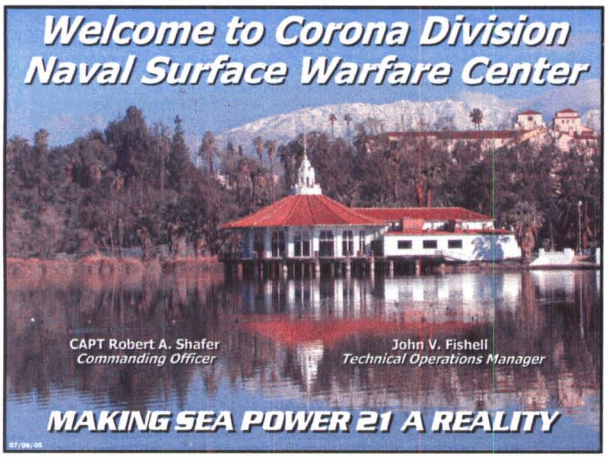
DCN: 12524


CORONA DIVISION
NAVAL SURFACE WARFARE CENTER
NUNTIATE VERITATEM


CORONA DIVISION
NAVAL SURFACE WARFARE CENTER
NUNTIATE VERITATEM


Welcome to Corona Division
Naval Surface Warfare Center
CAPT Robert A. Shafer
Commanding Officer
John V. Fishell
Technical Operations Manager
MAKING SEA POWER 21 A REALITY


NAVSEA
AGENDA
Welcome 0800
NSA Corona 0815
Windshield Tour 0830
Command Overview 0900
Independent Assessment 1030
Lunch & Open Discussion 1130
Our Mission (MSTL Tour) 1200
Our Mission (JWAL Tour) 1300
Our People 1500
Summary 1530
Wrap-up Discussion

DCN: 12524

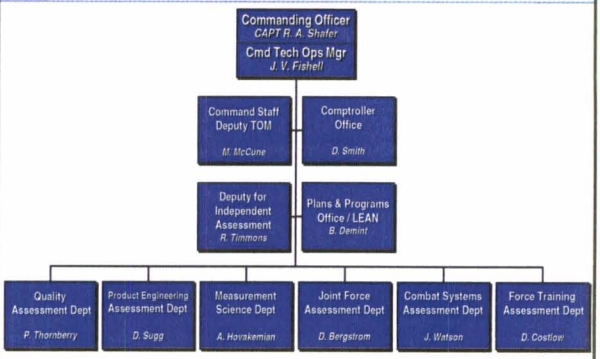
NSWC CORONA MISSION

To serve as the Navy's independent assessment agent throughout the lifecycle:

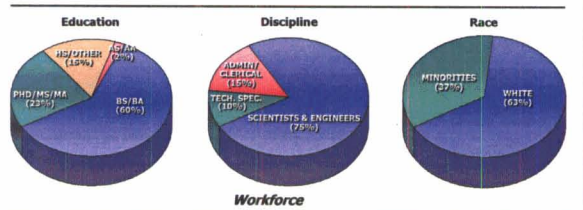
"To gauge the warfighting capability of ships and aircraft, from unit to battlegroup level, by assessing the suitability of design, the performance of equipment and weapons, and the adequacy of training."

Ref: OPNAVNOTE 5450

ORGANIZATION



DEMOGRAPHICS

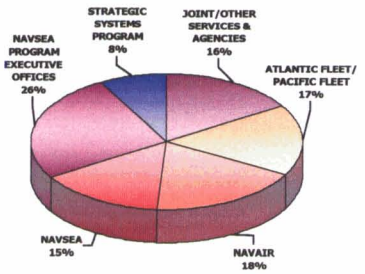


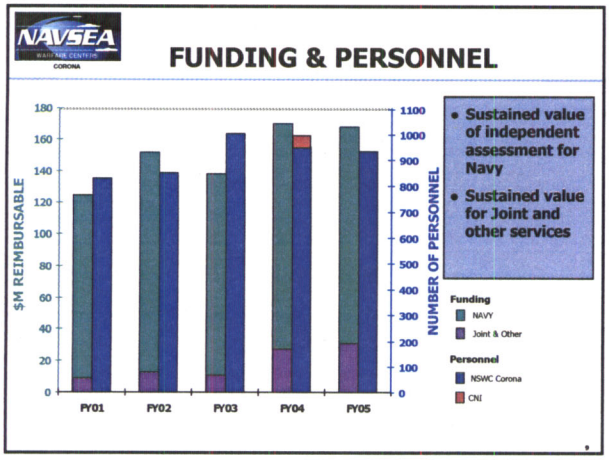
Workforce

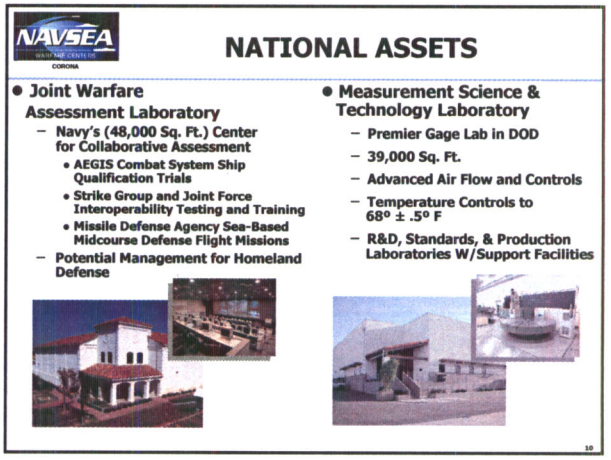
- 28 enrolled in Masters Program
- 2 enrolled in PHD Program
- Military: 3 Officers, 1 Enlisted
- 1700+ Civil Servants/Contractors
- $85,440+ Median Salary (S&E's)
- 52% Minority last 5 years
- 46% Minority (S&E's)
- 23% Women

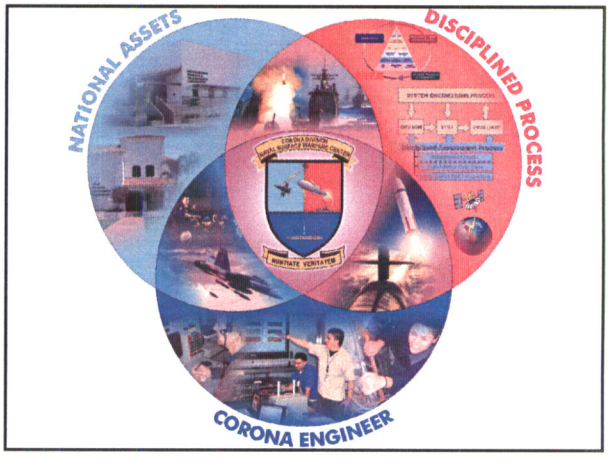
FY04 KEY CUSTOMERS

$170M




NAVSEA
CORONA
FUNDING & PERSONNEL
$M REIMBURSABLE
NUMBER OF PERSONNEL
FY01
FY02
FY03
FY04
FY05
• Sustained value of independent assessment for Navy
• Sustained value for Joint and other services
Funding
NAVY
Joint & Other
Personnel
NSWC Corona
CNI


NAVSEA
CORONA
NATIONAL ASSETS
• Joint Warfare Assessment Laboratory
– Navy's (48,000 Sq. Ft.) Center for Collaborative Assessment
• AEGIS Combat System Ship Qualification Trials
• Strike Group and Joint Force Interoperability Testing and Training
• Missile Defense Agency Sea-Based Midcourse Defense Flight Missions
– Potential Management for Homeland Defense
• Measurement Science & Technology Laboratory
– Premier Gage Lab in DOD
– 39,000 Sq. Ft.
– Advanced Air Flow and Controls
– Temperature Controls to 68° ± .5° F
– R&D, Standards, & Production Laboratories W/Support Facilities


NATIONAL ASSETS
DISCIPLINED PROCESS
CORONA ENGINEER

ASSESSMENT ROLE
Capability vs. Smart Buyer

FLEET

Conduct operations, maintain material readiness, personnel proficiency, and appropriate tactics.

NSWC Corona - The Fleet and Program Manager need a common assessment process to meet their goals.

PROGRAM MANAGER

Deliver and support weapons and combat systems that meet fleet requirements for quality, readiness, and capability

13

WHAT WE DO

- How did you make it?
- Does it fit?
- Does it work? Is it effective?
- Can you use it?
- How do you know?
- Does it still work?

"Consumer Reports for Naval Warfare"
VADM LaFleur (COMNAVSURFOR)

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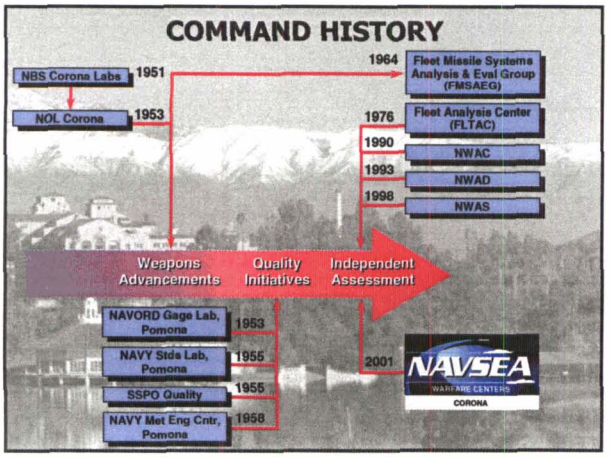
COMMAND HISTORY



EARLY HISTORY

- 1951: Naval Bureau of Standards (NBS), Missile Development Division (MDD), transfer to Corona, co-located with Naval Hospital
- 1953: MDD becomes Naval Ordnance Laboratory Corona (NOLC)
- 1954: NOLC assigned task for Navy missile fuze design/development
- 1957: NOLC 4 Technical Depts
  - Missile Development Division
  - Fuze Design/Development
  - Missile Evaluation Dept (MED), including Surface to Air and Polaris
  - Special Research
- *1963: As result of conflict of interest arising from NOLC's role as weapons design/development agency and MED's responsibilities for weapons evaluation, BuWEPs recommended the missile evaluation program at Corona be conducted by a separate, specialized activity*
- 1964: Navy (RADM Eli T. Reich, Director Surface Missile System Project) implements plan to establish MED as separate Command, Fleet Missile Systems Analysis & Evaluation Group (FMSAEG), co-located with NOLC

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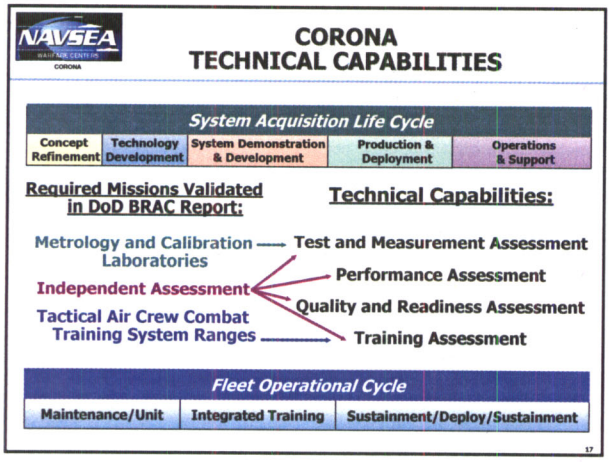
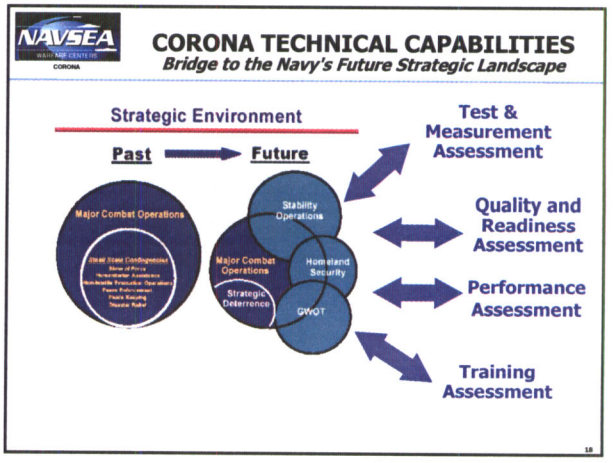
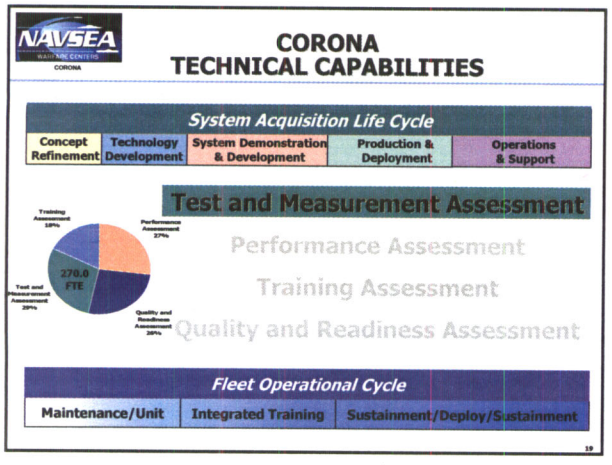
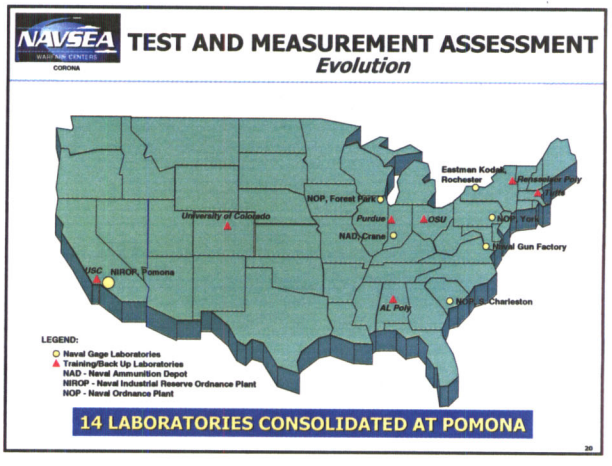

NAVSEA
CORONA
CORONA
TECHNICAL CAPABILITIES
System Acquisition Life Cycle
Concept Refinement
Technology Development
System Demonstration & Development
Production & Deployment
Operations & Support
Required Missions Validated in DoD BRAC Report:
Technical Capabilities:
Metrology and Calibration Laboratories
Test and Measurement Assessment
Independent Assessment
Performance Assessment
Quality and Readiness Assessment
Tactical Air Crew Combat Training System Ranges
Training Assessment
Fleet Operational Cycle
Maintenance/Unit
Integrated Training
Sustainment/Deploy/Sustainment
17


NAVSEA
CORONA
CORONA TECHNICAL CAPABILITIES
Bridge to the Navy's Future Strategic Landscape
Strategic Environment
Past
Future
Major Combat Operations
Stability Operations
Major Combat Operations
Homeland Security
Strategic Deterrence
GWOT
Test & Measurement Assessment
Quality and Readiness Assessment
Performance Assessment
Training Assessment
18


NAVSEA
CORONA
CORONA
TECHNICAL CAPABILITIES
System Acquisition Life Cycle
Concept Refinement
Technology Development
System Demonstration & Development
Production & Deployment
Operations & Support
Test and Measurement Assessment
Performance Assessment
Training Assessment
Quality and Readiness Assessment
270.0 FTE
Fleet Operational Cycle
Maintenance/Unit
Integrated Training
Sustainment/Deploy/Sustainment
19


NAVSEA
CORONA
TEST AND MEASUREMENT ASSESSMENT
Evolution
Eastman Kodak Rochester
Rensselaer Poly
Utah
NOP, Forest Park
University of Colorado
Purdue
OSU
NOP, York
NAD, Crane
Naval Gun Factory
NIROP, Pomona
AL Poly
NOP, S. Charleston
LEGEND:
Naval Gage Laboratories
Training/Back Up Laboratories
NAD - Naval Ammunition Depot
NIROP - Naval Industrial Reserve Ordnance Plant
NOP - Naval Ordnance Plant
14 LABORATORIES CONSOLIDATED AT POMONA
20

TEST AND MEASUREMENT ASSESSMENT
Evolution Timeline

Consolidation of Laboratory and Engineering Functions at Corona August 2002

14 Gage Labs Consolidated at Pomona (1954)

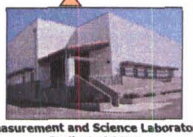
Metrology Engineering Consolidated at Pomona (1959)

Measurement and Test Engineering Move to Corona in 1985

CONSOLIDATED AT CORONA

1950 1960 1970 1980 1990 2000 2001 2003 2005

MILCON Construction Begins 2001

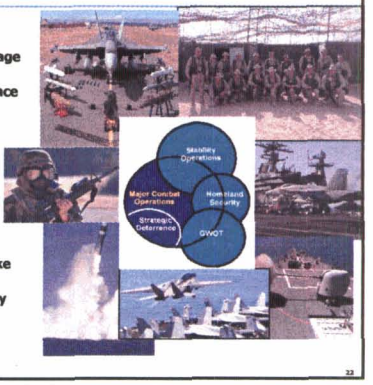


Measurement and Science Laboratory Dedicated 2002

21

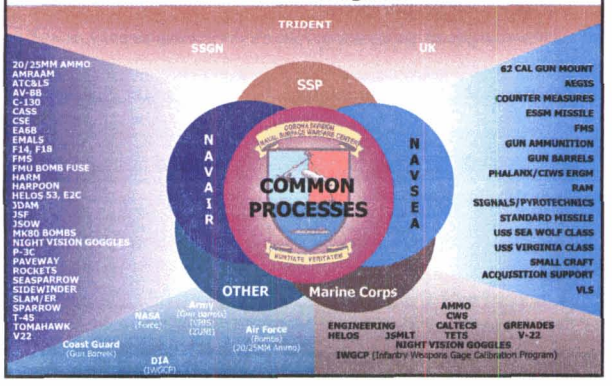
TEST AND MEASUREMENT ASSESSMENT
National Priorities

- **Major Combat Operation**
  - USMC Infantry Weapons Gage Calibration Program
  - Sea-based nuclear deterrence
- **Stability**
  - US Coast Guard
- **Homeland Defense**
  - National missile defense
  - Biological Sensors
- **Global War on Terror**
  - Air-launched precision strike weapons
  - Marine Corps' Expeditionary Fighting Vehicle



22

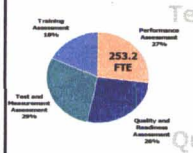
TEST AND MEASUREMENT ASSESSMENT
Programs



CORONA TECHNICAL CAPABILITIES

System Acquisition Life Cycle

Concept Refinement	Technology Development	System Demonstration & Development	Production & Deployment	Operations & Support



Test and Measurement Assessment

Performance Assessment

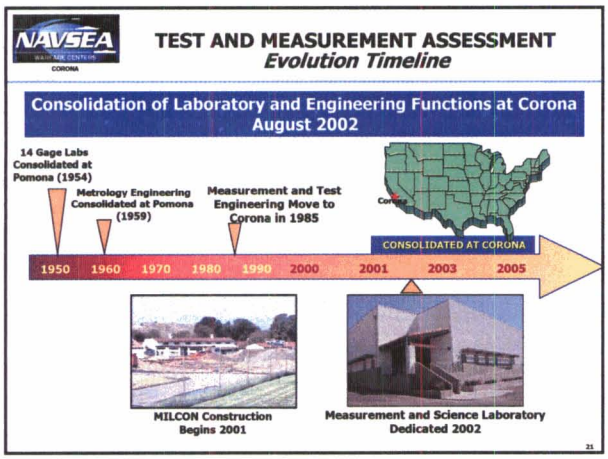
Training Assessment

Quality and Readiness Assessment

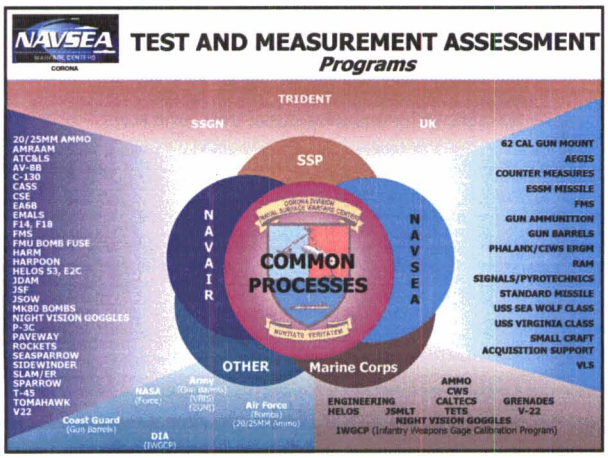
Fleet Operational Cycle

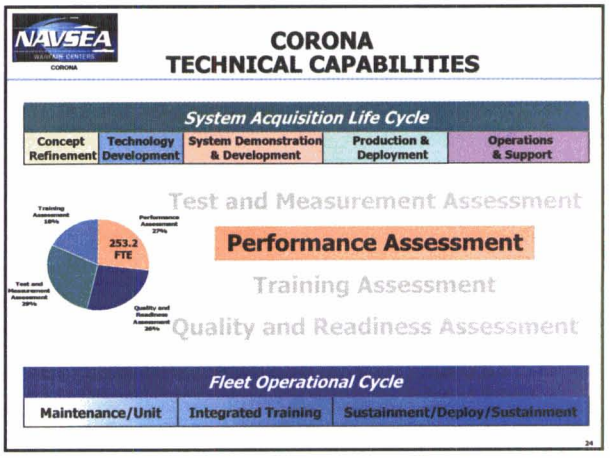
Maintenance/Unit	Integrated Training	Sustainment/Deploy/Sustainment

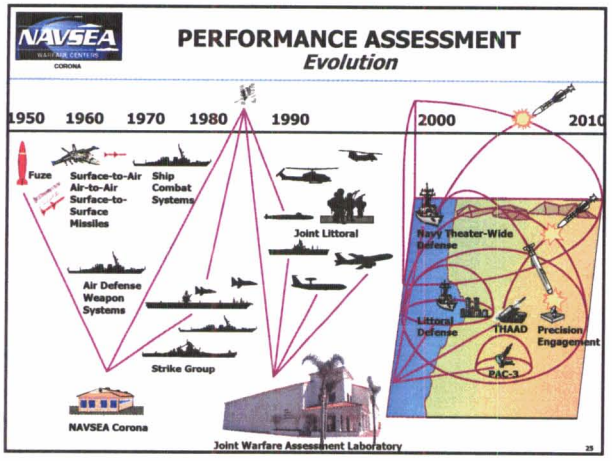
34

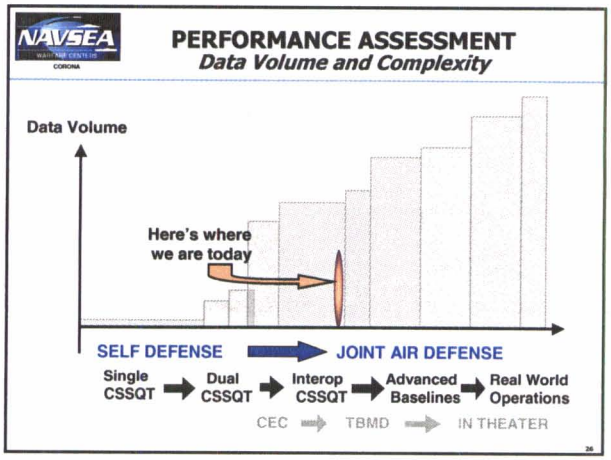

NAVSEA
CORONA
TEST AND MEASUREMENT ASSESSMENT
Evolution Timeline
Consolidation of Laboratory and Engineering Functions at Corona August 2002
14 Gage Labs Consolidated at Pomona (1954)
Metrology Engineering Consolidated at Pomona (1959)
Measurement and Test Engineering Move to Corona in 1985
CONSOLIDATED AT CORONA
1950 1960 1970 1980 1990 2000 2001 2003 2005
MILCON Construction Begins 2001
Measurement and Science Laboratory Dedicated 2002
21

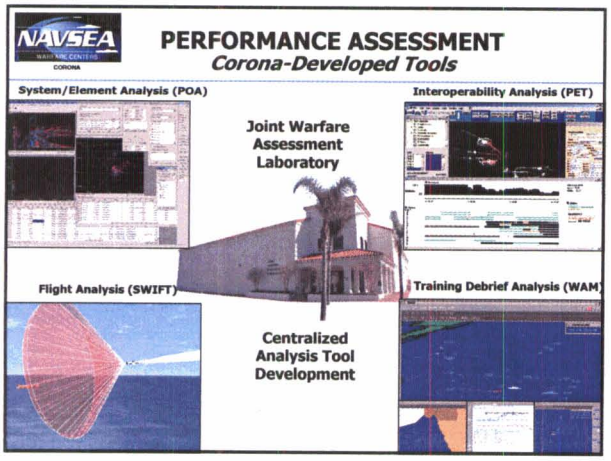

NAVSEA
CORONA
TEST AND MEASUREMENT ASSESSMENT
National Priorities
Major Combat Operation
USMC Infantry Weapons Gage Calibration Program
Sea-based nuclear deterrence
Stability
US Coast Guard
Homeland Defense
National missile defense
Biological Sensors
Global War on Terror
Air-launched precision strike weapons
Marine Corps' Expeditionary Fighting Vehicle
Stability Operations
Major Combat Operations
Homeland Security
Strategic Deterrence
GWOT
22


NAVSEA
CORONA
TEST AND MEASUREMENT ASSESSMENT
Programs
TRIDENT
SSGN
UK
SSP
NAVAIR
NAVSEA
COMMON PROCESSES
OTHER
Marine Corps
20/25MM AMMO
AMRAAM
ATC&LS
AV-8B
C-130
CASS
CSE
EA6B
EMALS
F14, F18
FMS
FMU BOMB FUSE
HARM
HARPOON
HELOS 53, E2C
JDAM
JSF
JSOW
MK80 BOMBS
NIGHT VISION GOGGLES
P-3C
PAVEWAY
ROCKETS
SEASPARROW
SIDEWINDER
SLAM/ER
SPARROW
T-45
TOMAHAWK
V22
Coast Guard (Gun Barrels)
NASA (Force)
Army (Gun Barrels, MRS, 120MM)
Air Force (Rumba) (20/25MM Ammo)
DIA (IWGCP)
62 CAL GUN MOUNT
AEGIS
COUNTER MEASURES
ESSM MISSILE
FMS
GUN AMMUNITION
GUN BARRELS
PHALANX/CIWS ERGM
RAM
SIGNALS/PYROTECHNICS
STANDARD MISSILE
USS SEA WOLF CLASS
USS VIRGINIA CLASS
SMALL CRAFT
ACQUISITION SUPPORT
VLS
AMMO
CWS
CALTECS
TETS
GRENADES
V-22
ENGINEERING
HELOS
JSMLT
NIGHT VISION GOGGLES
IWGCP (Infantry Weapons Gage Calibration Program)


NAVSEA
CORONA
CORONA
TECHNICAL CAPABILITIES
System Acquisition Life Cycle
Concept Refinement
Technology Development
System Demonstration & Development
Production & Deployment
Operations & Support
Test and Measurement Assessment
Performance Assessment
Training Assessment
Quality and Readiness Assessment
253.2 FTE
Fleet Operational Cycle
Maintenance/Unit
Integrated Training
Sustainment/Deploy/Sustainment
34

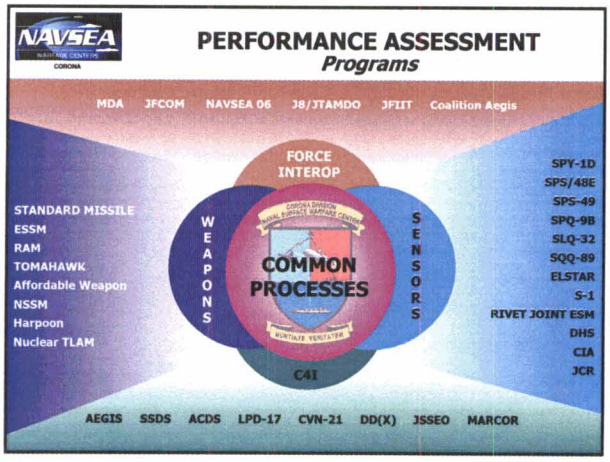

NAVSEA
CORONA
PERFORMANCE ASSESSMENT
Evolution
1950
1960
1970
1980
1990
2000
2010
Fuze
Surface-to-Air
Air-to-Air
Surface-to-Surface Missiles
Ship Combat Systems
Air Defense Weapon Systems
Strike Group
Joint Littoral
Navy Theater-Wide Defense
Littoral Defense
THAAD
Precision Engagement
PAC-3
NAVSEA Corona
Joint Warfare Assessment Laboratory
35

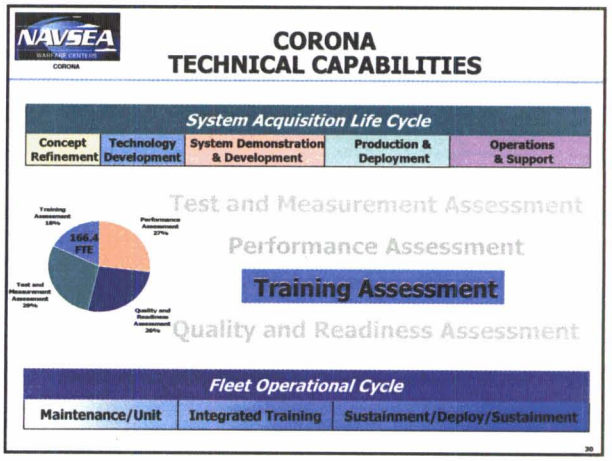

NAVSEA
CORONA
PERFORMANCE ASSESSMENT
Data Volume and Complexity
Data Volume
Here's where we are today
SELF DEFENSE
JOINT AIR DEFENSE
Single CSSQT
Dual CSSQT
Interop CSSQT
Advanced Baselines
Real World Operations
CEC
TBMD
IN THEATER
26

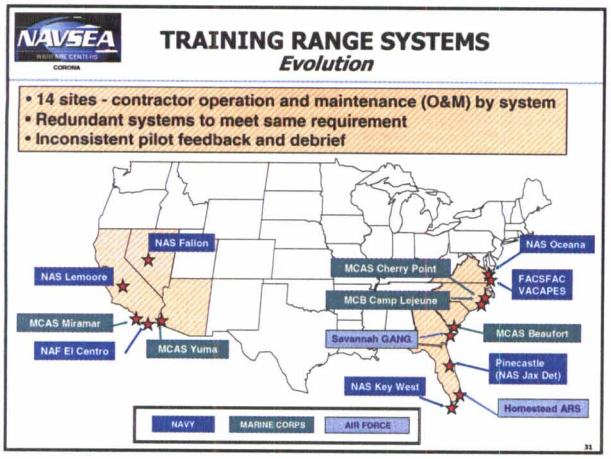

NAVSEA
CORONA
PERFORMANCE ASSESSMENT
Corona-Developed Tools
System/Element Analysis (POA)
Interoperability Analysis (PET)
Joint Warfare Assessment Laboratory
Flight Analysis (SWIFT)
Training Debrief Analysis (WAM)
Centralized Analysis Tool Development

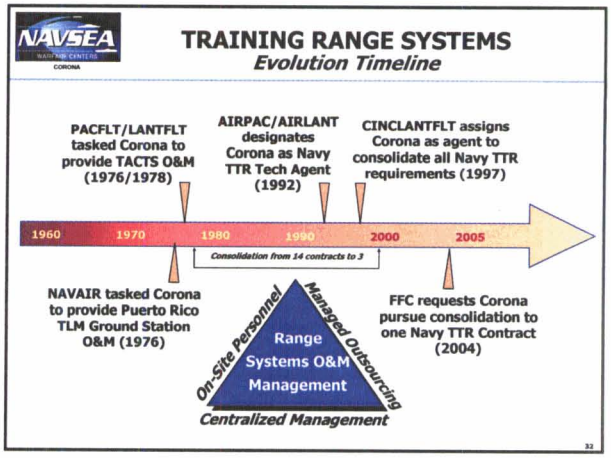

NAVSEA
CORONA
PERFORMANCE ASSESSMENT
National Priorities
• Major Combat Operations
– OIF Distance Support
– Ship Qualification Trials
• Homeland Defense
– Homeland air defense
– Chem-bio detectors
• Global War on Terror
– Olympic Titan
– Distance Support
Stability Operations
Major Combat Operations
Homeland Security
Strategic Deterrence
GWoT
28

DCN: 12524


NAVSEA
CORONA
PERFORMANCE ASSESSMENT
Programs
MDA JFCOM NAVSEA 06 J8/JTAMDO JFIIT Coalition Aegis
FORCE INTEROP
STANDARD MISSILE
ESSM
RAM
TOMAHAWK
Affordable Weapon
NSSM
Harpoon
Nuclear TLAM
WEAPONS
COMMON PROCESSES
SENSORS
SPY-1D
SPS/48E
SPS-49
SPQ-9B
SLQ-32
SQQ-89
ELSTAR
S-1
RIVET JOINT ESM
DHS
CIA
JCR
C4I
AEGIS SSDS ACDS LPD-17 CVN-21 DD(X) JSSEO MARCOR

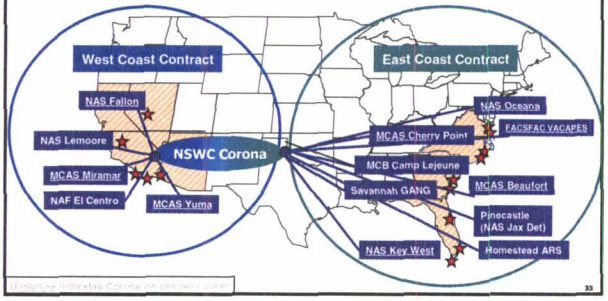

NAVSEA
CORONA
CORONA
TECHNICAL CAPABILITIES
System Acquisition Life Cycle
Concept Refinement
Technology Development
System Demonstration & Development
Production & Deployment
Operations & Support
166.4 FTE
Test and Measurement Assessment
Performance Assessment
Training Assessment
Quality and Readiness Assessment
Fleet Operational Cycle
Maintenance/Unit
Integrated Training
Sustainment/Deploy/Sustainment
30


NAVSEA
CORONA
TRAINING RANGE SYSTEMS
Evolution
• 14 sites - contractor operation and maintenance (O&M) by system
• Redundant systems to meet same requirement
• Inconsistent pilot feedback and debrief
NAS Fallon
NAS Lemoore
MCAS Miramar
NAF El Centro
MCAS Yuma
MCAS Cherry Point
MCB Camp Lejeune
Savannah GANG
NAS Key West
NAS Oceana
FACSFAC VACAPES
MCAS Beaufort
Pinecastle (NAS Jax Det)
Homestead ARS
NAVY
MARINE CORPS
AIR FORCE
31


NAVSEA
CORONA
TRAINING RANGE SYSTEMS
Evolution Timeline
PACFLT/LANTFLT tasked Corona to provide TACTS O&M (1976/1978)
AIRPAC/AIRLANT designates Corona as Navy TTR Tech Agent (1992)
CINCLANTFLT assigns Corona as agent to consolidate all Navy TTR requirements (1997)
1960
1970
1980
1990
2000
2005
Consolidation from 14 contracts to 3
NAVAIR tasked Corona to provide Puerto Rico TLM Ground Station O&M (1976)
FFC requests Corona pursue consolidation to one Navy TTR Contract (2004)
On-Site Personnel
Managed Outsourcing
Range Systems O&M Management
Centralized Management
32

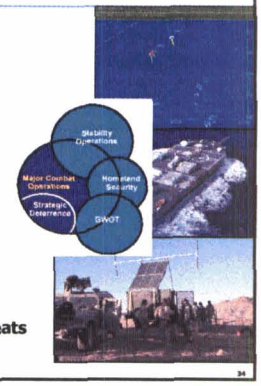
TRAINING RANGE SYSTEMS
Why Corona?

- Integrated range requirements, systems, and displays
- Consistent pilot feedback and debrief
- East Coast Range Complex "seamless one-range" for Force exercises



TRAINING ASSESSMENT
National Priorities

- **Major Combat Operations**
  - Fleet Training Exercise Analysis
  - Tactical Training Range Systems
- **Stability**
  - Joint Radio Relay in Afghanistan
  - Tactical Training Range Systems
- **Homeland Defense**
  - Missile Defense T&E Range Instrumentation
  - LA FBI Exercise Assessment
- **Global War on Terror**
  - Joint Radio Relay in Afghanistan
  - Realistic Range Targets and Threats



TRAINING ASSESSMENT
Programs

U.S. Navy
- Quantitative Fleet Feedback
- Battle Force Tactical Trainer
- Trident Warrior Network Analysis
- Affordable Weapon System Datalink
- Combat System Ship Qualification Trails Comms
- AEGIS Performance Assessment Network Comms
- Self Defense Test Ship Comms
- Littoral Combat Ship Distributed Comms
- Naval Oceanographic Office Comms
- Southern California Offshore Range Comms
- Tactical Aircrew Combat Training Systems
- System Replacement and Modernization
- Weapons Impact Scoring Sets (Visual & IR)
- Improved Remote Strafe Scoring System
- Target Area Safety Surveillance System
- Human Systems Integration

U.S. Marine Corps
- 29 Palms Marine Air Ground Task Force Training
- Ground Range Sustainment Program
- Range Facility Management Support System

U.S. Air Force
- Joint Radio Relay
- Weapons Impact Scoring Sets (Visual & IR)
- Improved Remote Strafe Scoring System
- Range Systems Installation

U.S. Army
- Transportable Telemetry System

Missile Defense Agency
- THAAD Communication Backbone at PMRF
- Mobile Range Safety System (Hawaii and Kwajalein)
- PMRF Classified Video Distribution System
- ABMD Flight Mission Test Comms
- Critical Measures and Counter Measures Testing

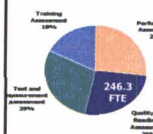
Dept. of Interior
- Midway Island Telecom

Royal Australian Navy
- Mobile Transportable Telemetry Range
- Jervis Bay Telemetry Range

CORONA TECHNICAL CAPABILITIES

System Acquisition Life Cycle

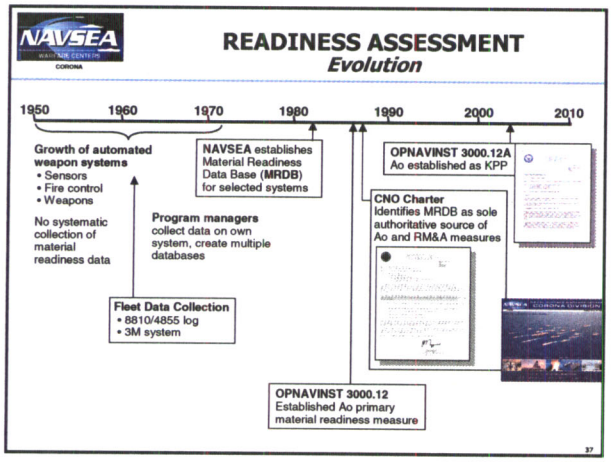
Concept Refinement	Technology Development	System Demonstration & Development	Production & Deployment	Operations & Support



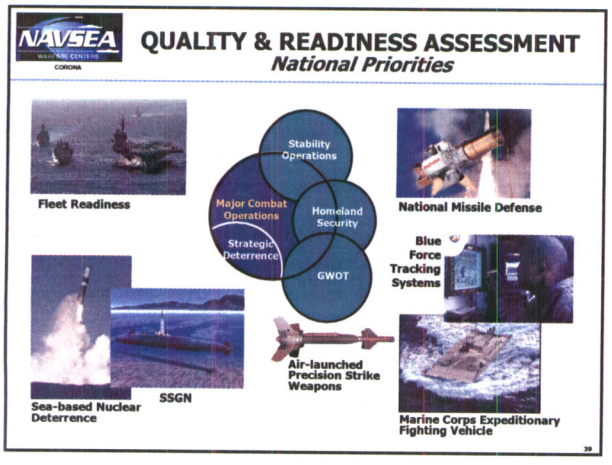
Test and Measurement Assessment
Performance Assessment
Training Assessment
Quality and Readiness Assessment

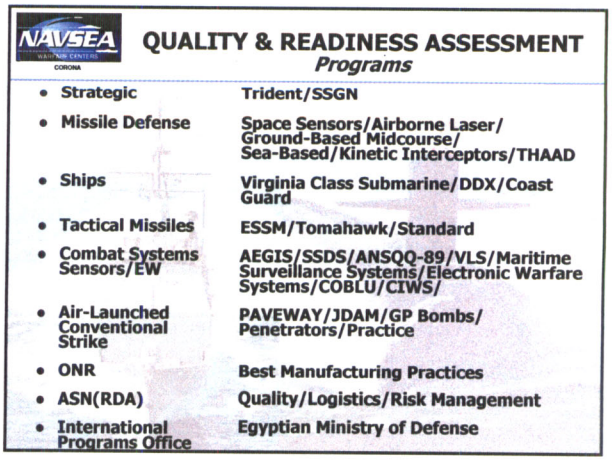
Fleet Operational Cycle

Maintenance/Unit	Integrated Training	Sustainment/Deploy/Sustainment


NAVSEA
CORONA
READINESS ASSESSMENT
Evolution
1950
1960
1970
1980
1990
2000
2010
Growth of automated weapon systems
• Sensors
• Fire control
• Weapons
No systematic collection of material readiness data
NAVSEA establishes Material Readiness Data Base (MRDB) for selected systems
Program managers collect data on own system, create multiple databases
Fleet Data Collection
• 8810/4855 log
• 3M system
OPNAVINST 3000.12A
Ao established as KPP
CNO Charter
Identifies MRDB as sole authoritative source of Ao and RM&A measures
OPNAVINST 3000.12
Established Ao primary material readiness measure
37


NAVSEA
CORONA
QUALITY ASSESSMENT
Evolution
Corona's historic role of comprehensive independent quality assessment began in 1959 and continues today
Rigorously applied to Strategic Nuclear Deterrence and National Missile Defense Programs
POLARIS
MIL-Q-21549
Quality Program Requirements
TRIDENT
T9001
Technical Program Management Requirements
MISSILE DEFENSE
MDA-QS-001-MAP
Mission Assurance Provisions
Quality Control
Quality Assurance
Mission Assurance
38


NAVSEA
CORONA
QUALITY & READINESS ASSESSMENT
National Priorities
Fleet Readiness
Stability Operations
Major Combat Operations
Homeland Security
Strategic Deterrence
GWOT
National Missile Defense
Blue Force Tracking Systems
Air-launched Precision Strike Weapons
Sea-based Nuclear Deterrence
SSGN
Marine Corps Expeditionary Fighting Vehicle
39


NAVSEA
CORONA
QUALITY & READINESS ASSESSMENT
Programs
Strategic
Trident/SSGN
Missile Defense
Space Sensors/Airborne Laser/ Ground-Based Midcourse/ Sea-Based/Kinetic Interceptors/THAAD
Ships
Virginia Class Submarine/DDX/Coast Guard
Tactical Missiles
ESSM/Tomahawk/Standard
Combat Systems Sensors/EW
AEGIS/SSDS/ANSQQ-89/VLS/Maritime Surveillance Systems/Electronic Warfare Systems/COBLU/CIWS/
Air-Launched Conventional Strike
PAVEWAY/JDAM/GP Bombs/ Penetrators/Practice
ONR
Best Manufacturing Practices
ASN(RDA)
Quality/Logistics/Risk Management
International Programs Office
Egyptian Ministry of Defense

DCN: 12524

NAVSEA WARFARE CENTERS CORONA

CORONA BRAC DATA CALL OVERVIEW

41

NAVSEA WARFARE CENTERS CORONA

SUGGESTIONS FROM BRAC COMMISSION STAFF

(1) Address military value

(2) Discuss Cobra if there are any numbers with which you take exceptions

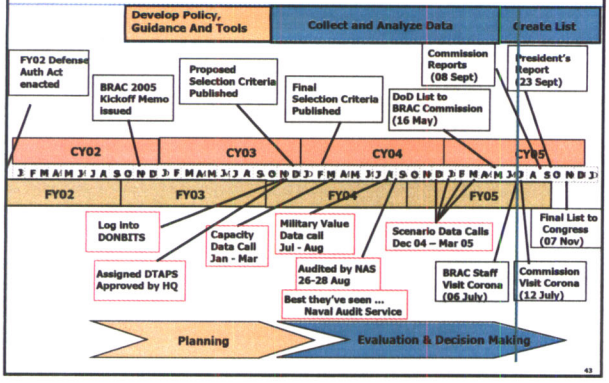
(3) The scenario you responded to the closure of Corona and its movement to Ventura

(4) Any others worth discussing

42

NAVSEA WARFARE CENTERS CORONA

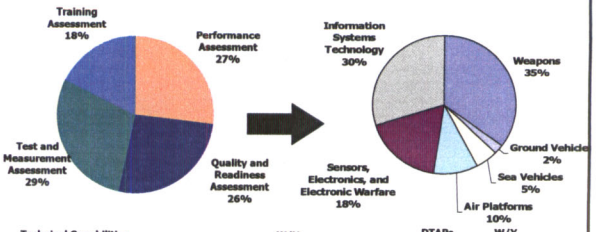
BRAC 2005 TIMELINE



43

NAVSEA WARFARE CENTERS CORONA

TECHNICAL CAPABILITIES TO DTAP

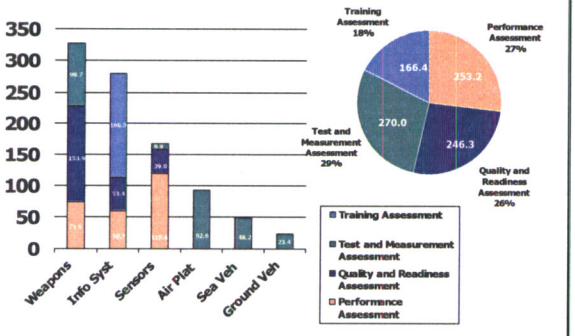


Technical Capabilities	W/Y
Performance Assessment	253.2
Quality and Readiness Assessment	246.3
Test and Measurement Assessment	270.0
Training Assessment	166.4
Total	935.9

DTAPs	W/Y
Weapons	327.5
Grd Veh	20.5
Sea Veh	48.2
Air Platf	92.6
Sensors	167.5
Info Sys	279.6
Total	935.9

44

FTE BY DTAP AND TECHNICAL CAPABILITIES



NSWC CORONA MILITARY VALUE SCORE

Function	Corona FTEs FY03	Number of Activities	Corona MilVal Rank	Corona MilVal Score	Above Median ?	Rank Percentile
Air Platforms Development & Acquisition	26	67	10	0.1459	Yes	15%
Air Platforms Test & Evaluation	66.7	51	16	0.0698	Yes	31%
Ground Vehicles Development & Acquisition	0	25	9	0.1514	Yes	36%
Ground Vehicles Test & Evaluation	20.5	27	9	0.0708	Yes	33%
Information Systems Technology Development & Acquisition	202.3	105	17	0.2202	Yes	16%
Information Systems Technology Research	0	68	68	0.0420	No	
Information Systems Technology Test & Evaluation	77.4	72	16	0.2241	Yes	22%
Materials and Processes Test & Evaluation	0	44	17	0.1350	Yes	38%
Sea Vehicles Development & Acquisition	8	33	16	0.1383	Yes	48%
Sea Vehicles Test & Evaluation	40	33	12	0.0702	Yes	36%
Sensors, Electronics & EW Development & Acquisition	35.7	103	17	0.2520	Yes	16%
Sensors, Electronics & EW Test & Evaluation	131.8	72	14	0.2643	Yes	19%
Weapons Technology Development & Acquisition	201.8	78	21	0.1824	Yes	27%
Weapons Technology Test & Evaluation	125.7	70	19	0.0802	Yes	27%

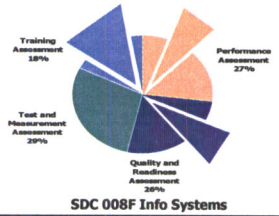
Ref: Technical Joint Cross Service Group
Analyses and Recommendation Vol XII, Date 19 May 05
Part V, Appendix B

NSWC CORONA SPLIT SCENARIO DATA CALLS

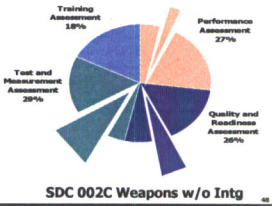
Scenario No.	Corona Actions	Location
Tech 008A	Consolidate Sensors, Electronic, and Electronic Warfare work	NSWC DD, Dahlgren VA
Tech 008B	Consolidate Information Systems Technology work	SPAWAR, San Diego, CA
Tech 006	Consolidate Air Platform (Fixed Wing) work	NAVAIR, Patuxent River, MD
Tech 002C	Realign Weapons (other than weapons integration) work	China Lake, CA
Tech 002F	Realign Weapons (weapons integration) work	NSWC PH D, Port Hueneme CA
Tech 005	Consolidate Air Platform (Rotary Wing) work	NAVAIR, Patuxent River, MD
Tech 008E	Consolidate Sensors, Electronic, and Electronic Warfare (surface and air) work	NSWC DD, Dahlgren VA
Tech 008F	Consolidate Information Systems Technology (maritime) work	SPAWAR, San Diego, CA
Tech 008I	Consolidate Sensors, Electronic, and Electronic Warfare (subsurface) work	NUWC Newport, RI
DON 0161	Implement all scenarios above. Consolidate remaining functions with NSWC PHD	NSWC PHD, Port Hueneme, CA
DON 0161D	Relocate METCAL Lab functions only	Base X

SPLIT SCENARIO BREAKDOWN

Scenario	Performance Assessment	Quality Assessment	Test and Measurement Assessment	Training Assessment	Total
SDC 008A	6	0	0	0	6
SDC 008B	0	0	0	0	0
SCD 006	0	0	41	0	41
SDC 002C	19	39	96	0	154
SDC 002F	51	109	0	0	160
SDC 005	0	0	28	0	28
SDC 008E	106	29	8	0	143
SDC 008F	58	51	0	146	255
SDC 008I	0	6	0	0	6
SDC 161D	0	0	203	0	203



SDC 008F Info Systems



SDC 002C Weapons w/o Intg

NSWC CORONA TOTAL SCENARIO DATA CALL

Scenario No.	Corona Actions	Location
DON 0161A	Relocate all functions	NAVBASE VENTURA CTY (Port Hueneme) CA
DON 0161B	Relocate all functions	NAVBASE VENTURA CTY (Point Mugu
DON 0161C	Relocate all functions	NAVAIRWPNSTA CHINA LAKE
Tech 0060	Relocate all functions	March Air Reserve Base

SDC 161B DELTAS PROVIDED TO NSWC HQ

COBRA Model	Delta from Validated Data
TJCSG included as part of 710 lbs per person allocation	(200.3 tons) of mission support equipment
COBRA computation 317,760 sf Facility Requirements	(78,895 sf) of facility requirements
COBRA computation Refurb vs Milcon	No Milcon for JWAL No Milcon for MSTL
Missing in COBRA	IT cost ($ 93.9K)

COBRA Model	Other Considerations
	$306K termination cost of third party energy efficient contract
	$45K for MSTL lab accreditation.
$1,665K of BOS funding to support NSWC Corona ops at NAS Pt. Mugu	Additional $889K of BOS cost required at NAS Pt Mugu

Summary

- BREAK APART SCENARIOS REVERSE YEARS OF CONSOLIDATION OF ASSESSMENT DISCIPLINES AND LAB FUNCTIONS AT CORONA
  - WOULD DIMINISH/DESTROY THEIR CURRENT VALUE & EFFICIENCIES
  - INCREASES COSTS AND DUPLICATE FACILITIES
- INDEPENDENT ASSESSMENT FUNCTION AT CORONA REQUIRES SEPARATION FROM THOSE PERFORMING SYSTEM DESIGN, DEVELOPMENT, TEST ENGINEERING AND MAINTENANCE
  - MUST BE SEPARATE FROM PROGRAM COST AND SCHEDULE
- KEY RISKS TO MISSION EXECUTION FOR ANY RELOCATION CONSIDERED
  - INDEPENDENCE OF REPORTING AND MISSION EXECUTION MAINTAINED
  - FACILITIES MUST BE ADEQUATE TO PERFORM MISSION
    - WARFARE ASSESSMENT LABORATORY
    - MEASUREMENT SCIENCE & TECHNOLOGY LABORATORY
  - RISK OF LOSS OF KEY PERSONNEL
    - IMPACT TO MISSION EXECUTION WHILE RECONSTITUTING WORKFORCE
    - COST CONSIDERATIONS TO RETRAIN
  - FINANCIAL CONSIDERATIONS CORRECT
    - DURING RELOCATION
    - POST RELOCATION

AGENDA

Welcome	0800
NSA Corona	0815
Windshield Tour	0830
Command Overview	0900
Independent Assessment	**1030**
Lunch & Open Discussion	1130
Our Mission (MSTL Tour)	1200
Our Mission (JWAL Tour)	1300
Our People	1500
Summary	1530
Wrap-up Discussion	

INDEPENDENT ASSESSMENT
Outline

- Introduction
- History
- Process
- Value

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INDEPENDENT ASSESSMENT
Premise

- Can you expect people to objectively assess their own work?
  - Pride of ownership
  - Competition
  - Organizational pressure/constraints
- Does the value of independent assessment increase with risk?
  - Commercial transportation
  - Combat/Ordnance
  - Manned Spaceflight

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INDEPENDENT ASSESSMENT
Attributes

- Functional and physical separation from cost, schedule, production
- Alignment of analytic disciplines
  "auditor must be better than the bookkeeper"
- Established criteria: same slide rule
- System (horizontal) perspective
- User (vice producer) perspective

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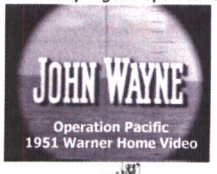
NAVY'S INDEPENDENT ASSESSMENT PROGRAM
The Beginning...

- During WWII, submarines did little damage to Japan during the initial 18 months of the war
  - Fleet tested and uncovered defective torpedoes
  - Naval Ordnance community argued operator error



NAVY'S INDEPENDENT ASSESSMENT PROGRAM
The Beginning...

Early 60s: Early Surface to Air Missile Program

- TERRIER missiles and fuzes failed
- Biased reporting and secrecy
- **"We were doing it again"[1]**

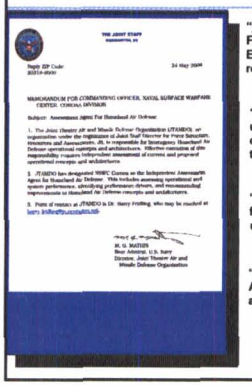
[1] CAPT Eli T. Reich, WW II submarine veteran and Commanding Officer, USS CANBERRA

What the Navy did...

- **1962: Appointed Special Navy Task Force for Surface Missile Systems (RADM Reich)**
  - Standardized Evaluation Criteria
  - Consistent Data Sets
  - Objective, Unbiased Analysis Process
- **1964: Established Fleet Missile Systems Analysis and Evaluation Group (now NSWC Corona):**

...provide the Navy Dept, Operating Forces, and Shore Establishment with evaluation of performance, reliability, and effectiveness of Missile weapon systems, subsystems...

INDEPENDENT ASSESSMENT
KEY MILESTONES



"Mission. To provide the Navy Department, the Operating Forces, and other appropriate organizations of the Shore Establishment with evaluation of performance, reliability, readiness and effectiveness of missile weapon systems..."
OPNAVNOTE 5450 Apr 62

"Gauge the warfighting capacity of ships and aircraft, from unit to battlegroup level, by assessing the suitability of design, the performance of equipment and weapons and the adequacy of training"
OPNAVNOTE 5450 Sep90

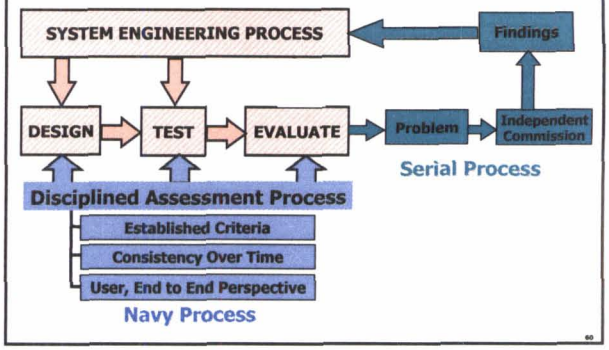
"You are the NAVSEA warranted Technical Authority for force level warfare and combat systems assessment (except undersea warfare)."
NAVSEA ltr 5400 Ser 06/013 Mar03

"JTAMDO has designated NSWC Corona as the Independent Assessment Agent for Homeland Air Defense. This includes assessing operational and system performance...."
JTAMDO Joint Staff Memo May04

INDEPENDENT ASSESSMENT
Other Examples

- "...National Transportation Safety Board is an independent agency ...to investigate air, rail, highway, pipeline and maritime accidents, and to propose corrective action"
- Los Alamos National Lab: "Univ of California charters independent assessment...of select business processes. Director Anastasio "I felt it was important to get a third party, independent review..."
- "NASA Administrator Goldin appointed the Mars Polar Lander Independent Assessment Team"; findings included ..."major mistake to design the Polar Lander without critical entry, descent and landing telemetry capability...mistakes can be prevented by applying...independent analysis"
- COLUMBIA Accident Investigation Board chartered to conduct independent investigation; recommendations included "Establish independent Technical Engineering Authority ...build disciplined, systematic approach...for analyzing hazards throughout the life cycle..."

INDEPENDENT ASSESSMENT
Process



INDEPENDENT ASSESSMENT
Why does the Navy use it?

- Embed critical instrumentation
- Close the system engineering loop
- Capability management
- Framework for systems of systems
  - Interoperability
  - Force level
  - Joint
  - Coalition

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INDEPENDENT ASSESSMENT
Capability Management

1982 **HMS SHEFFIELD**

"...Meanwhile a pair of French made Super-Etenard fighter-bombers from the mainland Argentinean base of Rio Gallegos spotted the HMS Sheffield on radar about 50 km away. The planes headed closer, at 20km fired off a pair of AM 39 Exocet missiles, then peeled off toward home. One of these Exocets locked onto the SHEFFIELD.

These missiles quickly dropped to between six and eight feet from the sea and traveled at close to the speed of sound through rough waves, following a course programmed in by the pilots. 10km from the target the missile's own radar system picked out the target and homed in...."

USN/FGN Joint Exercises

1987 1988 1989 – 1994 1995 - current

- 3 USN ships join Federal German Navy for Joint Exercise
- USS STARK struck by Exocet
- First USN engagements against Exocet: 25% success rate
- Yearly Joint USN/FGN exercise: tactically representative air defense exercises
- FGN deploys Tornadoes to launch Kormorans in tactical configuration

62

INDEPENDENT ASSESSMENT
Capability Management

- Over 150 missile engagements against Exocet and Kormoran cruise missiles
  - Consistent assessment criteria
  - Feedback results to next test
  - Measure performance over time
- Close the System Engineering Loop
  - Manage performance issues
  - Track corrective actions
  - Weapon System Performance Reviews
- Major Anti-Ship Cruise Missile defense enhancements
  - –Aegis Approach Angle Control (AAC)
  - –Missile low altitude flair
  - –Enhanced missile fuze capability at low altitude

INDEPENDENT ASSESSMENT
MDA Capability Management & Mission Assurance

MDA Charter
Lead: Firing Event Analysis Team
"To prepare and provide comprehensive, near real time analysis reports for each MDA Sea-Based Midcourse Defense firing mission"
RADM K. Paige (Director, Aegis Ballistic Missile Defense)

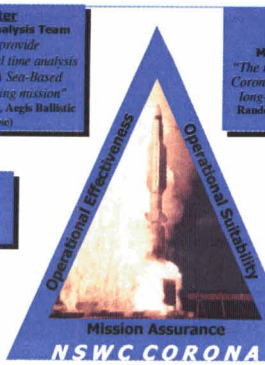
MDA
Lead: MDA-QS-001-MAP
Mission Assurance Provisions
"The remarkable contributions of NSWC Corona have demonstrated the value of a long-term partnership with MDA QS"
Randolph Stone (Director, Safety, Quality and Mission Assurance)

AEGIS
Assessment Agent
Close Sys Engr Loop
Global Data Mgmt

TRIDENT
T9001
Technical Program Management Requirements

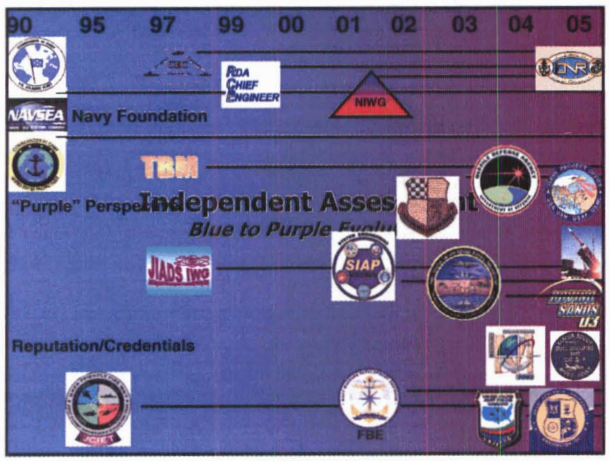
STANDARD MSL
Assessment Agent
Telemetry Engr
Range Instr

POLARIS
MIL-Q-21549
Quality Program Requirements



64

DCN: 12524



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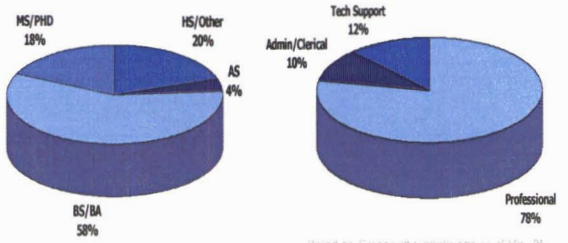
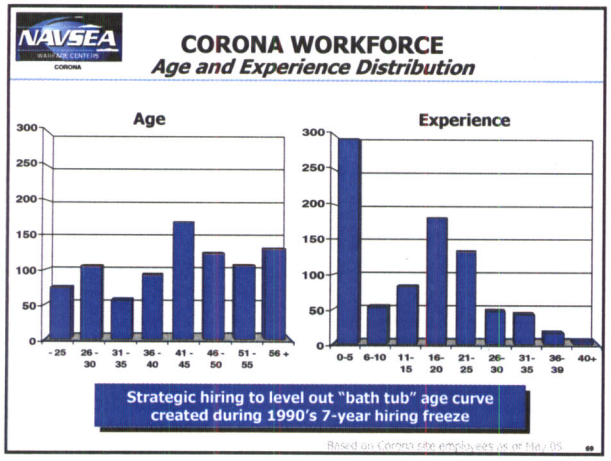
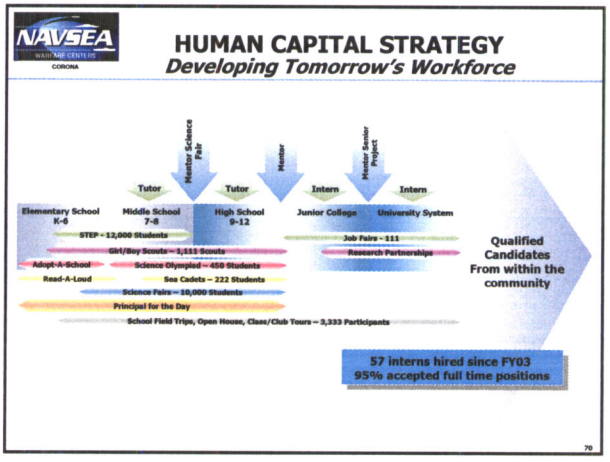
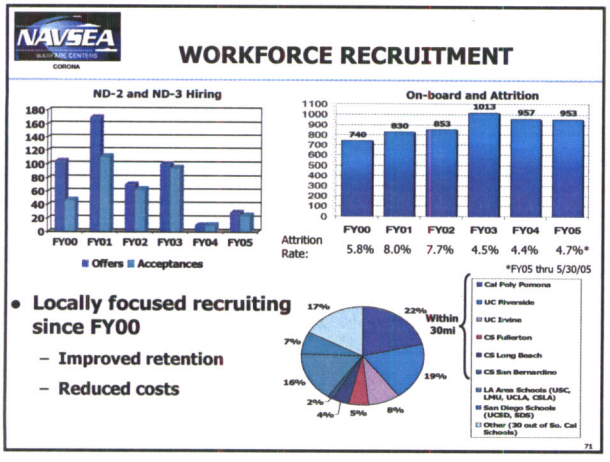
CORONA WORKFORCE
Education & Discipline

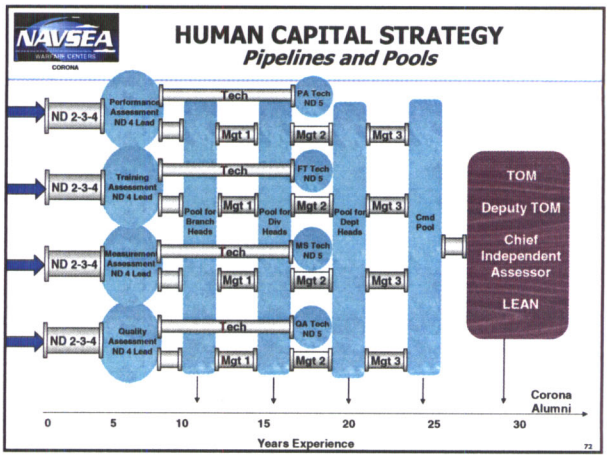
- NSWC Corona workforce = 953 (as of May 05)
- Corona site employees = 852 (as of May 05)




NAVSEA
CORONA
CORONA WORKFORCE
Age and Experience Distribution
Age
Experience
- 25
26 - 30
31 - 35
36 - 40
41 - 45
46 - 50
51 - 55
56 +
0-5
6-10
11-15
16-20
21-25
26-30
31-35
36-39
40+
Strategic hiring to level out "bath tub" age curve created during 1990's 7-year hiring freeze
69

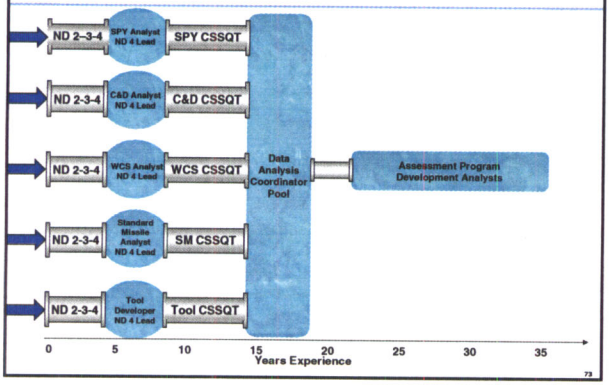

NAVSEA
CORONA
HUMAN CAPITAL STRATEGY
Developing Tomorrow's Workforce
Mentor Science Fair
Mentor
Mentor Senior Project
Tutor
Tutor
Intern
Intern
Elementary School K-6
Middle School 7-8
High School 9-12
Junior College
University System
STEP – 12,000 Students
Girl/Boy Scouts – 1,111 Scouts
Adopt-A-School
Science Olympiad – 450 Students
Read-A-Loud
Sea Cadets – 222 Students
Science Fairs – 10,000 Students
Principal for the Day
School Field Trips, Open House, Class/Club Tours – 3,333 Participants
Job Fairs – 111
Research Partnerships
Qualified Candidates From within the community
57 interns hired since FY03
95% accepted full time positions
70


NAVSEA
CORONA
WORKFORCE RECRUITMENT
ND-2 and ND-3 Hiring
FY00 FY01 FY02 FY03 FY04 FY05
Offers Acceptances
On-board and Attrition
740
830
853
1013
957
953
FY00 FY01 FY02 FY03 FY04 FY05
Attrition Rate:
5.8% 8.0% 7.7% 4.5% 4.4% 4.7%*
*FY05 thru 5/30/05
Locally focused recruiting since FY00
– Improved retention
– Reduced costs
Within 30mi
Cal Poly Pomona
UC Riverside
UC Irvine
CS Fullerton
CS Long Beach
CS San Bernardino
LA Area Schools (USC, LMU, UCLA, CSLA)
San Diego Schools (UCSD, SDS)
Other (30 out of So. Cal Schools)
71


NAVSEA
CORONA
HUMAN CAPITAL STRATEGY
Pipelines and Pools
ND 2-3-4
Performance Assessment ND 4 Lead
Training Assessment ND 4 Lead
Measurement Assessment ND 4 Lead
Quality Assessment ND 4 Lead
Tech
Mgt 1
Mgt 2
Mgt 3
PA Tech ND 5
FT Tech ND 5
MS Tech ND 5
QA Tech ND 5
Pool for Branch Heads
Pool for Div Heads
Pool for Dept Heads
Cmd Pool
TOM
Deputy TOM
Chief Independent Assessor
LEAN
Corona Alumni
0 5 10 15 20 25 30
Years Experience
72

DCN: 12524

HUMAN CAPITAL STRATEGY
An Example



KNOWLEDGE INTEGRITY
Integrated Resources

- Employee skills extend across technical capabilities
- Key to mission execution

Knowledge Areas	Technical Capabilities			
	Quality	Measurement	Performance	Training
Collaborative Assessment	X	X	X	X
Instrumentation Data Management			X	X
Combat Systems Assessment	X	X	X	
Readiness Assessment	X	X	X	X
Training Assessment				X
Training Range Engineering		X		X
Interoperability Assessment			X	X
Joint Battleforce Assessment	X		X	X
Metrology Engineering Assessment	X	X		X
Test Systems Assessment	X	X		
Interface Assessment	X	X		
Quality Assessment	X	X	X	X
Diminishing Manufacturing/Obsolescence Assessment	X	X		

CORONA WORKFORCE
5-Yr Retirement Eligibility Forecast

47% of employees eligible to retire in 5 years if relocated

Based on Corona site employees as of May 05

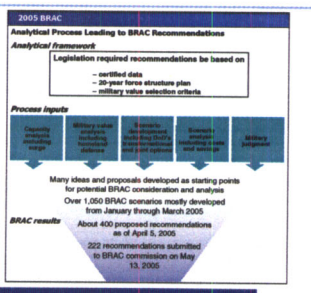
AGENDA

• Welcome	0800
• NSA Corona	0815
• Windshield Tour	0830
• Command Overview	0900
• Independent Assessment	1030
• Lunch & Open Discussion	1130
• Our Mission (MSTL Tour)	1200
• Our Mission (JWAL Tour)	1300
• Our People	1500
→ • Summary	1530
• Wrap-up Discussion	

SUMMARY

It's all about the Mission

Independent Assessment



To gauge the warfighting capability of ships and aircraft, from unit to battlegroup level, by assessing the suitability of design, the performance of equipment and weapons, and the adequacy of training. Ref: OPNAVNOTE 5450

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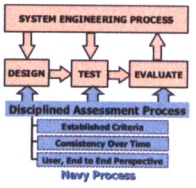
INDEPENDENT ASSESSMENT
Genesis & Evolution

- Independent Assessment born of urgent need in WWII
- Assessment must be free of cost and schedule responsibility
- Corona's assessment capability growth from guided missile analysis to combat systems, force and joint warfare analysis
  - Consistent, disciplined approach
  - Evolves with threat
  - Crucial to risk management
  - Critical to Navy programs and
    - Missile Defense Agency
    - Joint Force Interoperability
    - Asymmetric Warfare
    - Homeland Defense



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MISSION VALIDATION
DOD Base Closure and Realignment Report
Vol 1, Part 2 of 2, May05

- NSWC Corona's "Three Required Missions"
  - Independent Assessment
  - Metrology and Calibration Laboratories
  - Tactical Aircrew Combat Training System Ranges
- Synergistic Technical Capabilities
  - "...full spectrum warfare center and independent assessment capability."
  - "...lose critical capability if the...functions were relocated to a variety of locations..."

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MISSION ENABLERS

- People
  - Our most important asset
  - Culture of Independent Assessment
  - Human Capital Strategy
- Process
  - Requirements-based criteria
  - End-to-end system and user perspectives
  - Innovative data management and analysis tools
  - Collaborative analysis lead for Navy, Joint, Coalition
- Facilities
  - Integrated, reconfigurable, secure project areas
  - Global, secure network connectivity
  - Unique National Assets

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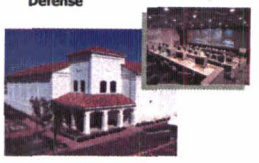
NSWC CORONA NATIONAL ASSETS

- **Joint Warfare Assessment Laboratory**
  - Navy's (48,000 Sq. Ft.) Center for Collaborative Assessment
    - AEGIS Combat System Ship Qualification Trials
    - Strike Group and Joint Force Interoperability Testing and Training
    - Missile Defense Agency Sea-Based Midcourse Defense Flight Missions
  - Potential Management for Homeland Defense



- **Measurement Science & Technology Laboratory**
  - Premier Gage Lab in DOD
  - 39,000 Sq. Ft.
  - Advanced Air Flow and Controls
  - Temperature Controls to 68° ± .5° F
  - R&D, Standards, & Production Laboratories W/Support Facilities

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JOINT WARFARE ASSESSMENT LAB
Specifications

- **Entire building is constructed to Director of Central Intelligence Directive (DCID) standards for SCI Level spaces**
  - Card readers on all interior and exterior entries
  - Intrusion Detection System (IDS)
  - Doors equipped w/ X09 locks
  - HVAC air handlers built within building with all ducting equipped with security grills and sound attenuation
  - 12" concrete exterior walls w/ copper shielding
    - Two layer of #6 rebar vert. & #5 Horiz. @ 12" O.C.E.W.
    - 4"x4" 6 awg copper mesh on ext walls, flooring, ceiling
    - Constructed per UBC seismic zone 4 and DCID 6/9
- **Integrated Networks**
  - 4 Networks (Class/Unclas), telephones, Protected Distribution System
- **Redundant Power**
  - Interior building on UPS
  - 1200 kw back-up generator w/ 6000 gal tank (4 day capacity)
  - Back-up to commercial power supply
- **Theater**
  - 12 networked 10' screen displays
  - 100 re-configurable computer work stations
  - Raised flooring
  - Secure observation rooms

P008 MILCON: JWAL EXPANSION

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MEASUREMENT SCIENCE & TECHNOLOGY LAB
Specifications

- Building Lab Space constructed to meet NAVAIR 17-35FR-04 Requirements
  - Perforated ceiling panels /w return air through walls
  - Controlled environment 68° F +/- 0.5° F w/ 35-50% Rel. Hum.
  - Vibration Isolation
    - <0.25µm displacement @ 2-30Hz
    - <0.001g acceleration @ 30-200Hz
  - Insulated interior walls
  - Redundant 200 ton chiller units
- Ceiling heights up to 20' in lab space
- Pits for force machines and rotary table to maintain floor bearing capacity at the operational level
- Force Machine Foundation in bedrock to minimize lateral movement during extended duration testing (8 hrs+)
- Large access doors for gage and equipment movement

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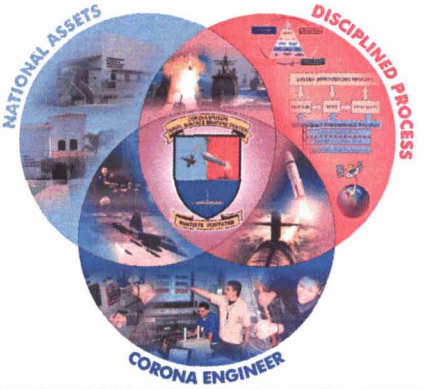

It's all about the Mission

DCN: 12524


NATIONAL ASSETS
DISCIPLINED PROCESS
CORONA ENGINEER
It's all about the Mission