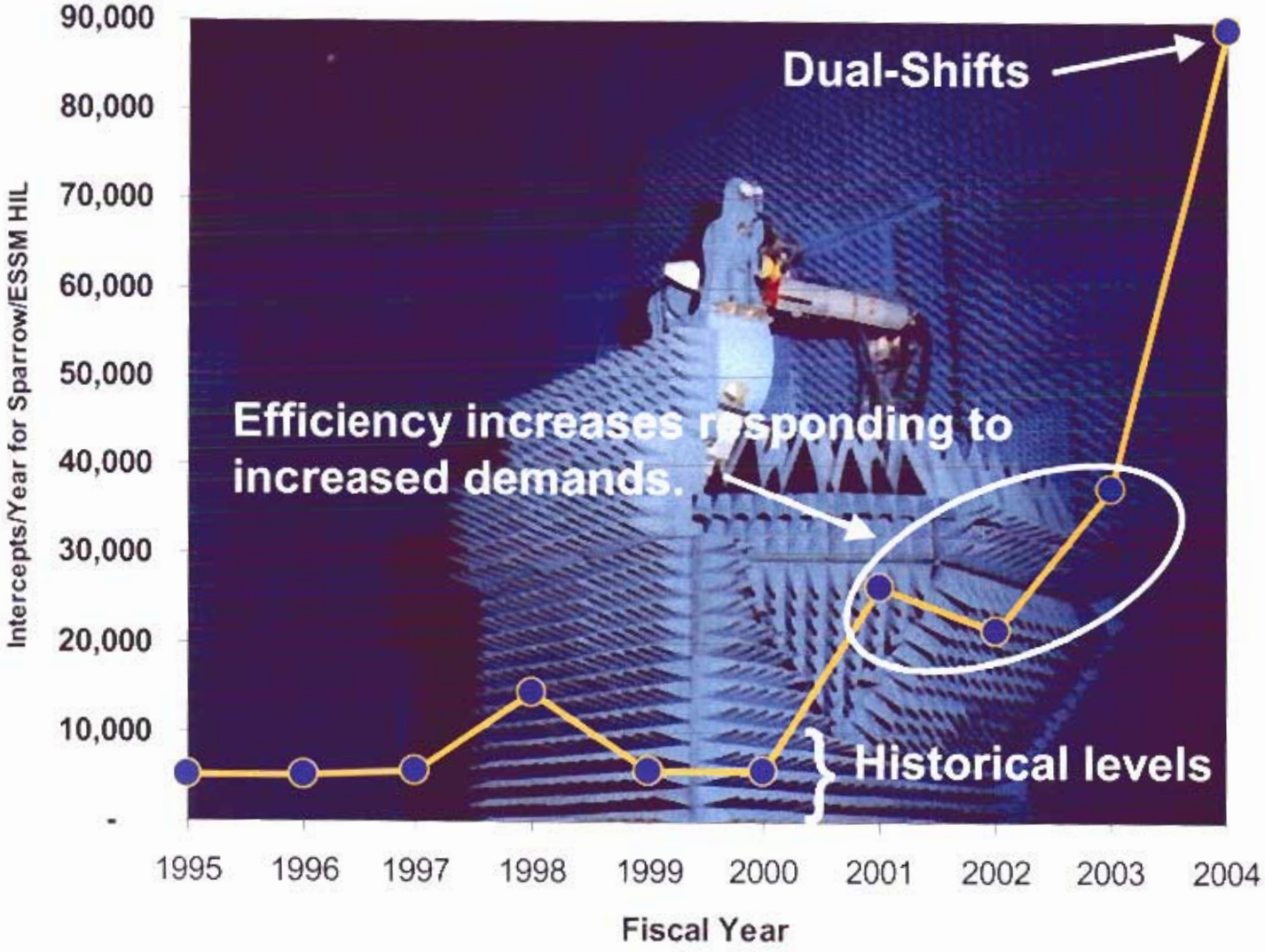
- **FUNCTION**
  - Full spectrum T&E support to current and advanced NAVAIR and NAVSEA air intercept, cruise and strike weapons systems through a balanced mix of laboratory, simulation, captive, and free flight testing.

- **CAPABILITY**
  - Laboratories and simulation capability to evaluate weapon performance from pre-launch to impact performance of missiles and associated mission systems. Repeatability of testing is very cost effective compared to live-fire testing
  - Over 78,000 sq. ft. of highly secure laboratory and support spaces including: Four (4) large missile HIL labs and 14 Support laboratories providing missile simulation, modeling and simulation, flight test data analysis and weapons lethality predictions
  - Two are dedicated to specific weapon systems
    - Advanced Medium Range Air-to-Air (AMRAAM) 2 shifts per day. One shift dedicated is to Raytheon support
    - Evolved Sea Sparrow (ESSM) HIL is a one-of-kind facility that supports NATO partners

- **IMPLEMENTATION CHALLENGES**
  - Need to continue to support the AMRAAM program which conducts 90% of air launches and 75% of captive flights over the Sea Test Range
  - All NAVSEA operations are conducted on the Sea Test Range and the Pacific Missile Range Facility (PMRF)
  - Additional personnel travel costs to coordinate targets for NAVSEA operations


AMRAAM MISSILE HARDWARE-IN-THE-LOOP (HIL) LABORATORY

Evolved Sea Sparrow Missile (ESSM) Hardware-in-the-Loop Laboratory



Weapons Sustainment

- **FUNCTION**
  - Maintain readiness by providing Logistics services for Weapons, Targets and associated Support Equipment after they are deployed to the Fleet.
    - Knowledge of the condition of systems in operation
    - Provide problem resolution
    - Modify logistics elements to assure safety, reliability and readiness is achieved at an affordable cost

- **CAPABILITY**
  - In-service logistics and weapons maintenance management
  - Liaison with Fleet TYCOM and functional wing commanders for weapons problem resolution
  - Weapons reliability assessment
  - Shipboard weapons installation assurance testing
  - Airborne weapons and targets information systems
  - Maintain, update and revise technical documentation
  - Configuration control
  - Missile Depot maintenance and workload coordination at ARMY and NAVSEA facilities
  - Fleet Weapons on-site, on-call engineering technical services

Weapons Target Support Equipment

- **FUNCTION**
  - Provide Support Equipment (SE) Engineering resource/capability to perform Weapons/Targets SE logistics functions – including software and hardware maintenance, troubleshoot, repair, upgrade, redesign, parts obsolescence study, reverse engineering of Automatic Test Equipment and SE due to lack of documentation.

- **CAPABILITY**
  - AMRAAM
  - SLAM/HARPOON Missile
  - Sidewinder Missile 9M & 9X, JDAM, JSOW, HARM, AARGM, Sparrow Missile
  - BQM-34 & 74, subsonic targets, GUNS, AMMO Loader, AQM-37, MA-31 Supersonic Target
  - TAAS

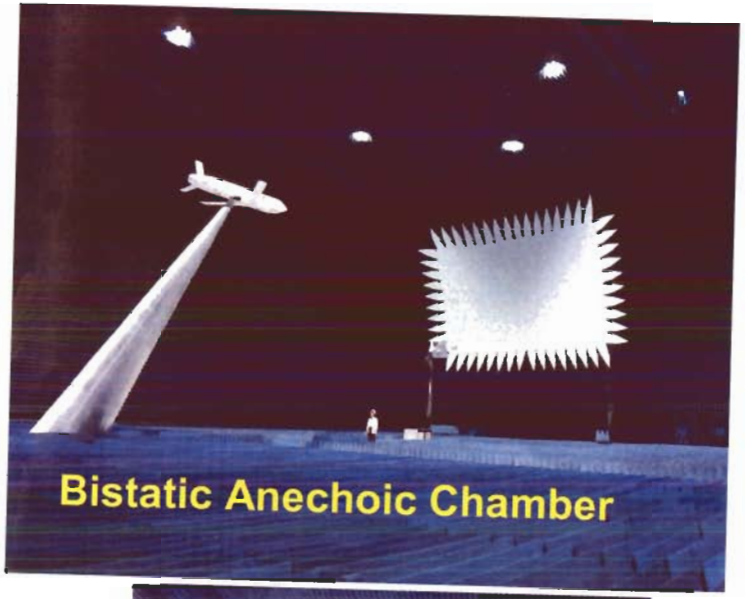
- **IMPLEMENTATION CHALLENGES**
  - Continued support to AMRAAM and SLAMER/HARPOON and Target Programs that are tested on the Sea Range

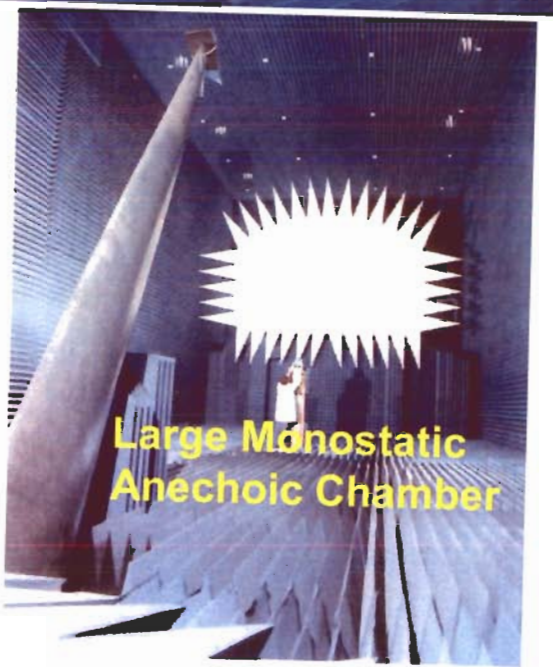
Weapons & Target Sustainment

Radar Cross Section Chambers

- **FUNCTION**
  - Characterize Monostatic and Bistatic Radar Cross Sections (**RCS**) of U.S. and Foreign weapon systems and surrogate Threat Targets.

- **CAPABILITY**
  - Highly secure indoor TS/SAR Facilities - Over 76,000 square feet of facility space
  - Bistatic Anechoic Chamber
  - Size: 150' (W) x 150' (L) x 60' (H)
    - Frequency ranges: 100 MHz to 100 GHz
    - Full Bistatic Angular Coverage: 0 – 180 degrees (Horizontal), 0 – 90 degrees (Vertical)
    - No other facility like this in DOD or private industry
  - Large Monostatic Anechoic Chamber
  - – Size: 40' (W) x 100' (L) x 40' (H)
    - Frequency Range: 800 MHz to 100GHz
  - Monostatic Anechoic Chamber
  - – Size: 27' (W) x 57' (L) x 17' (H)
    - Frequency Range: 1 – 100 GHz





Radar Cross Section Chambers

- **CAPABILITIES cont.**
  - Unique DOD national assets and highly specialized expertise in RCS RDAT&E
  - Broad Customer base: Tri-services, Private Industry, Foreign Countries
  - Weapon Development programs cannot cope with significant downtime in RCS testing
    - RCS testing and analysis for customer requirements is constant all year round with about 110+ DoD Programs supported annually

- **IMPLEMENTATION CHALLENGES**
  - Maintain the synergy for operational efficiency by co-location with Target Systems Department and Sea Test Range at Point Mugu in support of DT and OT missions

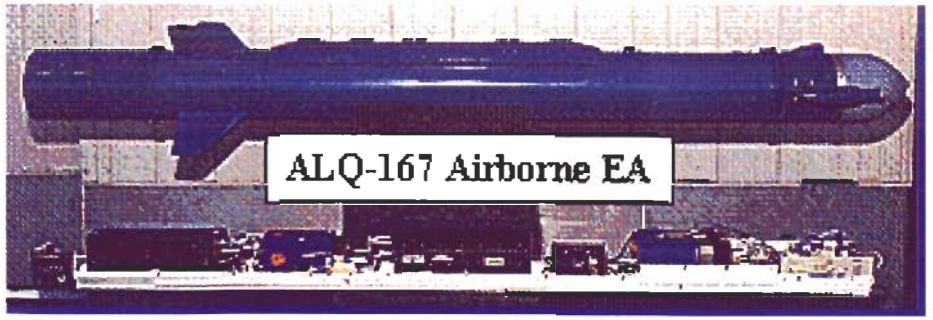
Threat Simulators

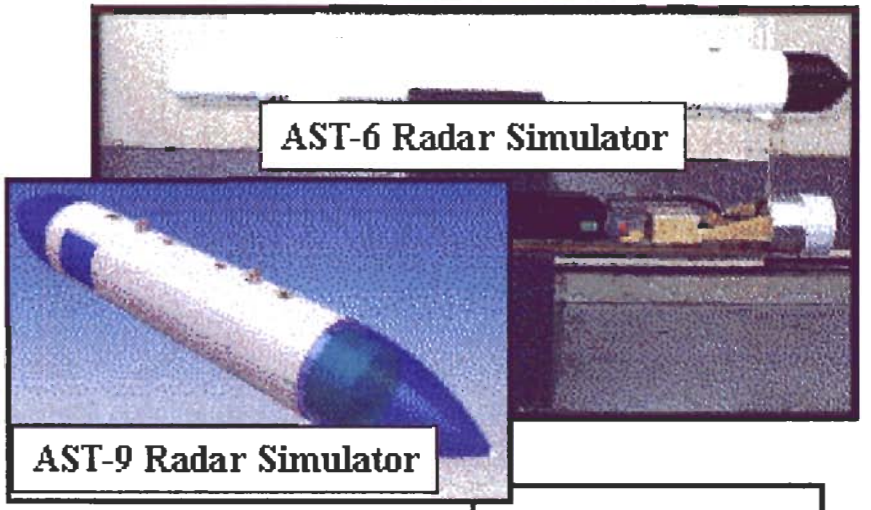
- **FUNCTION**
  - DoD Lead for Life-Cycle support (RDAT&E) for technical development and operational use of Radio Frequency Threat Simulators (Radar Signal Simulators and Electronic Attack (EA)Simulators) used world wide by all services.
  - Provide the NAVAIR Enterprise and tri-services with an integrated representation of air-land and seaborne threats (I.e. Radar cross-section, RF emitters, EA) to include target vehicles and their associated electronic payloads.

- **CAPABILITY**
  - (Project Reliance) Tri-service Life Cycle responsibility for all facets of threat simulators. This includes development, procurement, operation, in-service support and depot for all services
  - Simulators have multiple applications including use in/on manned aircraft, unmanned targets, shipboard, laboratories and land based

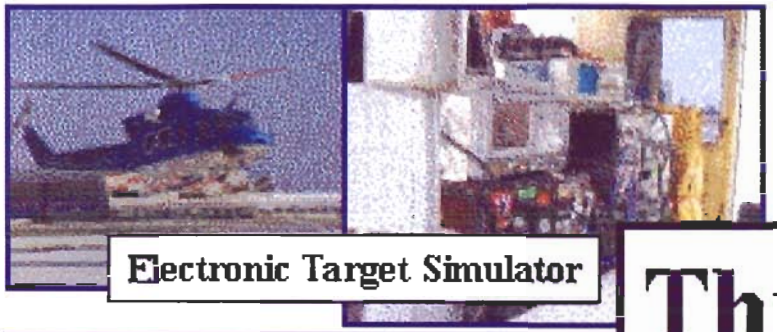
- **IMPLEMENTATION CHALLENGES**
  - Maintaining the synergistic relationship with existing EW threat analysis, Sea Range, Test Wing and Fleet Rapid Response expertise/knowledge base located at NAVAIR Point Mugu, CA

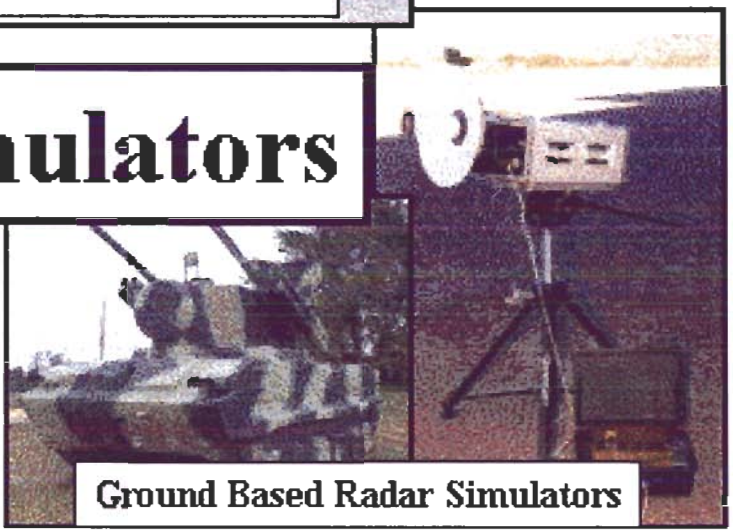
Threat Simulators


ALQ-167 Airborne EA

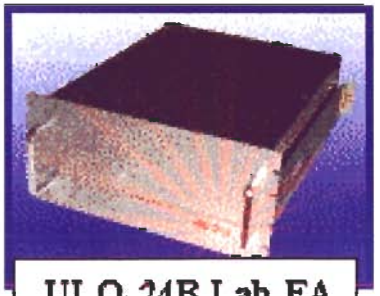

AST-6 Radar Simulator

AST-9 Radar Simulator

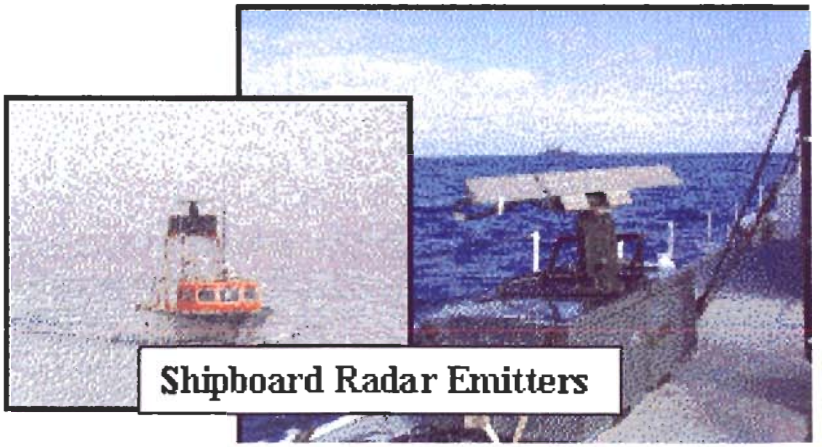

Electronic Target Simulator


Ground Based Radar Simulators

ULQ-21 EA System


ULQ-24B Lab EA

ULQ-21 Installed in BQM-34S Drone


Shipboard Radar Emitters

Aerial Targets

- **FUNCTION**
  - World wide Life-Cycle support (RDAT&E) for development and operational use of Aerial Target Systems.

- **CAPABILITY**
  - Navy's principal site for aerial targets
  - Singular site operating all Navy's aerial targets
  - Singular site for T&E of aerial targets
  - Provides for tri-service needs in development, acquisition, production and operation of missile and sub-scale targets including associated target control, augmentation, and scoring systems
  - Unique aerial target modeling and simulation in support of training, test and evaluation
  - Provides for warfighter target/drone force multiplier (e.g. Desert Storm and OIF)

- **IMPLEMENTATION CHALLENGES**
  - Aerial Target capability on Sea Range is integral to weapons systems testing and Fleet training
  - Operations Engineering for modification of threat fidelity requires co-location with O&M functions
  - Operation of aerial target family at Sea Range requires resident surface launch capability
  - Target pre-op checkout requires use of range infrastructure
  - Increased recurring costs of logistics & operational requirements to support Sea Range missions from a remote site

Aerial Targets

SSST
Mach 2+ @ 15 FT

BQM-74
Cruise Missile

All Systems Shown Completed T&E @ Mugu

Seaborne Targets

- **FUNCTION**
  - DoD Lead for Life-Cycle support (RDAT&E) for technical development and operational use of Seaborne Target Systems used world wide.

- **CAPABILITY**
  - DoD (Project Reliance) singular site for development, acquisition, and life-cycle support of Seaborne Targets
  - Seaborne Powered Targets (10 to 260 feet)
  - Singular site operating all Navy's Seaborne targets
  - Navy's only site for
    - **Mobile Ship Target**
    - **Aerial Target Launch Ship**
    - **Fast Attack Craft Target**
  - Provides Range surface surveillance

- **IMPLEMENTATION CHALLENGES**
  - Seaborne Targets capability is integral to weapons systems testing and training on the Sea Range
  - Requires deep-water port with direct access to Sea Range to support Navy and Tri-Service test events
  - Operational efficiency requires use of cross-trained aerial target personnel

Seaborne Targets

Mobile Ship Target
80 Meter-15 Knot

Mugu Only

ATLS
SSST Launch

FACT
50 feet - 50 knots

QST-35
56 feet - 20 knots

All Systems Shown Developed At Mugu

HSMST
40 knot hi-density

VX-30 Test Squadron, Point Mugu

- **FUNCTION**
  - **VX-30 Aircraft** facilitate operations on the Sea Test Range
    - Range Aircraft provide airborne instrumentation (telemetry data and photometric data) and Safety (range clearance & destruct)
    - Tactical Aircraft provide safety chase/command override for fast movers, and simulate aerial targets/threats
    - Range Aircraft provide logistical support to San Nicholas Island, and to programs requiring transport of project equipment
  - **VX-30 Aircraft** provide direct support to weapon systems and articles under test
    - Range Aircraft provide airborne launch of subscale drones (as targets for systems under test)
    - Tactical Aircraft provide high speed carriage of project equipment and project threats (non-airframe specific pods)
- **CAPABILITY**
  - 5 highly modified NP-3D and DC-130F range support aircraft
  - 6 multipurpose, non-Fleet representative, F/A-18 tactical support aircraft
  - Organizational Level Maintenance for all assigned aircraft, and for hosting project detachments at PM site
  - Flight crews trained and experienced in high risk RDT&E range flight operations
  - Mission statistics: 86% on Sea Test Range @ Pt Mugu, 13% Worldwide, 1% Land Range @ China Lake
- **IMPLEMENTATION CHALLENGES**
  - Major Construction (Hangar and Ramp) required for range support aircraft at the China Lake site
  - Significantly increased RDT&E cost to operate from China Lake site (additional daily transit costs)
  - Significantly reduced utility/availability of aircraft for customers on the Sea Test Range (time to transit)

VX-30 Test Squadron, Point Mugu

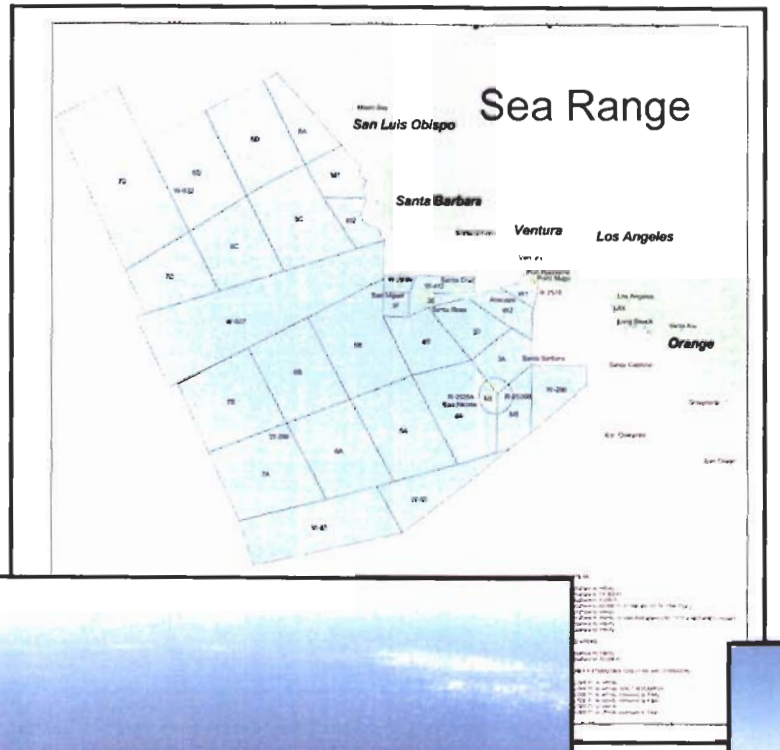
Sea Range Complex

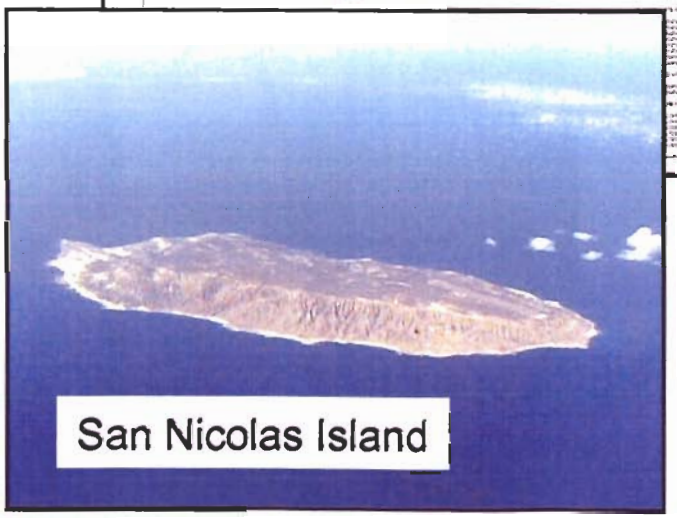
- **FUNCTION**
  - Premier Navy / DoD Range for testing and training in sea, space, and coastal environments.
  - Serves a broad spectrum of military, Homeland Defense, NATO, NASA, and private sector programs within a large, 36,000 square mile, fully-instrumented and controlled open-ocean area.

- **CAPABILITY**
  - Full spectrum of Range services ideal for the safe and secure collection of test and training data
  - Resident expertise in planning and conducting highly complex, joint-service test and training operations, including realistic Battle Group exercises, complex multi-threat scenarios, and large-scale, long-range test events

- **UNIQUE FEATURES**
  - Complete integration of all facilities and personnel required for an open-ocean test and training range, including a military airfield, target and missile launch facilities, operations control centers, and technical support personnel
  - Extensively instrumented offshore islands (San Nicolas Island and Santa Cruz Island) and adjacent high coastal mountain (Laguna Peak) synergistically merged into a range complex
  - Geographically dispersed instrumentation enabling data collection over a large area
  - A nearby deep water harbor at Port Hueneme perfect for staging targets boats, surface combatants, and providing logistics support to test programs
  - Sea and land areas un-encroached by private or commercial aircraft, boats, or community development
  - Close proximity to and interconnected with other Western DoD Ranges (Vandenberg AFB, China Lake, Edwards AFB, Third Fleet SOCAL training range), weapons laboratories, and simulation facilities that take advantage of Sea Range capabilities to satisfy their test and training objectives
  - Comprehensive, approved Environmental Impact Statement for current and future Range events

Sea Range Complex





Range Facilities at Point Mugu

- **FUNCTION**
  - Control point for the safe and effective conduct of complex Range operations.
  - Hosts and deploys aircraft for Range events.
  - Target and missile launches directly into controlled airspace.
  - Electronic data distribution, processing, display, and recording for real-time and post-mission data products.
  - Management and technical personnel providing rapid response to Range customer requirements.
- **CAPABILITY**
  - Military airfield for tactical aircraft, Unmanned Air Vehicles, airborne range instrumentation, and logistics support
  - Surface launch facilities for targets and missiles, and central point for remote control of air and sea targets
  - Range operations control center performing test execution, Range safety, and data collection, processing, distribution, and display
  - Metric tracking and sea surveillance radar
  - Telemetry systems for collecting, processing, and recording test item data
  - Comprehensive photographic and engineering video coverage of test events
  - Complete voice, Range data, and tactical data link communications systems, including microwave connectivity with voice radios and sea surveillance radar systems at Santa Cruz Island
  - Explosive ordnance handling personnel and facilities
- **UNIQUE FEATURES**
  - The synergistic integration of a military airfield, target and missile launch facilities, operations control center, test planning and management personnel
  - All facilities adjacent to an open-ocean test area, minimizing costs and extending the on-station time of aircraft and targets
  - Close proximity to and integrated with instrumented coastal mountains, offshore islands, the deep water harbor, the Self Defense Test Ship, and Surface Warfare Engineering Facility at Port Hueneme

Range Facilities at Laguna Peak

- **FUNCTION**
  - Serves as an invaluable elevated data collection point, real-time inter-range communications relay, target control and flight termination systems base.
- **CAPABILITY**
  - Telemetry systems overlooking large ocean areas for collecting, processing, and recording test item data
  - Remote control systems for surface-launched air and sea targets
  - Sea surveillance radars offering a direct line-of-site view to inner Sea Range areas
  - Extensive voice, Range data, and tactical data link communications systems
  - Flight termination safety system transmitters
- **UNIQUE FEATURES**
  - 1,500 foot peak next to the shoreline, allowing far-reaching instrumentation coverage into controlled sea, land, and air space
  - Provides a high-elevation location for telemetry and flight termination safety systems critical to Sea Range events and space launch operations from Vandenberg Air Force Base
  - Secure fiber optics connectivity to control facilities at Point Mugu
  - High-speed microwave voice, video and data connectivity to Edwards AFB, Vandenberg AFB, and China Lake

Range Facilities at San Nicolas Island

- **FUNCTION**
  - Cornerstone of Sea Range capabilities, enabling long-range instrumentation coverage for the T&E of weapons, ship systems, aircraft, large-scale Fleet training exercises, ballistic missile defense tests, and hypersonic research experiments.
  - Extends telemetry and radar data collection and target presentation over-the-horizon enabling the conduct of hazardous operations safely away from populated areas.
- **CAPABILITY**
  - Fully integrated with and complimentary to Range facilities at Point Mugu, Laguna Peak, and Santa Cruz Island
  - Airfield facilities including a 10,000 ft. runway capable of hosting C-5 sized aircraft
  - Provides telemetry data coverage to the far reaches of the Sea Range
  - Hosts multiple metric tracking radar, long-range air surveillance radar, and sea surveillance radar for tracking aircraft and ships
  - High-speed, anti-ship cruise missile target launch facilities
  - Land attack weapons impact area
  - Complete photographic and engineering video coverage of test events
  - Comprehensive voice, Range data, and tactical data link communications
  - Control systems for presentation of multiple air and sea targets
  - Flight termination systems to ensure the safe conduct of hazardous operations
  - Ordnance handling personnel and facilities
  - Littoral environment for Fleet training, Special Forces operations, and testing of emerging weapons technologies
  - Connected by a redundant, secure fiber optics cable to Point Mugu
- **UNIQUE FEATURES**
  - Realistic, isolated, marine environment located 60 miles into the Sea Range complex
  - Navy owned and controlled island where highly classified testing may be conducted

NAVAL AIR WARFARE CENTER
Weapons Division
Point Mugu, CA