Epstein, David, CIV, WSO-BRAC

From: Shibley, Eileen P CIV BRAC [eileen.shibley@navy.mil]
Sent: Monday, July 25, 2005 3:25 PM
To: lester.farrington@wso.whs.mil
Cc: david.epstein@wso.whs.mil
Subject: Technical Scenarios
Attachments: Technical CRs.xls

Les,

I've updated last week's spreadsheet and added the "Title" of the scenario for easier reference and also listed all losing activities. Again, they are grouped in descending order of what some of us would consider the scenarios with the least to the most issues, i.e. the easy ones at the top. Since I have the best access (and have had to care the most about) to Navy scenarios, would you mind taking a look at this spreadsheet and let me know if I have missed any scenarios that you are responsible for. I need this so that I can be sure to capture the military value info for them.

Talked to Col Hamm today about the Sea Range numbers. He is off today but will send to you via email tomorrow.

Here's the name and phone number of the TJCSG person who headed the C4ISR subgroup. He is the most knowledgeable about the Joint C4ISR scenario (Ft. Meade) and he is a really great guy.

Matt Mleziva
978-852-5620

Working on the Military Value numbers -- almost there and will get them to you soon as I can.

<<Technical CRs.xls>>

Eileen P. Shibley
DASN (IS&A)
703-602-6424

Recommendation: Create a Naval Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation

[First Slide Please] There are several abbreviations that may show up on these slides for the benefit of brevity. RD & A T&E W&A

This is another one of the horrendous recommendations similar to the one we just saw. However, in some ways it is much simpler. **[Next Slide Please]** There are nine movements of personnel and facilities. Seven of these nine are towards Naval Air Realign Naval Air Warfare Center Weapons Division China Lake, CA If you read the recommendations carefully, you may have seen reference to Naval Air Weapons Command China Lake and several other variations. They all are talking about the same command.

In the way of background, permit me to explain to talk about three of the bases that appear on this slide. Naval Base Ventura County was previously two separate commands – Naval Air Station Pt. Mugu and Naval Base Port Hueneme. Today, these are now operated as a single command and each of the two pieces of real estate hosts several tenants. The Port Hueneme piece of real estate has one tenant that is part of this discussion and that is Naval Surface Warfare Center Port Hueneme. The other piece of real estate host several tenants also. One of these tenants is Naval Air Warfare Center Weapons Division Point Mugu. That is the real estate perspective on Naval Base Ventura County.

Let's next talk about management of the technical function. For about 13 years, Naval Air Warfare Center Weapons Division China Lake and , Naval Air Warfare Center Weapons Division Pt. Mugu have been operated as a single command. The commander of those activities told us that they have wrung out the duplication and overlap. He told us that they work efficiently as and I quote "a single university with two campuses."

[Next Slide Please] Here are the first page of the details of the recommendation. As I pointed out earlier, seven of the nine sub-recommendations direct resources to China Lake. **[Next Slide Please]** The two other sub-recommendations send resources to Dahlgren and Indian Head. However, both Dahlgren and Indian Head lose people under this recommendation as both also are sending people to China Lake. **[Next Slide Please]**

As the next slide summarizes this recommendation shows that only China Lake is a net gainer and there are no closures. **[Next Slide Please]**

The justification for this recommendation is similar to the one I discussed a few minutes ago. This recommendation consolidates weapons and armaments work primarily at China Lake. It has the additional goal of increasing efficiency and eliminating overlapping infrastructure. The recommendation enables technical synergy, and positions the DoD to exploit center-of-mass scientific, technical and acquisition expertise with Weapons and Armament RD&A and T&E, a specialty site at Dahlgren and an energetics site.

Note that the COBRA show an enormous one-time cost of more than $ 1/3 B. However, the payback is in a reasonable seven years and the recurring savings should not be sneezed at.

The community raised numerous issues. Although there were some differences of opinion from base to base, the issues generally can be broken into three general categories. These are failure of DoD to follow the BRAC rules, brain drain, and cost.

Let me summarize each of the three issues. First, the issue of following the rules: **[next slide please]**

- The community declared that Recommendations involving NBVC were developed by the Technical Joint Cross Service Group but address realignment solely within a unified command, of a single systems command, of a single service – that is, jointness was ignored.
- TJCSG began its deliberations with preconceived solutions and worked the process backwards; the analysis was misguided and fatally flawed
- TJCSG ignored or altered Navy supplied certified data for the scenarios;
  - The Navy position that certain functions and personnel were inextricably linked to the mission was ignored by the TJCSG
  - Costs of moving those operations, Base Operating Support personnel costs, recurring annual operating costs and required MILCONs should be included in the COBRA, but were ignored by the TJCSG
  - Navy certified responses to the Commission's request for data was altered prior to transmittal by the TJCSG and Navy scenarios were not shown to the Commission
  - TJCSG violated the military value criteria by ignoring the Navy military value matrix
  - TJCSG included an arbitrary percentage of savings in each scenario that is not explained or supported by data, especially given the previously recognized elimination of duplication
  - CNI concluded that the TJCSG underestimated the required mil cons by as much as 150%
  - Navy and CNI recommended cost inclusions result in a 20 year loss for each scenario and a 90-100 year payback period, not savings

The second issue is what we commonly call "brain drain" or loss of intellectual capital **[next slide please]**

The employees insist that they will not move, that there is a risk of tremendous "brain drain. However, Navy officials believe that 40-50% of the employees will actually make the move. Furthermore, there are many large companies in the area that have plenty of similar expertise that DOD can draw from. A DoD official stated that "brain drain" is a temporary problem, and based on experiences of prior BRAC rounds, we know of no program that has been adversely affected through the loss of intellectual capital. He

pointed out that DoD has six years to implement BRAC recommendations, providing ample time to mitigate the impact

Another aspect of the BRAC category #1 is noted by the employees and community groups that emphasize that programs could be delayed by "brain drain," and National security is at stake.

[next slide please]
The third issue is the issue of how much this will save. I would refer you to the previous slide that discussed various issues about BOS costs, the reduction, by what the community describes, of an unachievable reduction by 15% of civilian employment. There are also other savings issues that are specified on that slide. However, the employees also explained that delaying projects costs money and that training several thousand new employees with critical technical skills will be very expensive saving

[next slide please]
Unfortunately, this decision is going to have to be based largely on my description of what this action consists of, the slides which I am putting up now that describe what each base does, as described by DoD, and the opinions of Commissioners Gehman, Coyle, and perhaps others.

are generally not repeated from base to base.

One of the tenants on the piece that was previously known as NAS Pt. Mugu and what was previously known as NAWC China Lake have been managed as a single command for more than a decade. These two facilities are noted for their pre-eminent air and sea ranges which carefully calibrated and monitored to facilitate testing. Sea testing can occupy as much as 100,000 square miles of ocean. There are daily charter flights between the two areas and some department heads are based at one site and some at the other. On several occasions, we heard the arrangement as one of one university with two campuses. Some tests involve both parts of the parent command. The Pt. Mugu employees are one of the major concerned groups.

* * * ** *

Recommendation: The title of this recommendation is "Consolidate Maritime C4ISR Associated Installations." This recommendation is predominantly about SPAWARS, the Navy's Space Warfare Command. As a result of BRAC 1993, it is headquartered in Point Loma, San Diego with an east coast center in Charleston. **[First Slide Please]**

This recommendation is exceedingly complex. Let me just show you the two slides that summarize the actions that are involved, provide some background material, and then I will discuss the three areas with which the staff has the most concern. **[Next Slide Please]** For those of you who visited Naval Surface Warfare Centers Dahlgren or Naval Air Warfare Center Pt. Mugu, you saw parts of the eight sub-recommendations which we will be discussing. **[Next Slide Please]** But, also please keep in mind that if you visited NSWC Dahlgren, for example, you heard and saw material that plays a part in four separate recommendations, including this one. **[Next Slide Please]**

In the way of background, permit me to explain that Naval Base Ventura County was previously two separate commands – NAS Pt. Mugu and Naval Base Port Hueneme. These are now operated as a single command and each of the two pieces of real estate hosts several tenants. One of the tenants on the piece that was previously known as NAS Pt. Mugu and what was previously known as NAWC China Lake have been managed as a single command for more than a decade. These two facilities are noted for their pre-eminent air and sea ranges which carefully calibrated and monitored to facilitate testing. Sea testing can occupy as much as 100,000 square miles of ocean. There are daily charter flights between the two areas and some department heads are based at one site and some at the other. On several occasions, we heard the arrangement as one of one university with two campuses. Some tests involve both parts of the parent command. The Pt. Mugu employees are one of the major concerned groups.

NBVC has the preeminent ranges for surface ships and Navy aircraft, but it is very expensive to conduct testing involving real aircraft, ships, and submarines. For example, testing involving a submarine may require the project manager of a test to pay the salaries for 100-odd submariners for the days of the test, as well as transit time from the operating area and possibly the submarines operating costs. Thus, it frequently makes sense to use simulators and virtual ships to conduct much of the research, development and even testing. The Naval Underseas Warfare Center is a tenant at Naval Station Newport, where the Navy designs and tests submarines, torpedoes, communications, and sonar systems. Naval Surface Warfare Center, Dahlgren has a similar capability that facilitate testing of shipboard guns, including some highly futuristic capabilities.

Over the past few minutes, you have seen the DOD recommendation. **[Next Slide Please]** This slide shows the DoD's justification for this recommendation – all eight pieces of it. Staff is highly supportive of the concept of this recommendation, but there are three areas with which we are quite concerned. This is not to say that these are the only ones for which we received community concerns. You will notice that on the surface, this recommendation has some noble goals and great results. . **[Next Slide Please]** One of the things that makes these savings possible is the reduction from 12 to 5 or 6 in the number of electronic warfare and electronic systems RD and A and T&E. Along with this comes the elimination of 4 military and 514 civilian jobs.

[Next Slide Please] The three issues with which we take exception are 1) the movement of parts the virtual submarine from Newport to San Diego, 2) the transfer of the weapon systems integration facility and testing from Dahlgren to San Diego, and 3)

the transfer of the East Coast SPAWAR organization from Charleston to Little Creek. . **[Next Slide Please]** We received particularly relevant comments from the communities of Charleston, Dahlgren, Newport, and NBVC. **[Next Slide Please]**

As I explained, we are going to examine three proposed actions. Naval Underseas Warfare Center is a tenant at Naval Station Newport where the Navy tests submarines, torpedoes and sonar systems. However, the testing that occurs here is in a virtual submarine in several highly secure buildings in which there are highly classified laboratories which are electronically linked.

[Next Slide Please] This slide shows the concerns identified by the Newport Community. I'm going to address some of these. One of the major strengths of Naval Undersea Warfare Center (NUWC) Newport is a virtual submarine which includes laboratories for periscopes, antennas, main control, radio, sonar, and torpedo/missile simulators, which are electronically linked to simulate a fighting submarine. The DoD proposal is to remove the radio room and antennas (over the water; arches, etc.) laboratory to SPAWAR San Diego. This is not just a simple radio or two. This is an exact copy of the equipment on an operating submarine. Currently there are several different radio rooms, but plans are to move towards a common radio room. The other parts of this virtual submarine would remain in Newport. With regard to Newport, key issues include computer security, "latency" (problems introduced by the timing differences caused by transmitting information over large distances, and the benefits of working on the entire virtual submarine as a team in a single location, I talked with a variety of highly knowledgeable computer communications specialists including one who wrote a paper for Commissioner Coyle and offered to talk with him. I also spoke with a DoD BRAC person about the issues and recognize that there are differences of opinion on this matter. The community also pointed out that the US submarine fleet is in the midst of a massive change in tactics with an emphasis on littoral protection and they explained that the shift of the radio room and periscope facility will disrupt that work. There are 111 people involved in this move – no job eliminations, no duplication.

[Next Slide Please]The second of the proposed moves with which we are taking exception was not well described in the DoD report, where it is simply written that Maritime Information Systems RD&A and T&E will be consolidated at the new Space Warfare Systems Command Pacific at Point Loma San Diego. NSWC Dahlgren has a weapon systems integration effort that ties together the entire combatant functions of a surface ship. It starts with the analysis of potential targets, determines whether the target is friendly or foe and how much of a threat it is. This entails integrating input from various radars, infrared sources, etc. It is not a simple question of firing at every speck on a radar screen because there is chaff, other distractions, and even weather patterns can temporarily give the impression of a target. When all of this information is processed, by a combination of computers and human systems integration, computers and humans in weapons control then must decide which are targets and what type of weapon to respond with – that is guns, missiles, etc. In the case of missiles the computers and people must determine payload, targeting information, etc. to load into the missile. Aegis is the best known example of this weapon systems integration work. The community said that you

Create a Naval Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation Center

Recommendation: Realign Naval Surface Warfare Center Crane, IN, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except gun/ammo, combat system security, and energetic materials to Naval Air Weapons Station China Lake, CA.

Realign Naval Surface Warfare Center Indian Head, MD, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except gun/ammo, underwater weapons, and energetic materials, to Naval Air Weapons Station China Lake, CA.

Realign Naval Air Station Patuxent River, MD, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except the Program Executive Office and Program Management Offices in Naval Air Systems Command, to Naval Air Weapons Station China Lake, CA.

Realign Naval Base Ventura County, Point Mugu, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation to Naval Air Weapons Station China Lake, CA.

Realign Naval Weapons Station Seal Beach, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except underwater weapons and energetic materials, to Naval Air Weapons Station China Lake, CA.

Realign Naval Surface Warfare Center, Yorktown, VA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation to Naval Surface Warfare Center Indian Head, MD.

Realign Naval Base Ventura County, Port Hueneme, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except weapon system integration, to Naval Air Weapons Station China Lake, CA.

Realign Fleet Combat Training Center, CA (Port Hueneme Detachment, San Diego, CA), by [redacted]

[redacted] China Lake, CA.

Justification: This recommendation realigns and consolidates those facilities working in Weapons & Armaments (W&A) Research, Development & Acquisition, and Test and Evaluation (RDAT&E) into a Naval Integrated RDAT&E center at the Naval Air Warfare Center, China Lake, CA. Additional synergistic realignments for W&A was achieved at two receiver sites for specific focus. [redacted] for

Naval surface weapons systems integration and receives a west coast site for consolidation. This construct creates an integrated W&A RDAT&E center in China Lake, CA, energetics center at Indian Head, MD, and consolidates Navy surface weapons system integration at Dahlgren, VA. All actions relocate technical facilities with lower overall quantitative Military Value (across Research, Development & Acquisition and Test & Evaluation) into the Integrated RDAT&E center and other receiver sites with greater quantitative Military Value.

Consolidating the Navy's air-to-air, air-to-ground, and surface launched missile RD&A, and T&E activities at China Lake, CA, would create an efficient integrated RDAT&E center. China Lake is able to accommodate with minor modification/addition both mission and life-cycle/sustainment functions to create synergies between these traditionally independent communities.

During the other large scale movements of W&A capabilities noted above, Weapon System Integration was specifically addressed to preserve the synergies between large highly integrated control system developments (Weapon Systems Integration) and the weapon system developments themselves. A specialty site for Naval Surface Warfare was identified at Dahlgren, VA, that was unique to the services and a centroid for Navy surface ship developments. A satellite unit from the Naval Surface Warfare Center, Port Hueneme, San Diego Detachment will be relocated to Dahlgren.

The Integrated RDAT&E Center at China Lake provides a diverse set of open-air range and test environments (desert, mountain, forest) for W&A RDAT&E functions. Synergy will be realized in air-to-air, air-to-ground, and surface launched mission areas.

This recommendation enables technical synergy, and positions the Department of Defense to exploit center-of-mass scientific, technical and acquisition expertise with weapons and armament Research, Development & Acquisition that currently resides at 10 locations into the one Integrated RDAT&E site, one specialty site, and an energetics site.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $358.1M. The net of all costs and savings to the Department during the implementation period is a cost of $148.7M. Annual recurring savings to the Department after implementation are $59.7M with a payback expected in 7 years. The net present value of the costs and savings to the Department over 20 years is a savings of $433.4M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 375 jobs (258 direct jobs and 117 indirect jobs) over the 2006-2011 period in the Martin County, IN, economic area, which is 4.4 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 543 jobs (258 direct jobs and 285 indirect jobs) over the 2006-2011 period in the Lexington Park, MD, Micropolitan Statistical Area, which is 1.0 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 5,012 jobs (2,250 direct jobs and 2,762 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA, Metropolitan Statistical Area, which is 1.2 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 97 jobs (47 direct jobs and 50 indirect jobs) over the 2006-2011 period in the San Diego-Carlsbad-San Marcos, CA, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 76 jobs (45 direct jobs and 31 indirect jobs) over the 2006-2011 period in the Santa Ana-Anaheim-Irvine, CA, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 142 jobs (61 direct jobs and 81 indirect jobs) over the 2006-2011 period in the Virginia Beach-Norfolk-Newport News, VA-NC, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 91 jobs (52 direct jobs and 39 indirect jobs) over the 2006-2011 period in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 333 jobs (155 direct jobs and 178 indirect jobs) over the 2006-2011 period in the King George County, VA, economic area, which is 2.4 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation has the potential to impact air quality at Indian Head and China Lake. Archeological and historical sites exist on NSWC Dahlgren, which may impact current construction and operations. This recommendation has the potential to impact land use constraints or sensitive resource areas at Indian Head and China Lake. This recommendation has no impact on dredging; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation will require spending approximately $0.2M for waste management activities and $1.1M for environmental compliance activities. These costs were included in the payback calculation. This recommendation does not otherwise impact the costs

of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. Th~~ere are no known environmental impediments to implementation of this recommendation~~

Create an Air Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation Center

Recommendation: Realign Hill Air Force Base, UT, by relocating Weapons and Armaments In-Service Engineering Research, Development & Acquisition, and Test and Evaluation to Eglin Air Force Base, FL. Realign Fort Belvoir, VA, by relocating Defense Threat Reduction Agency National Command Region conventional armament Research to Eglin Air Force Base, FL.

Justification: Eglin is one of three core integrated weapons and armaments RDAT&E centers (with China Lake, CA, and Redstone Arsenal, AL) with high MV and the largest concentration of integrated technical facilities across all three functional areas. Eglin AFB has a full spectrum array of Weapons & Armaments (W&A) Research, Development & Acquisition, and Test & Evaluation (RDAT&E) capabilities. Accordingly, relocation of Hill AFB and DTRA NCR W&A capabilities will further complement and strengthen Eglin as a full spectrum W&A RDAT&E Center.

The overall impact of this recommendation will be to: increase W&A life cycle and mission related synergies/integration; increase efficiency; reduce operational costs; retain the required diversity of test environments; and facilitate multiple uses of equipment, facilities, ranges, and people. Hill AFB and DTRA NCR technical facilities recommended for relocation have lower quantitative MV than Eglin AFB in all functional areas.

This recommendation includes Research, D&A, and T&E conventional armament capabilities in the Air Force and DTRA NCR. It consolidates armament activities within the Air Force and promotes jointness with DTRA NCR. It also enables technical synergy, and positions the DoD to exploit center-of-mass scientific, technical, and acquisition expertise within the RDAT&E community that currently resides as DoD specialty locations. This recommendation directly supports the Department's strategy for transformation by moving and consolidating smaller W&A efforts into high military value integrated centers, and by leveraging synergy among RD&A, and T&E activities. Capacity and military value data established that Eglin AFB is already a full-service, integrated W&A RDAT&E center. Relocation of W&A D&A In-Service Engineering (ISE) from Hill AFB to Eglin AFB will increase life cycle synergy and integration. ISE encompasses those engineering activities that provide for an "increase in capability" of a system/sub-system/component after Full Operational Capability has been declared. ISE activities mesh directly with on-going RDAT&E at Eglin AFB.

Relocation of DTRA NCR W&A technical capabilities will increase life cycle synergy and integration at Eglin AFB. Conventional armament capabilities possessed by DTRA NCR directly complement on-going RDAT&E at Eglin AFB. Cost savings from the relocation of DTRA NCR to Eglin AFB will accrue largely through the elimination of the need for leased

Epstein

BRAC 2005 GOALS AND CHINA LAKE

by

PHIL ARNOLD

China Lake Defense Alliance
IWV 2000 Community and Economic Development Corporation

August 2003

FOREWORD

This is the second in a series of papers prepared by members of the China Lake Defense Alliance on China Lake's position in the forthcoming Base Realignment and Closure (BRAC) round scheduled for 2005. Each paper deals with the assets and capabilities of the Naval Air Warfare Center Weapons Division facility at China Lake, California as they relate to BRAC.

The China Lake Defense Alliance is a group of community volunteers working in partnership with the City of Ridgecrest and Kern County to assure that China Lake continues beyond BRAC 2005 as a premier full spectrum research, development, test, evaluation and training resource for national defense. The Alliance is a component of the IWV 2000 Community and Economic Development Corporation, a nonprofit corporation.

IWV 2000 and the China Lake Defense Alliance are not affiliated with the Navy or NAVAIR Weapons Division, China Lake.

China Lake Defense Alliance
Ridgecrest, California

Papers in Series

1. Comments on the Future of the Weapons Division – Matt Anderson – July 2003
2. BRAC 2003 Goals and China Lake – Phil Arnold – September 2003
3. Full Spectrum RDT&E Centers: A 21st Century Perspective – Phil Arnold – September 2003

PREFACE

In building a program to support the Naval Air Warfare Center Weapons Division base at China Lake in the forthcoming Base Realignment and Closure (BRAC) round, the China Lake Defense Alliance volunteers are engaged in activities similar to those of communities throughout the country. As a background for our program we believe that it's important to place China Lake's assets and capabilities fully in context with the directions being taken by the Department of Defense and military services.

Our approach:

1. Anticipate the future mission leadership responsibilities of China Lake as the United States enters the post-Cold War era. Matt Anderson's paper in this series looks at China Lake's future roles in supporting national defense.

2. Evaluate China Lake's assets and capabilities for the future in the context of the BRAC goals set by the Secretary of Defense. This paper summarizes thoughts along those lines.

3. Assess the role of a "full spectrum" RDT&E center in the 21st century. A third paper in this series deals with the role of a full spectrum center in the RDT&E and training environment of the future.

Although this paper focuses on China Lake's position relative to Department of Defense goals, the relationship of China Lake with the Point Mugu Weapons Division facility and Edwards Air Force Base is an important factor. The partnership of these three bases and their relationships to other Southwest Complex bases have to be understood to fully appreciate the value of each to national defense.

Phil Arnold

EXECUTIVE SUMMARY

The Base Realignment and Closure (BRAC) 2005 process differs from earlier BRAC rounds in two significant ways:

First, the Secretary of Defense's goals for the round extend beyond reducing the military support infrastructure to free up funds for other purposes. He sees the round as directly supporting the transformation of the defense establishment from a Cold War structure into a responsive force configuration for the challenges facing the United States in the first decades of the 21st century.

Second, the Secretary plans to manage the process from the top. In past BRAC rounds the Secretary of Defense and his staff were content to issue general guidance and allow the military services and agencies to internally manage the assessment process. As a result, past BRAC rounds have led to decisions supporting individual service goals with a minimal joint usage of base facilities. BRAC 2005 has been structured to facilitate consideration of joint use of facilities.

In his guidance to the Department of Defense on transformation, the Secretary defines three transformation areas: *how we fight, how we do business, and how we work with others.* His guidance deals with a variety of factors including leadership, technology, tactical and strategic planning and analysis, business practices, and force structure.

He sets three specific BRAC goals:

1. Eliminate excess capacity
2. Rationalize and reconfigure infrastructure with defense strategy
3. Align infrastructure to accommodate greater joint activity.

All of the goals, particularly Goals 2 and 3, are clearly associated with transformation.

If BRAC 2005 is to meet the Secretary's goals, each military installation must be assessed in terms of the goals and the transformation process. This paper is a qualitative assessment of China Lake's assets, capabilities, and associations in the context of BRAC and transformation goals. The formal BRAC assessment and associated data calls must be based on meeting the Secretary's goals to meet direction from the top.

The assessment of China Lake in terms of Secretary Rumsfeld's Goals:

1. Eliminate excess capacity. As a large, full service facility supporting all of the services in a variety of missions, China Lake clearly can support consolidation of functions from a variety of locations within the Navy and across service lines. As a full spectrum research, development, test, evaluation (RDT&E) and training center, China Lake has the further advantage of supporting all RDT&E functions in a joint, unified, co-located command within its general air warfare and weapon development mission areas:

INTRODUCTION

The planned process for Base Realignment and Closure (BRAC) 2005 is similar in many respects to earlier BRAC rounds – the Secretary of Defense presents recommendations to an independent review commission, the commission reviews and modulates the Secretary's recommendations and forwards its recommendations to the President, who decides whether to approve or disapprove as a package. If he approves, the recommendation is forwarded to Congress, which must vote to disapprove of the package as a whole or the realignment and closure process starts per the Commission's recommendations.

There are a few changes in the Congressionally mandated process from earlier BRAC rounds and a major change in the Defense Department management approach. The changes in the implementing legislation altered the size of the commission and changed the commission ground rules to make it a bit more difficult to change the Secretary of Defense's recommendations. The President can send the commission recommendation package back for one iteration before he must disapprove or send the recommendations to Congress. The big change in management approach is that the Office of the Secretary of Defense plans to take a more assertive role in managing the process than in the past. In earlier BRAC rounds the Secretariat issued guidance on issues such as moving toward joint use of facilities, but the services took a strong lead in the assessment and recommendations. In BRAC 1995 the services ignored guidance for joint use of facilities for the most part. In BRAC 2005 the process is being structured to assure that serious consideration is given to joint service use of bases.

SECRETARY OF DEFENSE'S BRAC GOALS

Secretary of Defense Donald Rumsfeld's objectives for BRAC 2005 were made clear in a letter sent to the Department of Defense (DoD) departments and agencies on November 15, 2002. He wrote, "*At a minimum, BRAC 2005 must eliminate excess physical capacity; the operation, sustainment and recapitalization of which diverts scarce resources from defense capability. However, BRAC 2005 can make an even more profound contribution to transforming the Department by rationalizing our infrastructure with defense strategy. BRAC 2005 should be the means by which we reconfigure our current infrastructure into one in which operational capacity maximizes* <u>*both*</u> *warfighting capability and efficiency* ." Also in the same letter he wrote, "*A primary objective of BRAC 2005, in addition to realigning our base structure to meet our post-Cold War force structure, is to examine and implement opportunities for greater joint activity* ."

Mr. Rumsfeld's letter, entitled *Transformation through Base Realignment and Closure,* can and should be the basis for evaluating China Lake's position in the BRAC assessment process. A copy of the letter is included as the Appendix in this paper. We can analyze Mr. Rumsfeld's comments in the light of what we know about transformation and draw conclusions about how China Lake should fit into the BRAC 2005 assessment.

process has been formally defined by Secretary of Defense Donald Rumsfeld in a guidance document distributed throughout the Department of Defense.[1]

In the this document transformation is defined as "*a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people, and organizations that exploit our nation's advantages and protect against our asymmetric vulnerabilities to sustain our strategic position, which helps underpin peace and stability in the world.* "

The transformation guidance document lists three pillars for transforming the US force structure:

- *Transforming how we fight* – developing joint warfighting concepts and supporting capabilities: doctrine, organization, training, material, leadership, education, personnel and facilities

- *Transforming how we do business* – transforming business and planning practices, resource allocation, accelerated acquisition cycles, output-based management, and a reformed analytic process. Initiatives range from improving the quality of life of service personnel to acquisition reform to an improved war planning process.

- *Transforming how we work with others* – building interagency cooperation, regional partnerships and international military cooperation.

The Secretary of Defense's guidance deals with the gamut of factors – leadership, technology, tactical and strategic planning and analysis, and force structure transformation.

BRAC GOALS AND CHINA LAKE

The Secretary of Defense's BRAC goals of eliminating excess capacity, rationalizing the infrastructure with the national defense strategy, and facilitating greater joint activity in the context of transformation structures a process for evaluating any military base's prospects for BRAC and for making decisions on retention, realignment or closure. In this section we'll step through each goal and examine China Lake's position in supporting goal fulfillment.

Goal 1: Eliminate excess physical capacity.

Eliminating excess capacity can be accomplished by:

- Consolidating small bases into larger bases to gain economies of scale

- Consolidating separate bases that do similar work.

[1] *Transformation Planning Guidance,* Department of Defense, April 2003

China Lake is well positioned to play a major role in transforming how we fight. It is fully engaged in developing technology, supporting development and testing, and supporting training in the areas of precision guided weapons, electronic warfare, unmanned air vehicles and unmanned combat air vehicles, and integrating advanced weapons and platforms. It also is deeply involved in developing and perfecting the new tools of network centric warfare to tie together the intelligence, planning, and strike operations into a responsive, quick reaction capability of which we had a glimpse in Operation Iraqi Freedom.[2]

Specific qualifications of China Lake:

- The staff possesses experience, skills and knowledge that place them in the first rank of professionals in the field. Deputy Secretary of Defense Wolfowitz has stated, " I think the record shows that at key installations like China Lake where we have, perhaps, one of the best civilian work forces any country could ever have – private sector or government. It's produced some of the most remarkable technological breakthroughs."[3] China Lake's military-civilian team has demonstrated the ability to work at the leading edge of technology from its inception as a rocket RDT&E center in 1943 to today, where it is melding conventional weapons technology and new concepts in network centric warfare.

- China Lake has the most complete set of facilities for weapons development in the world with laboratories, ground test facilities, full-service ground and air ranges, and a military-civilian team with a 60-year record of developing systems that work at an affordable cost.

- China Lake's land area covers 1.2 million acres and its air space occupies 20,000 square miles supported by a full-capability naval air station. The nearby Point Mugu facility has an fully instrumented sea range encompassing 30,000 square miles expandable to 196,000 square miles and is next to a deep-water port. The climate is ideal for testing, and the land terrain varies from flat to mountainous with a near sea level supersonic flight corridor. The Point Mugu sea range accommodates submarine, surface and air tests at all altitudes and includes an isolated island with airfield and test instrumentation.

- China Lake is located in a remote area of the Mojave Desert surrounded by federal land insulated from residential, commercial or industrial development. A small area on the southern border of the northern section contains the town of Ridgecrest, housing the base employees and community infrastructure. The Ridgecrest area is also bounded by federal land and is not subject to future urban

[2] For a detailed discussion of network centric warfare and other elements of the new warfare see *Comments on the Future of the Weapons Division*, Anderson, China Lake Defense Alliance, July, 2003

[3] Testimony to House Armed Services Committee, May 1, 2003

• *Transforming how we work with others* includes not only facilitating better cooperation at high levels between agencies and other governments but working directly with other agencies and allies in developing new operational concepts, systems and capabilities, and in assisting in training personnel in how to use these concepts, systems and capabilities. RDT&E and training centers can contribute in the latter area.

Because of its many advantages for flying and training, China Lake is a preferred location by many governments for testing and training, and for familiarization with new systems being purchased from the United States. The United Kingdom has a permanent administrative site at China Lake, and deployments have been made over the years by units from Western Europe and Asia. China Lake engineers and facilities have supported other US government agencies for a variety of services for many years.

Goal 3: Align infrastructure to accommodate greater joint activity.

The armed forces are being structured for greater joint activity, and the systems they use have a high degree of commonality and interoperability. Joint RDT&E and training bases in tactical aviation are both feasible and desirable to save money and to enhance opportunities to achieve greater commonality and interoperability.

If the excesses in the RDT&E and training infrastructure are to be reduced without sacrificing capability in meeting long range military needs, consolidation across service lines is the obvious solution. To accomplish joint service consolidations without unacceptable loss in capability, the receiving facilities must have the capability in place, or at least have the potential capability, to accommodate the key warfare RDT&E functions without excessive investment. It must have all or most of the necessary facilities, skills, land, sea or air space, terrain, and climate to perform the RDT&E or training function and must not be encroached nor under long-range threat of residential, commercial or other encroachment pressures. Finally, its location should be in the vicinity of other military, industrial and research facilities engaged in complementary activities. China Lake meets these requirements in the field of weapon RDT&E and aircraft-weapon integration better than any other installation in the United States.

In addition, China Lake's location with respect to other partner installations facilitates its ability to accomplish joint missions:

• **China Lake is integrated with and near to Point Mugu.** Besides being the home of the Pacific Sea Range, Point Mugu is located next to a deep-water port and supports the Navy's West Coast Port Hueneme surface weapons test operations. It also sits on the coast near Vandenberg Air Force Base whose space launches depend upon Point Mugu's instrumentation support.

• **China Lake is located next to Edwards Air Force Base.** Edwards Air Force Base has direct access to China Lake ranges for testing aircraft-weapons integration without the need for costly, time-consuming deployment. Edwards

4. With the other Southwest Defense Complex ranges the capacity exists to support testing, training and experimentation on a regional scale.

5. Its minimal encroachment potential for the future provides the stability desired for investment over the long term.

6. Its staff and products are important to assisting the Department of Defense to support close working relationships with other agencies and allies.

7. Its proximity and established working relationship with Edwards Air Force Base, Point Mugu, Fort Irwin and the Southwest Defense Complex offer a complete air warfare RDT&E and training capability.

In addition to these considerations, China Lake has developed an enviable reputation over its 60-year history for technical innovation, developing systems that work at a reasonable cost, and translating military needs into achievable technical requirements. Today, the scientists, engineers and military officers at China Lake are deeply involved in the transformation process to develop the new capabilities needed to meet the challenges of the new millennium.

APPENDIX

Secretary of Defense Memorandum of November 15, 2002

Transformation Through Base Realignment and Closure

THE SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

November 15, 2002

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTORS OF THE DEFENSE AGENCIES

Subject: Transformation Through Base Realignment and Closure

As a result of the Quadrennial Defense Review, we embarked on a comprehensive review of our defense and security needs toward transforming the force. New force structures must be accompanied by a new base structure. The first step was my request to the Chairman to direct the geographic combatant commanders to prepare, in coordination with their Service component commands, draft overseas basing plans for their respective areas of responsibility.

Congress authorized a base realignment and closure (BRAC) round in 2005. At a minimum, BRAC 2005 must eliminate excess physical capacity; the operation, sustainment and recapitalization of which diverts scarce resources from defense capability. However, BRAC 2005 can make an even more profound contribution to transforming the Department by rationalizing our infrastructure with defense strategy. BRAC 2005 should be the means by which we reconfigure our current infrastructure into one in which operational capacity maximizes *both* warfighting capability and efficiency. I am directing this process begin immediately, under the structure set out herein.

Two senior groups, as reflected in the attachment, will oversee and operate the BRAC 2005 process. The Infrastructure Executive Council (IEC), chaired by the Deputy Secretary, and composed of the Secretaries of the Military Departments and their Chiefs of Services, the Chairman of the Joint Chiefs of Staff and Under Secretary of Defense (Acquisition, Technology and Logistics) (USD(AT&L)), will be the policy making and oversight body for the entire BRAC 2005 process.

U18364-02

In accordance with section 2909 of BRAC 90, as amended, BRAC 2005, as directed by this memorandum, will be the exclusive means for selecting for closure or realignment, or for carrying out any closure or realignment of, a military installation located in the United States until April 15, 2006. This exclusivity clause does not apply to closures and realignments to which section 2687 of title 10, United States Code, is not applicable. Closures or realignments to which section 2687 is not applicable will require approval on the basis of guidance issued by the USD(AT&L). Competitive sourcing conducted under the provisions of OMB Circular A-76 may proceed independently.

In accordance with the direction of Congress expressed in the BRAC legislation, the Department will not make any binding closure or realignment decisions prior to the submission of final recommendations to the Commission no later than May 15, 2005. The process and structure outlined in this memorandum are designed to ensure the Department's ability to provide recommendations by this date and to meet several interim statutory requirements, including publishing draft selection criteria by December 31, 2003, and final criteria by February 16, 2004. In addition, the Department must provide Congress a force structure plan, inventory, capacity analysis, and certification of the need for BRAC with the FY 2005 budget documentation.

I cannot overemphasize the importance of BRAC 2005. This effort requires the focus and prioritization only senior leadership can bring. I am confident we can produce BRAC recommendations that will advance transformation, combat effectiveness, and the efficient use of the taxpayer's money.

Attachment
BRAC 2005 Organization

Epstein

Farrington, Lester, CIV, WSO-BRAC

From: Phil Arnold [phil@iwvisp.com]
Sent: Tuesday, July 19, 2005 12:07 PM
To: Farrington, Lester, CIV, WSO-BRAC
Cc: bill Porter
Subject: Rebuttal to Ventura County BRAC Commission testimony

Attachments: EW Rebuttalv3.doc

EW Rebuttalv3.doc
(53 KB)

Les,

The attachment is our response to the testimony by Ventura County at the hearing last week for your use. We also would like it entered into the record.

Thanks,

Phil

July 18, 2005

Sensors, Electronic Warfare, and Electronics RDAT&E
Relocation from Point Mugu to China Lake

Introduction

The Technical Joint Cross Service Group's (TJCSG's) analysis led to a Secretary of Defense recommendation to relocate the electronic warfare (EW) and related RDAT&E functions from Point Mugu to China Lake. The TJCSG justifies the recommendation with the statement, "Consolidating the Sensors, EW, and Electronics RDAT&E functions at China Lake will eliminate redundant infrastructure between Point Mugu and China Lake and provide for the more efficient use of the remaining assets including the Electronic Combat Range and other integration laboratories at China Lake."

This recommendation has been challenged by the Ventura County Community with assertions that significant errors were made in calculating the costs of the move and that the operating forces would be adversely affected because of major losses of experienced technical experts residing at the Point Mugu site.

Summary of China Lake Defense Alliance Position

BRAC has basically two purposes – (a) reduce excess base infrastructure, and (b) restructure the base infrastructure to best meet future needs. The China Lake Defense Alliance believes that the proposal to consolidate aircraft sensors, electronic warfare and electronics RDAT&E at China Lake supports both BRAC purposes. Consolidating weapons and armaments RDAT&E and combat aircraft system integration including electronic warfare at a single site will enhance both efficiency and effectiveness for a future in which aircraft weapons, sensors, electronic warfare and other mission avionics will be far more tightly integrated than with present combat aircraft systems.

At the present time the Navy's air weapon system integration site for combat aircraft except the EA-6B Prowler is located at China Lake. Electronic Warfare RDAT&E is now sited at two facilities - Point Mugu for most of the electronic warfare development and acquisition (D&A) including the EA-6B and China Lake for most of the sensors and electronics RDAT&E, some of the electronic warfare D&A, and all the sensors and electronic warfare range testing and evaluation.

The Navy has entered development of the EA-18G Growler aircraft, a highly integrated aircraft based on the F/A-18F platform-sensor-electronics suite which will replace the EA-6B. China Lake will be the systems integration center for the new aircraft. Flight testing at China Lake is scheduled to begin in late Fiscal Year 2006, and introduction into service will occur early in Fiscal Year 2009. The EA-6B will be phased out of service as

EA-18G aircraft are produced. The next generation fighter-attack aircraft, the Joint Strike Fighter, is also under development with a highly integrated avionics suite.

Consolidation of sensors, EW and electronics at China Lake will yield a tightly knit, fully integrated team prepared to support development, test, and engineering support for the Navy's combat aircraft. Weapons, sensors, electronic warfare suites, and the software that binds them together will be a fully integrated product for the future. The Technical Joint Cross Service Group had the vision to understand this in offering the recommendations for creation of a Naval Integrated Weapons and Armaments RDAT&E Center and a consolidated Sensors, EW and Electronics RDAT&E Center at China Lake.

By co-locating all elements of the team at one site, operating costs will be reduced, time wasting travel between sites will be eliminated, and superior products will be assured.

Responses to Ventura County Allegations

Allegation. The TJCSG made significant errors in calculating the cost of a move to China Lake and the payoff that would be realized from such a move. The challenge to the costs and payoff summarized in the COBRA analysis was based on a series of assertions.

Ventura County Assertions. The China Lake and Point Mugu organizations have been streamlined over the years for maximum efficiency and no overlap of function. In fact, because of these efficiencies the personnel efficiency factor that should have been used would be zero, rather than the standard 15 percent. Industry has shown the value of maintaining an organization on more than one site to gain a high efficiency.

China Lake Defense Alliance Response.

- The claim that an organization at two sites will be as, or more, efficient than one consolidated at a single site strains credulity to the breaking point. In industry and government, when the size of work forces shrink and product integrity can be enhanced, company sites are consolidated. The present size of the combined work forces of China Lake and Point Mugu is the same as or less than that of China Lake alone in 1990.

- It is true that the Naval Air Warfare Weapons Division has worked hard to improve efficiency and eliminate redundancy by eliminating functional duplication between sites. The common management between China Lake and Point Mugu and contacts between technical personnel across the sites will be a factor in making a smooth transition for relocating personnel.

  There is cross-communications between sites, for example on the High Speed Antiradiation Missile (HARM) threat files and the aircraft system integration teams at China Lake. China Lake is responsible for integrating the electronic warfare software into the total operational software packages. On the other hand,

face-to-face discussions between China Lake and Point Mugu requires travel between sites, either by shuttle aircraft or automobile. Aircraft and travel costs are significant, but the loss in time by technical and management personnel is more significant. A trip between sites will cost a half to a full day for each person involved. Co-located personnel would consume only the time involved for the discussions. This cost in time and efficiency is in addition to the $ 3.8 million per year expended in shuttle aircraft costs and per diem costs for overnight trips.

- The standard personnel efficiency factor of 15 percent was not used by the TJCSG in calculating the cost/payoff time for the move. A factor of 5.7 percent was used without comment on the reason for this inconsistency. We understand that this figure was arrived at jointly by China Lake and Point Mugu management. Using a 15 percent factor, consistent with other similar consolidations, the payoff would be 6 years instead of the 12 years. One may argue over the precise value of the efficiency factor for the EW relocation, but it most certainly was more than zero, and acceptance of a departure from consistency in applying standard factors to the COBRA analysis calls in question analyses of all other realignments.

Allegation. The move would result in an unacceptable loss of intellectual capital, putting our operating forces in danger. In the opinion of the China Lake Defense Alliance this is a much more serious charge than the cost argument since it impinges on military value. There is no question that the Point Mugu EW team is highly qualified, and any moves associated with BRAC must not threaten the continuity of support for the EA-6B platform and EW capabilities of other Navy aircraft.

Assertions. The Point Mugu EW team is a highly capable, experienced team that is needed to support the EA-6B and other EW capabilities in the Navy. Attempting to move these people to China Lake would result in the loss of most of the team, thereby jeopardizing joint forces operating in Iraq and Afghanistan. The TJCSG ignored important points made by Point Mugu in responding to Question 47 of the data call. Experience in moving personnel from Warminster to Patuxent River in the 1990s showed that most urban personnel are not willing to move to a rural setting.

Responses. This argument bases its logic solely on meeting current capability needs and ignores the BRAC goal of positioning the military base infrastructure for the future. Consolidation of EW capability at China Lake would better position the Navy to meet future needs:

- China Lake is the tactical aircraft system integrator for the F/A-18, AV-8B, AH-1J, has the lead for China Lake-Point Mugu for EW on the Joint Strike Fighter Integrated Product Team, and will be responsible for integration of the next generation Navy EW platform, the EA-18G. Placing the full EW RDAT&E function at China Lake consolidates all of the EA-18G aircraft integration team. The EA-6B is being phased out of service starting in Fiscal Year 2009, about the time that the changeover to China Lake is scheduled in the BRAC recommendations. The EA-18E avionics system will be highly integrated with its EW pod

interacting with the aircraft sensor-avionics suite, including the Active Electronic Steered Array (AESA) radar. The radar itself will be an EW component. The entire weapons, system integration and test team including the Electronic Combat Range (Echo Range) operations would be integrated at one site, China Lake.

The Joint Strike Fighter and any future aircraft will use multiple shared airframe apertures instead of single boxes for avionics systems. The old way of constructing black boxes and sending them to be integrated into the aircraft is not feasible for the future. Attempting to preserve the dual site approach of today will seriously hamper the integration process. Now is the time to prepare for the future.

The transition from Point Mugu to China Lake will be managed to assure that current needs are fully met while bringing the long-term capability on line at acceptable cost.

- The present EW D&A team at Point Mugu is a senior group, and many members of the team will be retiring in the coming years. Bringing new scientists, engineers and technicians on board will be needed whether the team moves or not. The capability of the existing team must be retained insofar as possible while reconstituting its membership with the next generation engineers and technicians. The task, then, is one of managing the transition from the EA-6B to maintain a high competency for the present and near future, transitioning the needed capability for the EA-18G and follow-on platforms, and carrying forward into the future with a highly integrated, highly competent RDAT&E integrated weapons-avionics-EW team for the future.

  Responsibility for implementing BRAC realignments lies with the Office of the Chief of Naval Operations (N-4). The Navy understands the importance of the EA-6B, and will not arbitrarily transfer the existing team to China Lake *en masse*, ignoring the losses of those who choose not to transfer. A transition plan will be developed that delays the move for some team members and provides temporary post-retirement employment for others as re-employed annuitants or contractors. In the next few years, as the EA-6B effort tails off and the EA-18G effort grows, the China Lake team will be built from Point Mugu transferees, engineers at China Lake, who have extensive EW and F/A-18 experience, and new hires.

- The responses to data calls, including Question 47, were reviewed by higher command, the Naval Air Systems Command (NAVAIR). NAVAIR officially supported the relocation from Point Mugu to China Lake.

One must not assume that China Lake and Ridgecrest have little to offer new employees. China Lake has been highly successful over the years, meeting its recruiting goals for both new entry and experienced scientists and engineers. The chart on the next page shows recruiting results for China Lake and Point Mugu since new hiring began in 2001. Ridgecrest offers an environment that can't be found in urban life – low cost housing, low crime, ten minute commute times to work, public safety that is the envy of any city,

and a friendly, relaxed atmosphere. At the same time "big box" merchants and other amenities are located there.

China Lake's retention rate by Fiscal Year is shown in Table 1. If the BRAC recommendations are accepted, in just a few years, even before the last of the present EW experts retire, the Navy will have one integrated Center of Excellence for all aspects of air weapon systems that operates more efficiently and effectively than at the present two sites. The expertise will extend to weapons and armaments for surface platforms.

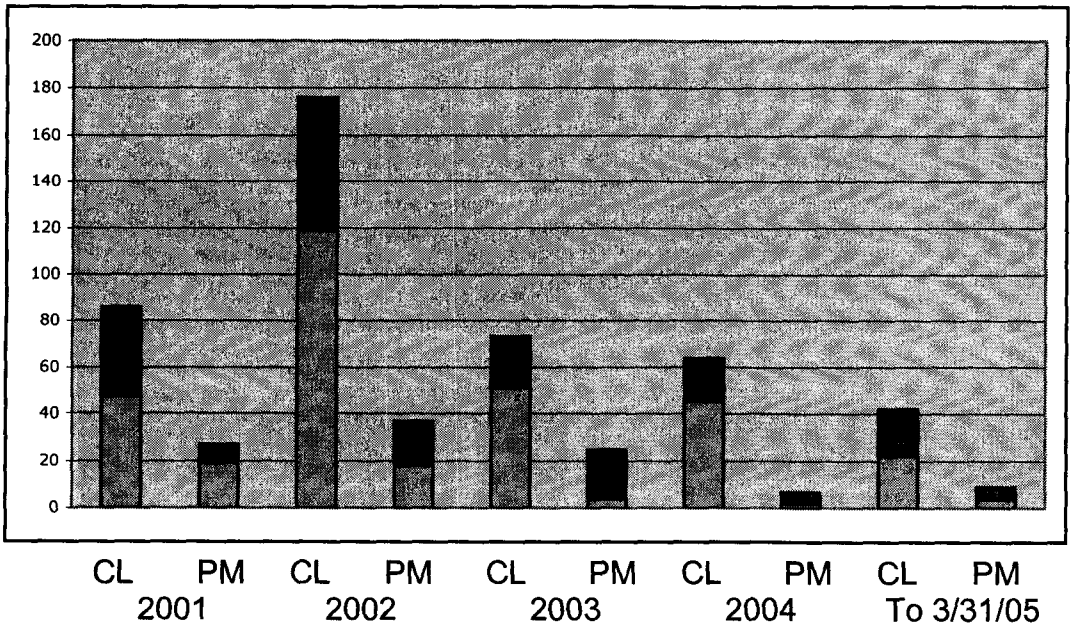

Figure 1. Hiring experience for FY 2001 to 3/31/05. The upper part of bar represents experienced scientists and engineers, the lower part recent graduates at the bachelors degree and above.

Fiscal Year	Retention Rate
Present	93.1 %
2004	93.9 %
2003	92.7 %
2002	93.4%
2001	92.9 %
2000	92.5 %
1999	89.9%
1998	86.5 %
1997	89.7 %
1996	88.7 %
1995	90.7 %

Table 1. Retention Rates Since FY 1995.

• The Warminster to Patuxent River experience was cited as an example to show that urban employees would not move to a rural area. As a matter of fact, this interesting example demonstrates the contrary, showing that consolidation can build a strong, full spectrum capability.

- Data on moves of this type indicate that somewhere between 20 and 35 percent of the employees decide to move. Analysis of this data show a very low percentage of clerical and other lower paid employees choosing to move and a higher percentage of scientists and engineers. Experience has shown that 65 to 75 percent of those who move are skilled professionals and another 10 percent are technicians.

- Prior to the consolidation, Patuxent River was a T&E base. The skilled R&D personnel who transferred from Warminster formed the cadre who transformed Patuxent River into a full spectrum RDT&E base.

- The Naval Air Systems Command touts the realignments to Patuxent River as a success story, as well they should. In the military value rankings for aircraft and C4SI RDAT&E, Patuxent River ranked high in the BRAC 2005 analyses.

- At the time the realignment was announced, most Warminster personnel said they would never move. Enough moved, that by transition management, consolidating key people with talented personnel at Patuxent River, and hiring new people, the Naval Air Warfare Center Weapons Division is now a strong full spectrum center.

- Warminster complained about loss of intellectual capital in the EP-3 move Patuxent River. The move was successfully accomplished.

- A similar experience applies for the closure of the Naval Ordnance Laboratory in Corona around 1970 with the transfer of personnel and functions to China Lake.

The experience with the Warminster realignment and Naval Ordnance Laboratory closure are examples of the payoff in military value of realignment for consolidation of complementary capabilities.

Epstein

FULL-SPECTRUM RDT&E CENTERS:

A 21ST CENTURY PERSPECTIVE

BY

PHIL ARNOLD

China Lake Defense Alliance,
A Component of IWV 2000 Community and Economic Development Corporation

September 2003

FOREWORD

This is the third in a series of papers prepared by members of the China Lake Defense Alliance on China Lake's position in the forthcoming Base Realignment and Closure (BRAC) round scheduled for 2005. Each paper deals with the assets and capabilities of the Naval Air Warfare Center Weapons Division as they relate to BRAC.

As a background for our program we believe that it's important to place China Lake's assets and capabilities for supporting national defense in context with the directions being taken by the Department of Defense and military services.

Our approach:

1. Anticipate the future mission responsibilities of China Lake as the United States enters the post-Cold War era. Matt Anderson's paper *Comments on the Future of the Weapons Division* in this series looks at China Lake's future roles in supporting national defense.

2. Evaluate China Lake's assets and capabilities for the future in the context of the BRAC goals set by the Secretary of Defense. *BRAC 2005 Goals and China Lake* addresses this task.

3. Assess the role of a "full-spectrum" RDT&E center in the 21st century. This paper deals with the role of a full-spectrum center in the RDT&E and training environment of the future.

Although the paper focuses on China Lake's position relative to Department of Defense goals, the relationship of China Lake with the Point Mugu Weapons Division facility and Edwards Air Force Base needs to be considered. An understanding of the partnership of these three bases and their relationships to other Southwest Complex bases is necessary to fully appreciate the value of each to national defense.

Volunteers of the China Lake Defense Alliance, a component of the IWV 2000 Corporation, work in partnership with the City of Ridgecrest and Kern County to assure that China Lake continues beyond BRAC 2005 as a premier full-spectrum research, development, test, evaluation and training resource for national defense. IWV 2000 and the China Lake Defense Alliance are not affiliated with the Navy or the Naval Air Warfare Center Weapons Division, China Lake.

China Lake Defense Alliance

Papers in this series:

- *Comments on the Future of the Weapons Division* – Matt Anderson – July 2003
- *BRAC 2003 Goals and China Lake* – Phil Arnold – September 2003
- *Full-Spectrum RDT&E Centers: A 21st Century Perspective* – Phil Arnold – September 2003

PREFACE

China Lakers have taken pride over the years in being associated with a full-spectrum RTD&E center. We all understood what full-spectrum meant for a weapons center: direct and meaningful involvement in the life cycle evolution of a weapon: conception, relevant research and technology, prototype and full-scale development and test, oversight of production, and support of the system in the Fleet. We thought of it as "cradle to grave" support, or as one wit put it, "erection to resurrection".

China Lake is still a full-spectrum center and has taken on an increased role in training as well. A fast-paced evolution is under way on how our forces fight, how we acquire systems and even what we mean by a "system". We believe that it's more important than ever to maintain full-spectrum centers, but the concept of full-spectrum needs to be understood as it applies in an era of transformation to new operational concepts and new applications of technology. This paper is an attempt to contribute toward shaping a paradigm for full-spectrum centers in the 21st century.

Phil Arnold

ACKNOWLEDGEMENT

Most members of the China Lake Defense Alliance are retired China Lake employees. Our experience is long, dating from the 1950s and earlier in the business of developing and testing weapons and the aircraft avionics systems that support them. Although this experience is invaluable to understanding China Lake and its relevance to the present and future, we need to be up to date on the evolution of warfare and the technology that supports it.

One of our members, Matt Anderson, has been directly involved in this evolution as a manager at China Lake before his retirement and now as a senior engineer in the defense industry. Matt has given much thought to the trends in warfare operational concepts, technology and policy that drive defense research, development, test, evaluation and training today. He has been a great resource to our group in helping us to look forward when it would have been much easier to look back to "the good old days" in our efforts to support China Lake.

Matt has helped me better to understand how the paradigms and concepts that apply to a full-spectrum center in the past are changing, how the concept of "system" is evolving, and how it applies to the changing face of warfare. If readers interested in China Lake's role in system acquisition haven't read Matt's paper, *Comments on the Future of the Weapons Division,* I urge you to find a copy and read it.

I take responsibility if the discussion wanders off track in this attempt to relate the full-spectrum center to today's warfare and system acquisition environment, but Matt Anderson is responsible for getting me started down the right track.

Phil Arnold

EXECUTIVE SUMMARY

The Navy has operated full-spectrum research, development, test and evaluation (RDT&E) centers as part of an approach to system acquisition that has been very successful over the years. The ability of research scientists, design and development engineers, test engineers and combat-knowledgeable Naval and Marine Corps officers to work together closely with co-located laboratories and ranges has led to development of affordable equipment that works. The whole organizational structure brought senior headquarters officers in Washington in contact with working engineers from the field in developing new requirements, developing specifications and overseeing the development of weapons, platforms and electronic equipment.

The post-Cold War defense downsizing has altered the organizational placement of full-spectrum RDT&E centers, and acquisition reform has altered the in-house technical role in developing specifications and making system configuration decisions. The change in the international balance of power and advent of new technology is changing the way our armed forces fight. The downsized services must work jointly rather than separately, and new communications and control architectures affect the design and system interfaces of the equipment used by service personnel.

Some of the old system acquisition concepts must be changed to fit the new environment – even the concept of *system* is changing. In network centric architectures the concept of a system now encompasses all of the units involved in a campaign – national sensors, intelligence units, platforms, and individual foot soldiers or Special Forces personnel. The equipments within this new system are procured under acquisition reform, and operational forces commanders are major players in developing requirements and evaluating new equipment concepts.

The role of a full-spectrum RDT&E center must be defined for the 21st century environment. There still is a need for the civilian and military professional staffs, the laboratories and the ranges to support advancing military technology, developing new equipment, integrating weapons and platforms, and supporting the hardware in the field. There also are new needs that emerge from the changing environment:

• *Network centric system engineering.* A contract has been let to develop a network centric warfare architecture, yet the concept of network centric warfare is not well understood within the services and there are no mature, internal service structures to implement and manage the interfaces and operational concepts to support the architecture. Assisting the contractors and service personnel in adapting existing and new hardware to this architecture will be a Herculean task. Full-spectrum RDT&E centers are uniquely qualified to take on this role.

• *Bringing warfighters and the RDT&E community together.* An expanded role of operational commanders in the requirements and RDT&E process offers an opportunity

INTRODUCTION

The Navy's approach to acquiring warfare systems differed from the other services in the 20th century. The service established a network of laboratories, field activities and full-spectrum centers to conduct research, technology development, testing, and in-service support of systems. Through World War II it manufactured some ordnance-related systems in in-house plants as a supplement to industry. In basic research the Navy's program was a model for the world at the Naval Research Center, the Office of Naval Research and at RDT&E centers. The Navy's organization for defining and acquiring systems was remarkably flat for a military service: major studies brought together headquarters and field representatives to work together in a collegial problem solving mode, and the laboratory and major RDT&E centers were given remarkable freedom to innovate.

The concept *full-spectrum* was born in this environment in which RDT&E centers combined warriors with knowledge of the operational environment working side by side with top-flight scientists and engineers. Researchers and design engineers had direct access to ranges and test facilities to facilitate experimentation and instant feedback during the conceptual phase of a new development. The system worked well. In Viet Nam, 80% of the air-launched weapons came from one full-spectrum center, China Lake.

During the downsizing of the military establishment in the 1990s, changes occurred that mitigated some of the effectiveness of the old full-spectrum concept. The centers were assigned to System Commands that distrusted the former atmosphere that had encouraged trying new ideas, the flat RDT&E organization became more stratified, and a downturn in investment in research and technology made it more difficult for ONR, NRL and RDT&E centers to support long term needs. In spite of this, much of the spirit still exists in the RDT&E centers, and the full-spectrum concept continues to be supported in the Navy.

Because of the need to respond to new post-Cold War challenges with smaller forces and the requirement to quickly take advantage of new technologies, a major transformation in the military establishment is under way. This transformation is changing many of the concepts that affect the missions of full-spectrum warfare centers. The next section deals with some of these concepts, starting with something as basic as what we mean by *system.*

DEFINITIONS AND CONCEPTS

As a prelude to updating our ideas on full-spectrum RDT&E centers we need to reexamine some of the fundamental concepts that underlie research, technology development and acquiring new systems.

What do we mean by the term *system*? Dictionary definitions are:

1. *A group of interacting, interrelated, or interdependent elements forming a complex whole, and* 2. *A functionally related group of elements.*[1]

These definitions cover political processes, the human body, a gambler's hope to beat the odds, or any other "systematic" organization of ideas, processes or things. In developing software or hardware for military application, the concept of a system has grown over the past half-century from a unit of operational hardware to the totality of components used to fight in a war.

Fifty years ago China Lake engineers talked of a guided missile as a "weapon *system*". So it was. It was a group of elements: airframe, seeker, fuze, warhead, rocket motor and aerodynamic controls that performed the function of flying to and destroying a target. Then the idea of system was expanded to include the launch vehicle, weapons, and its "fire control" components: a ship or airplane, sensors, launchers, electronic boxes, and weapons that performed the functions of locating, acquiring, tracking, flying out to and destroying a target. Then the concept was expanded to include the processes and equipment for planning a mission, finding the target, navigating to the target area, attempting to destroy the target, and determining the damage at the completion of the mission. In the joint networked warfare concept of the transformed armed forces, a system can be thought of as the totality of equipment and processes that gather intelligence, support command planning and decisions, distribute information, and conduct missions to destroy an enemy's ability to oppose joint and allied forces. The idea of a military *system* has become pretty broad.

This all-encompassing concept of a system isn't science fiction or some far-future dream. It's evolving today, and it's essential that every component of the defense establishment structure its organization and programs to be in harmony with the concept. The leadership and key technical personnel of RDT&E centers must think at this higher level or they'll be left behind, either be closed by BRAC or slowly fade into irrelevance.

In the interests of clarity, I will try to restrict the use of the term *system* to its broadest meaning hereafter in the paper. Unfortunately, that might make for some awkward or

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[1] *The American Heritage Dictionary of the English Language, Fourth Edition*, Houghton Mifflin Co., 2000 Edition.

development will consist of component replacements and new full-scale weapon developments will be rare.

Role of the operating forces in RDT&E. The operating forces in the services are no longer content to sit on the sidelines and wait for new capabilities to be delivered. By inserting themselves directly into the requirements generation process and by direct involvement in R&D via force level experimentation, the operational side of the services has taken an active role in RDT&E that is growing in influence.

Role of in-house RDT&E centers. One would expect that acquisition reform, spiral development, the expanded concept of systems and the changed nature of warfare would have a major impact on the role of the services' RDT&E centers, and that is certainly the case. Acquisition reform and reduced research and technology funding tend to reduce the role of RDT&E centers in direct participation in requirements development, technology advancement and development support. On the other hand, RDT&E centers continue to serve as a direct channel between the operational forces and the development community, and with the advent of battle experimentation this channel has made the connection even more direct and effective. Growing costs and the need to evaluate concepts in the new system environment has spurred the modeling and simulation technology community to develop simulation tools that integrate constructive, virtual and real battle elements in an increasingly realistic virtual environment. RDT&E centers have the technology and contact with service operational environment to take the lead in developing and using these tools. Finally, only the government can afford to invest in the land, air and sea assets needed to develop and test the new transformed system capabilities for the 21st century.

The questions are, do we need *full-spectrum* centers and if so, how will their roles evolve?

FULL-SPECTRUM RDT&E CENTERS IN THE 21ST CENTURY

We've delved into the expanded meaning of *system*, looked at new ways to fight, the latest trends in acquiring equipment and software, and touched on the role of RDT&E centers. At last we can evaluate the role of full spectrum RDT&E centers in context with the world as it is becoming.

We can start to define this role by examining the tasks for which full spectrum centers are uniquely qualified.

Network Centric System Engineering

This expanded networked system concept greatly magnifies the complexity of system engineering compared to that for a single piece of equipment or even a platform-weapon-electronics assemblage. Integrating the elements that go into a battle force, where the number of interfaces expand geometrically with the number of elements that must work together, makes system engineering for a single weapon or even an aircraft seem like a

battle environments. Real, virtual and constructive simulations and equipment with war fighters in the loop allow engineers and military operators to work together to evaluate hardware and operational concepts early in the conceptual phase at reasonable investment costs.

This interchange between operator and engineer can help to protect against one of the concerns of turning over R&D decisions to military operational commanders, the potential problem of focusing so much on immediate problems that long-term technology advancement will be sacrificed for short-term gain. A continuing dialog involving operator, research scientist and engineer enhances the chances of reaching a happy medium where today's problems are addressed without sacrificing needed far-term capability.

Full spectrum centers are particularly well placed to facilitate an operator-developer interchange. In fact, they've been doing that for years. The new emphasis on operator involvement in R&D makes the interchange more important. In-house centers can work more closely on the large issues because their exposure to the full range of programs gives them a broader perspective, unencumbered by company product lines and proprietary restrictions.

Evolutionary Role of Full- Spectrum Centers. The preceding discussion has focused on the role of full spectrum centers in applying their professional staffs, facilities and unique capabilities on emerging, technology-driven aspects of military forces in transformation. One mustn't forget that the traditional role of full spectrum RDT&E centers may have changed somewhat, but the fundamental need for traditional RDT&E support to the services continues. Weapons may be more sophisticated, aircraft may be more capable and may perform many missions without aircrews, etc., but there continues to be a need to support the development and test of new weapons, platforms and black boxes. A knowledgeable in-house capability is needed to support the services as smart buyers and as testers of equipment. Research and technology in areas where profit potential isn't attractive or the time scale or risk reduces corporate interest is still needed. RDT&E centers provide a responsive capability to bring engineers and technicians into the field to train warfighters in using new capabilities or in solving problems when they arise – in combat areas as well as training bases -- as was shown in Operation Iraqi Freedom.

The need for system engineering at the network centric system level has been discussed, but there also is a continuing need for systems engineering at the weapon-platform level as well. The evolution of new aircraft, for example, leads to a varied set of models in the field that have the same designation, but in fact have many internal and a few external differences. The same is true for guided weapons. An F-18A is not the same aircraft as

needed products and services in the joint arena to field the needed advanced hardware to the transformed forces in the 21st century.

In summary, full spectrum RDT&E centers can bring together the qualified technical and operational people, the facilities, and the environment needed to support the technology and system development needed for the transformed military forces of the future. If full spectrum centers didn't exist, the needed capabilities to pull things together would be dispersed and without focus throughout industry and government.

CHINA LAKE AS A 21ST CENTURY FULL-SPECTRUM CENTER

If you have read the preceding papers in this series, you will have received a perspective of China Lake's products and services for the future and the relevance of these facilities to the Secretary of Defense's vision for transformation. As stated earlier in this paper, China Lake and Point Mugu should be considered together to appreciate their contribution to future air weapons RDT&E and training progress. Edwards Air Force Base as the third partner gives the country a total air warfare RDT&E capability.

China Lake's full-spectrum contributions fall into two areas:

1. Continuing to provide full-spectrum support in research, technology, system development support, testing and operational support of weapons and weapon-aircraft integration. Changes in the acquisition policy perhaps alter the nature of China Lake's role somewhat, but new capabilities will continue to be needed and China Lake has proven that it has the technical resources and management responsiveness to support the joint weapon and aircraft-weapon integration needs of the future.

2. Providing the services and the defense department the system engineering support for a network-based, joint warfare capability of the future. China Lake's expertise is directly supporting the evolution of network centric warfare elements today in the area of strike warfare. China Lake engineers are working on a daily basis today with operational personnel to help give them tools they need to evolve into a new kind of joint fighting force for the future.

A full-spectrum support capability is needed more today than ever, and China Lake is positioned to do its share as a full-spectrum RDT&E and training center in developing and fielding the armed forces of the new millennium.

Epstein

COMMENTS ON

THE FUTURE OF THE WEAPONS DIVISION

by

MATT ANDERSON

China Lake Defense Alliance
A Component of IWV 2000 Community and Economic Development Corporation

July 2003

Foreword

The NAVAIR Weapons Division is the western Research, Development, Test and Evaluation (RDT&E) Center of the Naval Air Systems Command. The major facilities are located at China Lake and Point Mugu in California. The scope of the Division's mission will become clear to the reader of this report.

The author of this report, Matt Anderson, is a member of the China Lake Defense Alliance and a former department head at the Naval Air Warfare Center Weapons Division China Lake. As a senior executive of the Weapons Division he was responsible for directing the BRAC Office for the four western sites at that time of the NAVAIR warfare centers during the 1995 BRAC round – China Lake, Point Mugu, Albuquerque, and White Sands Missile Range. The detachment at Albuquerque was closed and the White Sands detachment was transferred to another center subsequent to BRAC 1995. Mr. Anderson retired from the Weapons Division in 1999 and presently is employed in the defense industry and teaches finance and economics at Cerro Coso Community College.

The report was written for the China Lake Defense Alliance's base retention program to offer insights into China Lake's future role in supporting national defense in the 21st century. The China Lake Defense Alliance, a non-profit community organization, is part of the IWV 2000 Community and Economic Development Corporation. The China Lake Defense Alliance has no ties to the US Navy nor to the Naval Air Warfare Center.

China Lake Defense Alliance
July 2, 2003

PREFACE

This paper presents a projection of future military functions that can serve as a basis for defining the future of the Naval Air Warfare Center Weapons Division to provide in-house technical support for the Department of Defense. One of the first critical steps in this effort is preparing for BRAC 2005, which in reality presents an unprecedented opportunity for growth and mission expansion.

According to a 2002 GAO report, the previous four rounds of BRAC have provided net savings of over $16 billion to date, and are currently providing annual savings of over $6 billion per year to DoD. Secretary of Defense Rumsfeld has made significant progress in his "Transformation of DoD", and he has written guidance for BRAC 2005, which focuses on cross-service use of bases to achieve a significant leap ahead in joint operations.

The Weapons Division (WD) gained two major new missions from prior BRAC rounds (the Naval Weapons Evaluation Facility Albuquerque and EP-3 Special Mission Facility), and it was considered for many more, but the lack of DoD and BRAC Commission resolve to enforce cross service consolidations resulted in numerous opportunities for WD mission expansion being "left on the table."

This paper traces the history of WD to show how it grew during the first forty years of its existence through a series of steady expansion in the scope of its mission. The decade of the 90s brought the end of the Cold War and a 50% drawdown in WD size. However, the emergence of new defense paradigms such as Network Centric Warfare, and the inherent high military value of WD such as its air, land, sea space, fortuitous geographic location, and its people and facilities could provide a golden opportunity for future growth and increased relevance in support of the DoD transformation.

It concludes with recommendations for each of the four elements of military value which must be addressed to posture WD to respond to the upcoming BRAC and be revitalized for the future: physical assets, community impacts, environmental considerations, and human resources.

Matt Anderson

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LIST OF ACRONYMS

AFB	Air Force Base
ASROC	Anti-submarine Rocket
BRAC	Base Realignment and Closure
BRAC 2005	2005 Round of Base Realignment and Closures
BRAC 95	1995 Round of Base Realignment and Closures
Caltech	California Institute of Technology
CARCO	A manufacturer of missile flight simulation equipment
C4I	Command, Control, Computers, and Intelligence
C4ISR	Command, Control, Computers, Intelligence, Surveillance and Reconnaissance
CES	Combat Environment Simulation
CTEIP	Central Test and Evaluation Improvement Program
DMT	Distributed Mission Trainers
DoD	Department of Defense
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EW	Electronic Warfare
FRS	Fleet Replacement Squadron
GPS	Global Positioning System
HLA	High Level Architecture
HR	Human Resources
IT	Information Technology
IT-21	Information Technology-21st Century
IW	Information Warfare
JSF	Joint Strike Fighter
M&S	Modeling and Simulation
MAST	Mission Avionics System Trainers
MC02	Millennium Challenge 2002
NAWC-WD	Naval Air Warfare Center - Weapons Division
NCW	Network Centric Warfare
NOTS	Naval Ordnance Test Station
NMTC	Naval Missile Test Center
OFP	Aircraft Operational Flight Program
OPNAV	Office of the Chief of Naval Operations
OSD	Office of the Secretary of Defense
R&D	Research and Development
RDT&E	Research, Development, Test and Evaluations
RAM	Rolling Airframe Missile
RFPs	Requests for Proposals
SETA	System Engineering Technical Assistance

Executive Summary

The Naval Ordnance Test Station and Naval Missile Test Center were established in the 1940s to develop and test weapons for the Navy. Over the 60 years of their existence the mission of the facilities, merged into the Weapons Division in 1992, has grown steadily in response to changing needs and advancing technology. By the early 1990s products and services had grown from development and test of unguided rockets and crude analog fire control systems to development, test, production support and in-service engineering of sophisticated guided missiles and development of advanced software to integrate weapons and aircraft into functional weapon systems.

Today the Weapons Division is a leader in applying advanced technology to meet the demands of network centric warfare; integration of the services in joint operations; application of unmanned air vehicles and unmanned combat air vehicles; and integrating modeling and simulation with actual flight systems. The system environment is changing with the introduction of acquisition reform; reduced research, development and procurement of missiles; spiral development; and the need to conduct operations on a scale that requires use of multiple range assets.

BRAC –2005 evokes concern in most communities because of the threat of closure or significant downsizing of bases, but it also represents a golden opportunity for growth. In the previous four BRAC rounds China Lake and Point Mugu lost no functions and gained from functional transfers from Albuquerque and Indianapolis. In the data calls for BRAC-95, the scenarios were all for moves to the Weapons Division except for a vigorously opposed GAO call to close Point Mugu and a reciprocal pair of scenarios involving China Lake and Eglin Air Force Base. It appears that on balance China Lake and Point Mugu have an opportunity to grow because of their advantages in land, sea and air space, encroachment resistance and superior capabilities.

To take advantage of the BRAC opportunity, the Weapons Division must broaden its mission beyond its traditional roles. It must posture physical assets to accept additional responsibilities and bring the community into the process. Specific areas supporting mission growth for the Weapons Division include:

- Exploiting its inherent advantage of being at the locus of the best networked collection of military test and training ranges in the world
- Broadening research and development to include more computer networking and software interfaces for the operational war fighter and working closer with the Fleet
- Exploiting technological change – data links, information technology, Global Positioning System, modeling and simulation, unmanned air vehicles and combat air vehicles
- Consolidating missions and taking on new missions
- Structure support contracts to enhance flexibility in responding to BRAC scenarios.

Comments on
The Future of the Weapons Division

How Did the WD Get Where It Is?

In order to answer this question, let's take a brief look at the past. This enables us to gain perspective about how the WD got where it is today.

During World War II the Navy working with the California Institute of Technology (Caltech) supported the Office of Scientific Research and Development (OSRD) in the development of a number of air launched rocket systems. This group also supported the Manhattan Project in related explosives design and testing. These cooperative efforts between the Navy and Caltech led to the need for a large land range and air space where the ordnance could be safely and effectively tested. The Navy quickly realized the longer term need for a permanent center devoted to the research and development of advanced weaponry.

On 2 November 1943, Admiral Blandy, Chief of the Navy Bureau of Ordnance, requested that the Secretary of Navy establish a Naval Ordnance Test Station (NOTS) at Inyokern, California. On 8 November 1943, the Secretary of the Navy authorized this action as an activity of the 11th Naval District. The primary function of the activity was the 'research, development and testing of weapons, and having the additional function of furnishing primary training in the use of such weapons.' Thus, NOTS Inyokern (later NOTS China Lake) was established to implement this function. The intent was to have a team of high-level civilian scientists and engineers working hand-in-hand with experienced military personnel to develop advanced weapon systems for the operational services.

In the mid-1940s, the Navy Bureau of Aeronautics established the Naval Missile Test Center (NMTC) at Pt. Mugu, California. This action provided the Navy with a much-needed expansive sea range. China Lake and Pt. Mugu were in 1992 merged into the Naval Air Warfare Center Weapons Division (NAWC-WD). This consolidation provided the Navy with one center having the most complete missile systems research, development, test and evaluation (RDT&E) capabilities in the Department of Defense (DoD) for air, land and sea operations.

This unique facility has grown to be one of the largest RDT&E complexes in DOD with laboratories and ranges that incorporate large amounts of real estate and protected air space. The large ranges provide various terrains from desert to mountains to the sea. China Lake ranges, about the size of the state of Delaware, has excellent flying

Department at China Lake and the In-Service Engineering Department at Point Mugu grew to over 700 and 400 people respectively. By 1990 the military and civil servants at the two Centers numbered about 10,000, and the combined budget was about $2 billion per year.

Then came the dissolution of the Soviet Union and the fall of the Berlin Wall. The sophisticated technological and industrial weapons threat from the Soviet Union to US national security evaporated. The end of the Cold War brought on a steady downsizing of the Defense Department over the last decade of the 20th century. The first four rounds of Base Realignment and Closure (BRAC) from 1989 to 1995 reduced the size of the defense military base infrastructure by 20%. However, the operational forces and the defense budget declined by about 30% in the 1990s. An additional round of BRAC is scheduled for year 2005 to further reduce the military base infrastructure. The military and civilian headcount at the Weapons Division (WD) (China Lake and Point Mugu) has declined to about 5000, half of its 1990 level. The support contractor workforce has seen even greater percentage draw-down.

In the 1980s and the early 1990s the A-4, A-7, and A-6 were taken out of the fleet and their WSSAs were disestablished. One WSSA was added to the WD mission, the EP-3 Special Mission Support Activity in the late 1990s as a result of BRAC 95 after an experiment with privatization. This is significant because the EP-3 is a surveillance platform, not a strike fighter, and hence strengthens WD's position in the world of Network Centric Warfare.

For the first 40 of the past 50 years we see a pattern of steady growth, largely due to the requirement for advanced weaponry to meet a major threat. This was followed by a decade of decline as the Soviet threat to our national security evaporated and some of those missions became less relevant. The biggest part of this decline can be attributed to the production support related to manufacture of missiles and weapons. The Engineering Department at China Lake went from a 700-person Department to a 50-person branch. The engineering support services contract is now about 100 people, a major drop from 700 in 1990. The root cause of this is simply that the US Defense Department doesn't need to manufacture the large quantities of missiles it did during the Cold War because the precision guidance techniques used today, such as GPS, have reduced the number of missiles needed to hit a given number of targets.

Major declines in workforce at WD also occurred in administrative support and R&D of missile systems.

Interestingly, during the 1990s, the testing workload on the land and sea ranges has held up fairly well, as have the WSSAs. Also, some new areas of technology have emerged -- particularly the area of mission planning and remote weapons targeting using off-board sensors from surveillance platforms like the U-2, Predator, and satellites. In the next

So What's Different Now?

The following trends have emerged during the 1990s and, while it is always risky to extrapolate into the future, these trends provide a roadmap to see what's ahead.

The emergence of Network Centric Warfare. This idea started in the Navy with Admiral Jerry Tuttle's Copernicus concept, followed by Admiral Art Cebrowski's 1998 article published by the Institute of Naval Proceedings that coined the term Network Centric Warfare (NCW). Simply put, this concept says that you can defeat your enemy using much less manpower and equipment (platforms and weapons) if you have far superior intelligence about your enemy's location, size and intentions of force. This superior intelligence comes from using better surveillance vehicles, sensors and data links to network information about the battle space into a clear comprehensive operational picture. This breaks the old Lanchester's laws about predicting the outcome of a battle based on the size and firepower of the opposing forces.

Admiral Archie Clements, when he was Commander of the Third Fleet, began to put NCW into practice with his Information Technology – 21st Century (IT-21) program. NCW's latest manifestation is titled FORCEnet; this program is being led by Admiral Mayo in OpNav N6, and Admiral Ken Slaght, Commander of the Naval Space and Warfare Systems Command (SPAWAR) and Chief Command, Control, Communications, Computers and Intelligence (C4I) Architect of the Navy.

Since **interoperability** among the Military Services is key to successful NCW, it has been made the #1 priority of the newly established Naval Systems Commanders Council. When the author of this paper recently visited the Offices of the OSD Central Test and Evaluation Improvement Program (CTEIP), it became apparent that the issue of "testing for interoperability" is at the top of their agenda. The importance of interoperability is currently so pervasive that it is being raised to the top of all new systems' requirements list. The development, testing, training, and integration of **data Links are becoming more important than platforms and weapons.**

The use of **experimental events** involving large numbers of operational forces engaged in exercises has become a new way to develop technologies for DoD. Experimentation in this context, encompassing elements of RDT&E, training, and operational use, squeezes all necessary steps into a time frame measured in weeks instead of years. This started in the mid-1990s with events like Roving Sands in New Mexico. It has progressed in the Navy with a whole series of Fleet Battle Experiments, and recently reached an enormous scale involving tens of thousands of troops in a massive joint service exercise called Millennium Challenge 2002 (MC02). This process of large scale test and training events called "**experiments**" has been formally designated as "SEA TRIAL" under the current

The use of UAVs and Unmanned Combat Air vehicles (UCAVs) is rapidly growing. The use of unmanned vehicles saves pilot lives and permits greater performance. Greater performance is possible because the restrictions due to human limitations on-board an aircraft have been removed. Ordnance delivery from Predators has already occurred in the Middle East. Approximately half of the flight tests at Edwards AFB now involve UAVs. The opportunity here is that the mission systems of UAVs need the same care and feeding as manned aircraft. The superb systems engineering processes developed at WD for operational flight programs provide solid credibility for the UAV WSSAs to reside at WD. The next time the WSSA contract is re-awarded its scope should include UAVs and UCAVs.

Open systems computer software is becoming pervasive. Previous tactical aircraft operational flight programs used assembly languages to program their functions. The computing power of the next generation of mission computers will enable use of higher order languages, such as C++.

The use of object-oriented programming and open architecture has been demonstrated in the operational flight program of the AV-8, and is expected to be the foundation for the F/A-18 Operational Flight Program (OFP) in the near future. This enables certification of changes to an OFP without the massive regression testing previously required.

All of theDoD ranges are being networked using an open architecture system called TENA (Test and Training Enabling Architecture) to permit reconfiguration of combinations of ranges for tailored large scale events involving both simulations and live flights in a matter of hours instead of weeks.

The next generation of test range instrumentation for all the military services will require commercial standards for items such as the bus interfaces so that the vehicle instrumentation can be easily reconfigured to meet each unique test requirement--so called "plug and play"--rather than rewiring the instrumentation pod.

These are examples of the power of open architecture systems which will be the foundation of much of the development of future military systems.

Desert Storm dramatically highlighted the need for high-speed strike to counter SCUDs. This was the one area where the Coalition forces did not achieve great success. The Iraqi forces were able to keep launching SCUD missiles throughout the war, and our forces could not quickly find and destroy them before they were able to set up, launch, disassemble and hide again. The time to find and hit these targets must be greatly shortened, which means much better sensors and data links and much faster (hypersonic) missiles.

The R&D and production support of weapons has declined. The accuracy of precision guided missiles negates the need for large quantities to be used during combat. Production numbers of missiles has declined. Dual sourcing and producing to a Government-owned data package has almost disappeared. The production of guided missiles is now largely located at Raytheon in Tucson where about 80% of the conventional missiles are built. This geographic concentration of the nation's conventional weapons manufacturing capability has some ominous implications for our National Security because of terrorist attacks. Perhaps there is a role for WD to provide backup to this overly concentrated industrial base.

The concept of "Acquisition Reform" has taken hold. The Government is now writing major acquisition contracts for systems (like the Joint Strike fighter) where the prime contractor is responsible to a performance specification and will unilaterally decide how to deliver that system to DoD. The implications are that the role of government facilities like WSSAs for manned aircraft and weapons is in question. The main role that WD has traditionally performed on systems integration of weapons and avionics with the air platform is at risk. The F/A-18 WSSA is probably secure for the next decade or two; but the opportunity to bring more WSSAs, like the JSF to WD, may be in doubt unless the Marine Corps were to replace the AV-8B WSSA with the JSF Vertical Take-Off and Landing (VTOL) WSSA. However, there may be a potential for WSSA growth in newly emerging platforms such as UAVs and UCAVs as they become more frequently used for weapons delivery and surveillance.

Consolidation of business support functions has greatly reduced manpower at field stations. The regionalization of HR and Finance and the use of productivity-enhancing tools like Enterprise Resource Planning has created major downsizing in the field station administrative support workforce. The number of administrative people may continue to decline as business productivity-enhancing tools get more efficient.

What about BRAC 2005?

Although the BRAC process evokes an immediate concern about the risk of closure or major realignment (downsizing), BRAC also provides an opportunity to grow, either by expansion of the current missions, or by the addition of new missions to NAWCWD. If properly prepared, the opportunity for growth will outweigh the risks.

We know that the basic ground rules for BRAC 2005 will remain the same: close bases with low military value and consolidate functions at those bases with the highest military value.

Military value consists of several pieces. First are the physical assets of the base: the land, air and sea space, runways, hangars, piers, laboratory and office space, availability of power and water, etc. Second are the community aspects supporting the base. Is the local community willing and able to accommodate more missions or is it encroached by urban growth? Does it have the affordable housing, medical, educational, recreational facilities, and infrastructure to support more people? Third are the environmental factors such as clean air. Finally, there are the human resources at the base. This includes the military, civilian, and support contractor workforce at the base. The initial data calls in previous BRACs asked for detailed information about the number of military, civilian, and System Engineering Technical Assistance (SETA) contractors at each base and their experience, educational levels, numbers of scientific papers and patents, and their awards received. In the previous four rounds of BRAC both China Lake and Point Mugu enjoyed the advantages of marvelous physical facilities and broad mission capabilities, strong community support, low encroachment, and excellent human resources. The result was that China Lake and Point Mugu were rated No. 1 and No. 2 in Military Value amongst over 70 Technical Centers in the Navy during BRAC 95.

Let's look at the specifics of what happened in previous BRAC rounds. WD did not lose any missions. It gained from the closure of the Naval Weapons Evaluation Facility in Albuquerque which was moved to China Lake, and the realignment of the EP-3 Special Missions Support Facility from Naval Avionics Facility in Indianapolis to China Lake. (There were also a few billets administratively transferred to WD from the targets group at Naval Air Development Center in Warminster although no people ever actually relocated in these cases).

In BRAC 95 nearly all of the fifty Data Calls generated by the BRAC commission involved adding to the mission capability of WD. These included scenarios involving closure of the Naval Surface Warfare Center, Indian Head and moving all the Energetics work to China Lake; closure of the Naval Warfare Analysis Center in Corona, California and moving its functions to China Lake, Point Mugu and North Island Naval Air Station; realignment of some rocket propulsion work from the Phillips Lab at Edwards AFB to

Where Does WD Go from Here and What Are the New Missions?

For WD to grow, it must broaden its mission beyond the traditional roles of weapons development, manned aircraft WSSAs, EW, and range use for primarily weapons T&E.

WD must exploit its inherent advantage of being at the locus of the best networked collection of military test and training ranges in the world. In this Southwest Defense Complex, aircraft and missiles can fly un-encroached and interconnect with land and sea platforms. More joint operations involving neighboring ranges such as Edwards, Fallon, Fort Irwin, Nellis, etc., are apt to increase significantly. The focus of testing, training and experiments will be on interoperability versus only missile or platform performance.

A greater scale of events, whether live flight or simulated, will be necessary to examine NCW system performance where the targeting is enabled by surveillance assets hundreds of miles from the target and strike platform.
An even stronger link to Edwards Air Force Base, Nellis Air Force Base, Fort Irwin, Utah Test and Training Range, White Sands Missile Range, Fort Huachuca, Pacific Missile Range Facility, Camp Pendleton, Twentynine Palms, Yuma Army Missile Proving Grounds, Barry M. Goldwater Range, Fallon Naval Air Station, and the Third fleet operating off Southern California will strengthen the capability to do large scale events in the Southwest.

The future scope of R&D must broaden to include more computer networking and software interfaces for the operational war fighter. Classical weapons development must morph into more mission planning, using tools such as the Precision Targeting Workstation and the Joint Fires Network. Using open architecture software and hardware will greatly reduce the time from concept to employment. The ability to easily and quickly reconfigure and upgrade networks, i.e., "plug and play", is critical to future military operations.

The basic result is that the **type** of work will be different -- it will involve a much closer working relationship with the fleet. The "Sea Trial" process outlined by the Chief of Naval Operations demands that scientists and engineers take their new products to sea. This enables them to evaluate their effectiveness, acceptance, and interoperability with other systems. WD must exploit its advantage of having a close relationship with fleet, as well as other Service operators, and have a workforce that is willing to travel and spend time aboard ship or at ranges engaged in operations.

Future WD work will emphasize data links. Data links are the raw material of NCW. New waveforms will pack more information into narrower slices of the increasingly scarce electromagnetic spectrum. WD could see an expanded role in C4ISR if the

What Can WD Do to Prepare for These Opportunities for Growth?

PHYSICAL ASSETS TO SHOW MISSION CAPABILITY. The first thing is to posture the physical assets to show that WD is capable of absorbing more missions. Obtaining MILCONs for facilities such as the new Propellants and Explosives Laboratory, the hot refueling pits for either JSF or F/A-18, and hangars for UAVs are very important; as well as the more subtle things such as expanding the geothermal power capability. In BRAC 95 WD had an important asset which has declined lately, its excess buildings. Numerous data calls required WD to identify the costs of providing lab and office space to accept new missions. Since WD had several million square feet of excess space available at that time, it was possible to show that these new missions could be fit into existing buildings with only minor modification costs, as opposed to major new construction via MILCON. This made the cost analysis for moving new functions to WD come out very favorably. Unfortunately, much of this excess space has been torn down over the past few years.

The important data to have on-hand is the utilization rate of current facilities. For example, in BRAC 95 we were able to show that our missile simulation labs were only being partially utilized, so we could accommodate the same type of work from either Eglin Air Force Base or Redstone Arsenal without moving their CARCO tables to WD. Another important capability is for the Public Works Department to have a data base of all the Class 2 property (buildings) so they can quickly respond to data calls of all kinds to modify the existing space into new configurations.

Another important asset is the degree of current range utilization versus the historical use. In BRAC 95 we were able to show that in the late 1980s China Lake performed over 70,000 sorties in our airspace over a one year time span. In the late 1990s China Lake was only doing slightly over 50,000 sorties per year and therefore had sufficient range airspace capacity to accept more aircraft in the R2508 restricted airspace. One of the things that the Range Department should do is prepare a contingency plan to accommodate more missions such as training or an operational squadron, by folding it into our current T&E mission, or perhaps add another shift.

COMMUNITY IMPACT. In BRAC 95 certified letters were obtained from community groups such as the Ridgecrest Board of Realtors and the IWV Water District to provide evidence that the local community had the capacity to accommodate an influx of personnel. In terms of defense against base closure, certified documents were obtained from city officials showing the economic impact if China Lake were to be closed. It showed that DoD would incur a cost of something like a billion dollars to buy all the homes in Ridgecrest which would no longer be valued at anywhere near their current market value if the only major industry was moved out of the community.

First is the composition of the current support contractor workforce (size, education, experience, unique skills and availability in proximity to the base, as well as the flexibility in terms of scope and ceiling of the contracts to allow for emerging types of work). This contractor workforce sometimes provides a valuable pool for hiring proven employees into government service, as billets become available on the base.

Second is their "reach back" capability from other parts of their parent corporations to bring new skills and talent to support emerging base requirements for new technologies. This can only be realized if the base awards its support contracts to companies which have substantial corporate capabilities that are relevant to the cutting edge technologies needed for future base missions.

Finally, the support contractors provide the base the capability to access the very substantial latent workforce represented by base retirees who still have a desire to work, either part or full time. For WD this represents a buffer talent pool of several thousand very experienced individuals, some of whom are recognized National experts in their fields of weapons RDT&E.

The WD support contractors provide approximately one quarter of the workforce, they are an integral part of the WD community, and in some cases provide unique capabilities. Several contracts will come up for re-award before 2005, therefore the scopes and ceilings of these contracts should be re-examined for expansion in order to accommodate the new technologies described earlier in this paper, and the new missions which could be moved to WD as a result of BRAC 2005.

For WD to optimize its chances for growth and viability far into the future, it is important to look forward, see the big picture, and configure itself to fully cover the emerging mission needs. Doing so is a prudent step in posturing WD to grow and remain relevant to the changing demands of DoD.

Justification: This recommendation supports capacity reduction at the SIMA Norfolk, VA, and reduces excess ship repair capacity. This consolidation matches the ship maintenance infrastructure at the other major Fleet concentrations where depot and intermediate level activities are collocated. This consolidation will lead to synergy and efficiency in ship maintenance. This recommendation assumes that Norfolk Naval Shipyard becomes a Direct or Mission Funded activity.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $10.6M. The net of all costs and savings to the Department during the implementation period is a savings of $26.8M. Annual recurring savings to the Department after implementation are $8.2M with a payback expected in one year. The net present value of the costs and savings to the Department over 20 years is a savings of $104.3M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 209 jobs (95 direct jobs and 114 indirect jobs) over the 2006-2011 period in the in the Virginia Beach-Norfolk-Newport News, VA-NC Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the community to support missions, forces and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation has no impact on air quality; cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation does not impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Fleet Readiness Centers

Recommendation: Realign Naval Air Station Oceana, VA, by disestablishing the Aircraft Intermediate Maintenance Department Oceana, the Naval Air Depot Cherry Point Detachment, and the Naval Air Depot Jacksonville Detachment; establishing Fleet Readiness Center Mid Atlantic, Naval Air Station Oceana, VA; and transferring all intermediate maintenance workload and capacity to Fleet Readiness Center Mid Atlantic, Naval Air Station Oceana, VA.

Realign Naval Air Station Patuxent River, MD, by disestablishing the Aircraft Intermediate Maintenance Department at Naval Air Warfare Center Aircraft Division; establishing Fleet

Readiness Center Mid Atlantic Site Patuxent River, Naval Air Station Patuxent River, MD; and transferring all intermediate maintenance workload and capacity to Fleet Readiness Center Mid Atlantic Site Patuxent River, Naval Air Station Patuxent River, MD.

Realign Naval Air Station Norfolk, VA, by disestablishing the Aircraft Intermediate Maintenance Department Norfolk VA, the Naval Air Depot Jacksonville Detachment, and Naval Air Warfare Center Aircraft Division Lakehurst Detachment; establishing Fleet Readiness Center Mid Atlantic Site Norfolk, Naval Air Station Norfolk, VA; and transferring all intermediate and depot maintenance workload and capacity to Fleet Readiness Center Mid Atlantic Site Norfolk, Naval Air Station Norfolk, VA.

Realign Naval Air Station Joint Reserve Base New Orleans, LA, by disestablishing the Aircraft Intermediate Maintenance Department, establishing Fleet Readiness Center Mid Atlantic Site New Orleans, Naval Air Station Joint Reserve Base New Orleans, LA; and transfer all intermediate maintenance workload and capacity to Fleet Readiness Center Mid Atlantic Site New Orleans, Naval Air Station Joint Reserve Base New Orleans, LA.

Realign Marine Corps Air Station Cherry Point, NC, as follows: disestablish Naval Air Depot Cherry Point; establish Fleet Readiness Center East, Marine Corps Air Station Cherry Point, NC; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 39 K DLHs), Aircraft Hydraulic Components (approximately 69 K DLHs), Aircraft Landing Gear Components (approximately 8 K DLHs), Aircraft Other Components (approximately 23 K DLHs), and Aircraft Structural Components (approximately 126 K DLHs) to Fleet Readiness Center Mid Atlantic, Naval Air Station Oceana, VA; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 11 K DLHs), Aircraft Hydraulic Components (approximately 19 K DLHs), Aircraft Landing Gear Components (approximately 2 K DLHs), Aircraft Structural Components (approximately 35 K DLHs), and Aircraft Other Components (approximately 6 K DLHs) to Fleet Readiness Center Mid Atlantic Site Norfolk, Naval Air Station Norfolk, VA; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 6 K DLHs), Aircraft Hydraulic Components (approximately 10 K DLHs), Aircraft Landing Gear Components (approximately 1 K DLHs), Aircraft Other Components (approximately 3 K DLHs), and Aircraft Structural Components (approximately 18 K DLHs) to Fleet Readiness Center Mid Atlantic Site Patuxent River, Naval Air Station Patuxent River, MD; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 2 K DLHs), Aircraft Hydraulic Components (approximately 3 K DLHs), Aircraft Landing Gear Components (approximately 0.4K DLHs), Aircraft Other Components (approximately 1 K DLHs), and Aircraft Structural Components (approximately 6 K DLHs) to FRC Mid Atlantic Site New Orleans, Naval Air Station JRB New Orleans, LA.; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 9 K DLHs), Aircraft Hydraulic Components (approximately 16 K DLHs), Aircraft Landing Gear Components (approximately 2 K DLHs), Aircraft Other Components (approximately 6 K DLHs) and Aircraft Structural Components (approximately 30 K DLHs) to the Fleet Readiness Center East Site Beaufort, hereby established at Marine Corps Air Station Beaufort, SC; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 11 K DLHs), Aircraft Hydraulic Components

(approximately 20 K DLHs), Aircraft Landing Gear Components (approximately 2 K DLHs), Aircraft Other Components (approximately 6 K DLHs), Aircraft Structural Components (approximately 36 K DLHs), Aircraft Rotary (approximately 1 K DLHs), Aircraft VSTOL (approximately 2 K DLHs), Aircraft Cargo/Tanker (approximately 0.02K DLHs,), Aircraft Other (approximately 18 K DLHs), Aircraft Structural Components (approximately 0.001K DLHs), Calibration (approximately 0.15 K DLHs) and "Other" Commodity (approximately 0.3 K DLHs) to Fleet Readiness Center East Site New River, hereby established at Marine Corps Air Station New River, Camp Lejeune, NC; and transfer all remaining depot maintenance workload and capacity to Fleet Readiness Center East, Marine Corps Air Station Cherry Point, NC.

Realign Marine Corps Air Station Beaufort, SC, by disestablishing Naval Air Depot Jacksonville Detachment Beaufort and transferring all depot maintenance workload and capacity to Fleet Readiness Center East Site Beaufort, Marine Corps Air Station Beaufort, SC.

Realign Naval Air Station Jacksonville, FL, as follows: disestablish Naval Air Depot Jacksonville, Naval Air Depot Jacksonville Detachment Jacksonville, and Aircraft Intermediate Maintenance Department Jacksonville; establish Fleet Readiness Center Southeast, Naval Air Station, Jacksonville, FL; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 8 K DLHs), Aircraft Hydraulic Components (approximately 6 K DLHs), Aircraft Landing Gear Components (approximately 3 K DLHs), Aircraft Other Components (approximately 27 K DLHs), and Aircraft Structural Components (approximately 9 K DLHs) to Fleet Readiness Center Southeast Site Mayport, hereby established at Naval Air Station, Mayport, FL; transfer all remaining intermediate and depot maintenance workload and capacity to Fleet Readiness Center Southeast, Naval Air Station Jacksonville, FL.

Realign Naval Air Station Mayport, FL, by disestablishing Aircraft Intermediate Maintenance Department, Naval Air Depot Jacksonville Detachment Mayport, and Naval Air Warfare Center Aircraft Division Lakehurst Voyage Repair Team Detachment Mayport and transferring all intermediate maintenance workload and capacity to Fleet Readiness Center Southeast Site Mayport, Naval Air Station Mayport, FL.

Realign Naval Air Station Lemoore, CA, by disestablishing Aircraft Intermediate Maintenance Department Lemoore and Naval Air Depot North Island Detachment; establishing Fleet Readiness Center West, Naval Air Station Lemoore, CA; and transferring all intermediate and depot maintenance workload and capacity to Fleet Readiness Center West, Naval Air Station Lemoore, CA.

Realign Naval Air Station Fallon, NV, by disestablishing the Aircraft Intermediate Maintenance Department Fallon and the Naval Air Depot North Island Detachment Fallon; establishing Fleet Readiness Center West Site Fallon, Naval Air Station Fallon, NV; and transferring all intermediate and depot maintenance workload and capacity to Fleet Readiness Center West Site Fallon, Naval Air Station Fallon, NV.

Realign Naval Air Warfare Center Weapons Division China Lake, CA, by disestablishing the Aircraft Intermediate Maintenance Department and relocating its maintenance workload and capacity for Aircraft (approximately 3 K DLHs), Aircraft Components (approximately 45 K

DLHs), Fabrication & Manufacturing (approximately 6 K DLHs) and Support Equipment (approximately 16 K DLHs) to Fleet Readiness Center West, Naval Air Station Lemoore, CA.

Realign Naval Air Station Joint Reserve Base Fort Worth, TX, by disestablishing the Aircraft Intermediate Maintenance Department, establishing Fleet Readiness Center West Site Fort Worth, Naval Air Station Fort Worth, TX, and transferring all intermediate maintenance workload and capacity to Fleet Readiness Center West Site Fort Worth, Naval Air Station Joint Reserve Base Fort Worth, TX.

Realign Naval Air Station Whidbey Island, WA, by disestablishing the Aircraft Intermediate Maintenance Department, establishing Fleet Readiness Center Northwest, Naval Air Station Whidbey Island, WA, and transferring all intermediate maintenance workload and capacity to Fleet Readiness Center Northwest, Naval Air Station Whidbey Island, WA.

Realign Naval Support Activity Crane, IN, by relocating the depot maintenance workload and capacity for ALQ-99 Electronic Warfare to Fleet Readiness Center Northwest, Naval Air Station Whidbey Island, WA.

Realign Naval Air Station North Island, Naval Base Coronado, CA, as follows: disestablish Naval Air Depot North Island, COMSEACONWINGPAC (AIMD), and NADEP North Island Detachment North Island; establish Fleet Readiness Center Southwest, Naval Air Station North Island, Naval Base Coronado, CA; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 6 K DLHs), Aircraft Hydraulic Components (approximately 2 K DLHs), Aircraft Landing Gear Components (approximately 3 K DLHs), Aircraft Other Components (approximately 13 K DLHs), and Aircraft Structural Components (approximately 4 K DLHs) from Naval Air Depot North Island to Fleet Readiness Center Southwest Site Point Mugu, hereby established at Naval Air Station Point Mugu, Naval Base Ventura, CA; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 26 K DLHs), Aircraft Hydraulic Component (approximately 8 K DLHs), Aircraft Landing Gear Components (approximately 13 K DLHs), Aircraft Other Components (approximately 55 K DLHs), Aircraft Structural Components (approximately 16 K DLHs) from Naval Air Depot North Island to Fleet Readiness Center Southwest Site Miramar, hereby established at Marine Corps Air Station Miramar, CA; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 8 K DLHs), Aircraft Hydraulic Components (approximately 2 K DLHs), Aircraft Landing Gear Components (approximately 4 K DLHs), Aircraft Other Components (approximately 17 K DLHs), and Aircraft Structural Components (approximately 5 K DLHs) from Naval Air Depot North Island to Fleet Readiness Center Southwest Site Pendleton, hereby established at Marine Corps Air Station Camp Pendleton, CA; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 6 K DLHs), Aircraft Hydraulic Components (approximately 2 K DLHs), Aircraft Landing Gear Components (approximately 3 K DLHs), Aircraft Other Components (approximately 12 K DLHs), Aircraft Structural Components (approximately 3 K DLHs) from Naval Air Depot North Island to Fleet Readiness Southwest Site Yuma, hereby established at Marine Corps Air Station Yuma, AZ; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 6 K DLHs), Aircraft Hydraulic Components (approximately 2 K

DLHs), Aircraft Landing Gear Components (approximately 3 K DLHs), Aircraft Other Components (approximately 12 K DLHs), and Aircraft Structural Components (approximately 3 K DLHs) from Naval Air Depot North Island to Fleet Readiness Center West Site Fort Worth, Fort Worth TX; relocate depot maintenance workload and capacity for Aircraft Avionics/Electronics Components (approximately 25 K DLHs), Aircraft Hydraulic Components (approximately 8 K DLHs), Aircraft Landing Gear Components (approximately 13 K DLHs), Aircraft Other Components (approximately 53 K DLHs), and Aircraft Structural Components (approximately 15 K DLHs), from Naval Air Depot North Island to Fleet Readiness Center Northwest, Naval Air Station Whidbey Island, WA; and transfer all remaining intermediate and depot maintenance workload and capacity to Fleet Readiness Center Southwest, Naval Air Station North Island, Naval Base Coronado, CA.

Realign Naval Air Station Point Mugu, Naval Base Ventura, CA, by disestablishing the Aircraft Intermediate Maintenance Department and transferring all intermediate maintenance workload and capacity to Fleet Readiness Center Southwest Site Point Mugu, Naval Base Ventura, CA.

Realign Marine Corps Air Station Miramar, CA, by transferring depot maintenance workload and capacity for Aircraft Other (approximately 28 K DLHs) and Aircraft Fighter/Attack (approximately 39 K DLHs) and intermediate maintenance workload and capacity for Aircraft Components, Aircraft Engines, Fabrication & Manufacturing and Support Equipment from Marine Aviation Logistics Squadron (MALS)-11 and 16 to Fleet Readiness Center Southwest Site Miramar, Marine Corps Air Station Miramar, CA.

Realign Marine Corps Air Station Camp Pendleton, CA, by transferring depot maintenance workload and capacity for Aircraft Other (approximately 22 K DLHs) and Aircraft Rotary (approximately 102 K DLHs) and intermediate maintenance workload and capacity for Aircraft Components, Aircraft Engines, Fabrication & Manufacturing and Support Equipment from MALS-39 to Fleet Readiness Center Southwest Site Camp Pendleton, Marine Corps Air Station Camp Pendleton, CA.

Realign Marine Corps Air Station Yuma, AZ, by transferring depot maintenance workload and capacity for Aircraft Fighter/Attack, Aircraft Other and Aircraft Rotary and intermediate maintenance workload and capacity for Aircraft Components, Aircraft Engines, Communication/Electronics Equipment, Ordnance Weapons & Missiles, Software and Support Equipment from MALS-13 to Fleet Readiness Center Southwest Site Yuma, Marine Corps Air Station Yuma, AZ.

Justification: This recommendation realigns and merges depot and intermediate maintenance activities. It creates 6 Fleet Readiness Centers (FRCs), with 13 affiliated FRC Sites at satellite locations. FRC Mid-Atlantic will be located on NAS Oceana, VA, with affiliated FRC Sites at NAS Patuxent River, MD, NAS Norfolk, VA, and JRB New Orleans, LA. FRC East is located at Cherry Point, NC, with affiliated FRC Sites at MCAS Beaufort, SC, and MCAS New River, NC. The existing intermediate level activity associated with HMX-1 at MCB Quantico, VA, will also be affiliated with FRC East. FRC Southeast will be located on NAS Jacksonville, FL, and will have an affiliated FRC Site at NAS Mayport, FL. FRC West will be located on NAS Lemoore, CA, and will have FRC affiliated sites at NAS JRB Fort Worth, TX, and NAS Fallon,

NV. FRC Southwest will be located on Naval Station Coronado, CA, and will have affiliated sites at MCAS Miramar, CA, MCAS Pendleton, CA, MCAS Yuma, AZ, and NAS Point Mugu, CA. FRC Northwest will be located on NAS Whidbey, WA, with no affiliated FRC Sites.

This recommendation supports both DoD and Navy transformation goals by reducing the number of maintenance levels and streamlining the way maintenance is accomplished with associated significant cost reductions. It supports the Naval Aviation Enterprise's (NAE's) goal of transforming to fewer maintenance levels, i.e., from 3 to 2 levels; and it supports the NAE's strategy of positioning maintenance activities closer to fleet concentrations when doing so will result in enhanced effectiveness and efficiency, greater agility, and allows Naval Aviation to achieve the right readiness at the least cost. This transformation to FRCs produces significant reductions in the total cost of maintenance, repair and overhaul plus the associated Supply system PHS&T (Packaging, Handling, Storage and Transportation) as well as reparables inventory stocking levels as a result of reduced total repair turn-around times, reduced transportation, lower spares inventories, less manpower, and more highly utilized infrastructure. It requires integration and collaboration between Depot level Civil Service personnel and Military Intermediate level Sailors and Marines. At those FRCs involving Marine Corps MALS (Marine Aviation Logistics Squadrons), because the MALS remain deployable commands, they will affiliate with their FRC organizations, but will remain operationally distinct and severable in all respects. The FRC D-level functions within the MALS fall under the Commanding Officer of each MALS. The FRC Commander is the provider of embedded depot personnel, as well as D-level technical and logistics support within the MALS. For all FRCs, there is a combined annual facility sustainment savings of $1.1M; elimination of a total of 529,000 square feet of depot/intermediate maintenance production space and military construction cost avoidances of $0.2M. This recommendation also includes a military construction cost of $85.7M.

In addition to the actions described in this recommendation, there are four additional actions involved in the comprehensive merger of depot and intermediate maintenance: Naval Air Station Joint Reserve Base Willow Grove, PA, Naval Air Station Corpus Christi, TX, Naval Air Station Brunswick, ME, and Naval Air Station Atlanta, GA. The actions at these installations are described in separate installation closure recommendations in the Department of the Navy section of the BRAC Report.

Payback: The total estimated one time cost to the Department of Defense to implement this recommendation is $298.1M. The net of all costs and savings to the Department during implementation period is a savings of $1,528.2M Annual recurring savings to the Department after implementation are $341.2M with a payback expected immediately. The net present value of the costs and savings to the Department over 20 years is a savings of $4,724.2M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 104 jobs (53 direct jobs and 51 indirect jobs) over the 2006-2011 period in the Bakersfield, CA Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 221 jobs (152 direct jobs and 69 indirect jobs) over the 2006-2011 period in the Martin County, IN, economic area, which is 2.6 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 13 jobs (7 direct jobs and 6 indirect jobs) over the 2006-2011 period in the Fallon, NV Micropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 512 jobs (218 direct jobs and 294 indirect jobs) over the 2006-2011 period in the Jacksonville, FL Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1,190 jobs (632 direct jobs and 558 indirect jobs) over the 2006-2011 period in the New Bern, NC Micropolitan Statistical Area, which is 1.8 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 12 jobs (7 direct jobs and 5 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1,279 jobs (623 direct jobs and 656 indirect jobs) over the 2006-2011 period in the San Diego-Carlsbad-San Marcos, CA Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 68 jobs (44 direct jobs and 24 indirect jobs) over the 2006-2011 period in the Virginia Beach-Norfolk-Newport News, VA Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation may impact air quality at NAS Lemoore and NAS JRB Fort Worth. A conformity determination may be required. This recommendation has the potential to impact cultural, archeological, or tribal resources at NAS Lemoore, NAS Fallon, and NAS Whidbey Island, WA, if construction is required. There is a possible impact to water resources at NAS Whidbey Island and NAS Fallon. This recommendation has no impact on

dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; or wetlands. This recommendation will require spending approximately $0.4M for waste management and environmental compliance activities. This recommendation does not otherwise impact the cost of environmental restoration, waste management, or environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Naval Shipyard Detachments

Recommendation: Realign Puget Sound Naval Shipyard Detachment Boston, MA, by relocating the ship repair function to Puget Sound Naval Shipyard, WA.

Realign Naval Station Annapolis, MD, by relocating the Norfolk Naval Shipyard Detachment, Naval Sea Systems Command Plant Equipment Support Office ship repair function to Norfolk Naval Shipyard, VA.

Realign the Navy Philadelphia Business Center, PA, by relocating the Norfolk Naval Shipyard Detachment, Naval Sea Systems Command Shipbuilding Support Office ship repair function to Norfolk Naval Shipyard, VA.

Justification: This recommendation supports mission elimination at Puget Sound Naval Shipyard Detachment Boston, MA, Norfolk Naval Shipyard Detachment, Naval Sea Systems Command Plant Equipment Support Office, Annapolis, MD, and Norfolk Naval Shipyard Detachment, Naval Sea Systems Command Shipbuilding Support Office, Philadelphia, PA, and reduces excess ship repair capacity. This relocation will create synergy among like functions at Puget Sound Naval Shipyard and Norfolk Naval Shipyard. Although this expected synergy is not captured in the payback calculations, experience has shown that it will produce additional long-term savings.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $12.5M. The net of all costs and savings to the Department during the implementation period is a cost of $0.9M. Annual recurring savings to the Department after implementation are $2.3M with a payback expected in four (4) years. The net present value of the costs and savings to the Department over 20 years is a savings of $20.7M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 213 jobs (108 direct jobs and 105 indirect jobs) over the 2006-2011 period in the in the Boston-Quincy, MA Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 25 jobs (13 direct jobs and 12 indirect jobs) over the 2006-2011 period in the in the

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Create a Naval Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation Center

Recommendation: Realign Naval Surface Warfare Center Crane, IN, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except gun/ammo, combat system security, and energetic materials to Naval Air Weapons Station China Lake, CA.

Realign Naval Surface Warfare Center Indian Head, MD, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except gun/ammo, underwater weapons, and energetic materials, to Naval Air Weapons Station China Lake, CA.

Realign Naval Air Station Patuxent River, MD, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except the Program Executive Office and Program Management Offices in Naval Air Systems Command, to Naval Air Weapons Station China Lake, CA.

Realign Naval Base Ventura County, Point Mugu, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation to Naval Air Weapons Station China Lake, CA.

Realign Naval Weapons Station Seal Beach, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except underwater weapons and energetic materials, to Naval Air Weapons Station China Lake, CA.

Realign Naval Surface Warfare Center, Yorktown, VA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation to Naval Surface Warfare Center Indian Head, MD.

Realign Naval Base Ventura County, Port Hueneme, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except weapon system integration, to Naval Air Weapons Station China Lake, CA.

Realign Fleet Combat Training Center, CA (Port Hueneme Detachment, San Diego, CA), by relocating all Weapons and Armaments weapon system integration Research, Development & Acquisition, and Test & Evaluation to Naval Surface Warfare Center Dahlgren, VA.

Realign Naval Surface Warfare Center Dahlgren, VA, by relocating all Weapons & Armaments Research, Development & Acquisition, and Test & Evaluation, except guns/ammo and weapon systems integration to Naval Air Weapons Station China Lake, CA.

Justification: This recommendation realigns and consolidates those facilities working in Weapons & Armaments (W&A) Research, Development & Acquisition, and Test and Evaluation (RDAT&E) into a Naval Integrated RDAT&E center at the Naval Air Warfare Center, China Lake, CA. Additional synergistic realignments for W&A was achieved at two receiver sites for specific focus. The Naval Surface Warfare Center, Dahlgren, VA, is a receiver specialty site for

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Naval surface weapons systems integration and receives a west coast site for consolidation. This construct creates an integrated W&A RDAT&E center in China Lake, CA, energetics center at Indian Head, MD, and consolidates Navy surface weapons system integration at Dahlgren, VA. All actions relocate technical facilities with lower overall quantitative Military Value (across Research, Development & Acquisition and Test & Evaluation) into the Integrated RDAT&E center and other receiver sites with greater quantitative Military Value.

Consolidating the Navy's air-to-air, air-to-ground, and surface launched missile RD&A, and T&E activities at China Lake, CA, would create an efficient integrated RDAT&E center. China Lake is able to accommodate with minor modification/addition both mission and life-cycle/sustainment functions to create synergies between these traditionally independent communities.

During the other large scale movements of W&A capabilities noted above, Weapon System Integration was specifically addressed to preserve the synergies between large highly integrated control system developments (Weapon Systems Integration) and the weapon system developments themselves. A specialty site for Naval Surface Warfare was identified at Dahlgren, VA, that was unique to the services and a centroid for Navy surface ship developments. A satellite unit from the Naval Surface Warfare Center, Port Hueneme, San Diego Detachment will be relocated to Dahlgren.

The Integrated RDAT&E Center at China Lake provides a diverse set of open-air range and test environments (desert, mountain, forest) for W&A RDAT&E functions. Synergy will be realized in air-to-air, air-to-ground, and surface launched mission areas.

This recommendation enables technical synergy, and positions the Department of Defense to exploit center-of-mass scientific, technical and acquisition expertise with weapons and armament Research, Development & Acquisition that currently resides at 10 locations into the one Integrated RDAT&E site, one specialty site, and an energetics site.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $358.1M. The net of all costs and savings to the Department during the implementation period is a cost of $148.7M. Annual recurring savings to the Department after implementation are $59.7M with a payback expected in 7 years. The net present value of the costs and savings to the Department over 20 years is a savings of $433.4M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 375 jobs (258 direct jobs and 117 indirect jobs) over the 2006-2011 period in the Martin County, IN, economic area, which is 4.4 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 543 jobs (258 direct jobs and 285 indirect jobs) over the 2006-2011 period in the Lexington Park, MD, Micropolitan Statistical Area, which is 1.0 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 5,012 jobs (2,250 direct jobs and 2,762 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA, Metropolitan Statistical Area, which is 1.2 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 97 jobs (47 direct jobs and 50 indirect jobs) over the 2006-2011 period in the San Diego-Carlsbad-San Marcos, CA, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 76 jobs (45 direct jobs and 31 indirect jobs) over the 2006-2011 period in the Santa Ana-Anaheim-Irvine, CA, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 142 jobs (61 direct jobs and 81 indirect jobs) over the 2006-2011 period in the Virginia Beach-Norfolk-Newport News, VA-NC, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 91 jobs (52 direct jobs and 39 indirect jobs) over the 2006-2011 period in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 333 jobs (155 direct jobs and 178 indirect jobs) over the 2006-2011 period in the King George County, VA, economic area, which is 2.4 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation has the potential to impact air quality at Indian Head and China Lake. Archeological and historical sites exist on NSWC Dahlgren, which may impact current construction and operations. This recommendation has the potential to impact land use constraints or sensitive resource areas at Indian Head and China Lake. This recommendation has no impact on dredging; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; water resources; or wetlands. This recommendation will require spending approximately $0.2M for waste management activities and $1.1M for environmental compliance activities. These costs were included in the payback calculation. This recommendation does not otherwise impact the costs

of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Create an Air Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation Center

Recommendation: Realign Hill Air Force Base, UT, by relocating Weapons and Armaments In-Service Engineering Research, Development & Acquisition, and Test and Evaluation to Eglin Air Force Base, FL. Realign Fort Belvoir, VA, by relocating Defense Threat Reduction Agency National Command Region conventional armament Research to Eglin Air Force Base, FL.

Justification: Eglin is one of three core integrated weapons and armaments RDAT&E centers (with China Lake, CA, and Redstone Arsenal, AL) with high MV and the largest concentration of integrated technical facilities across all three functional areas. Eglin AFB has a full spectrum array of Weapons & Armaments (W&A) Research, Development & Acquisition, and Test & Evaluation (RDAT&E) capabilities. Accordingly, relocation of Hill AFB and DTRA NCR W&A capabilities will further complement and strengthen Eglin as a full spectrum W&A RDAT&E Center.

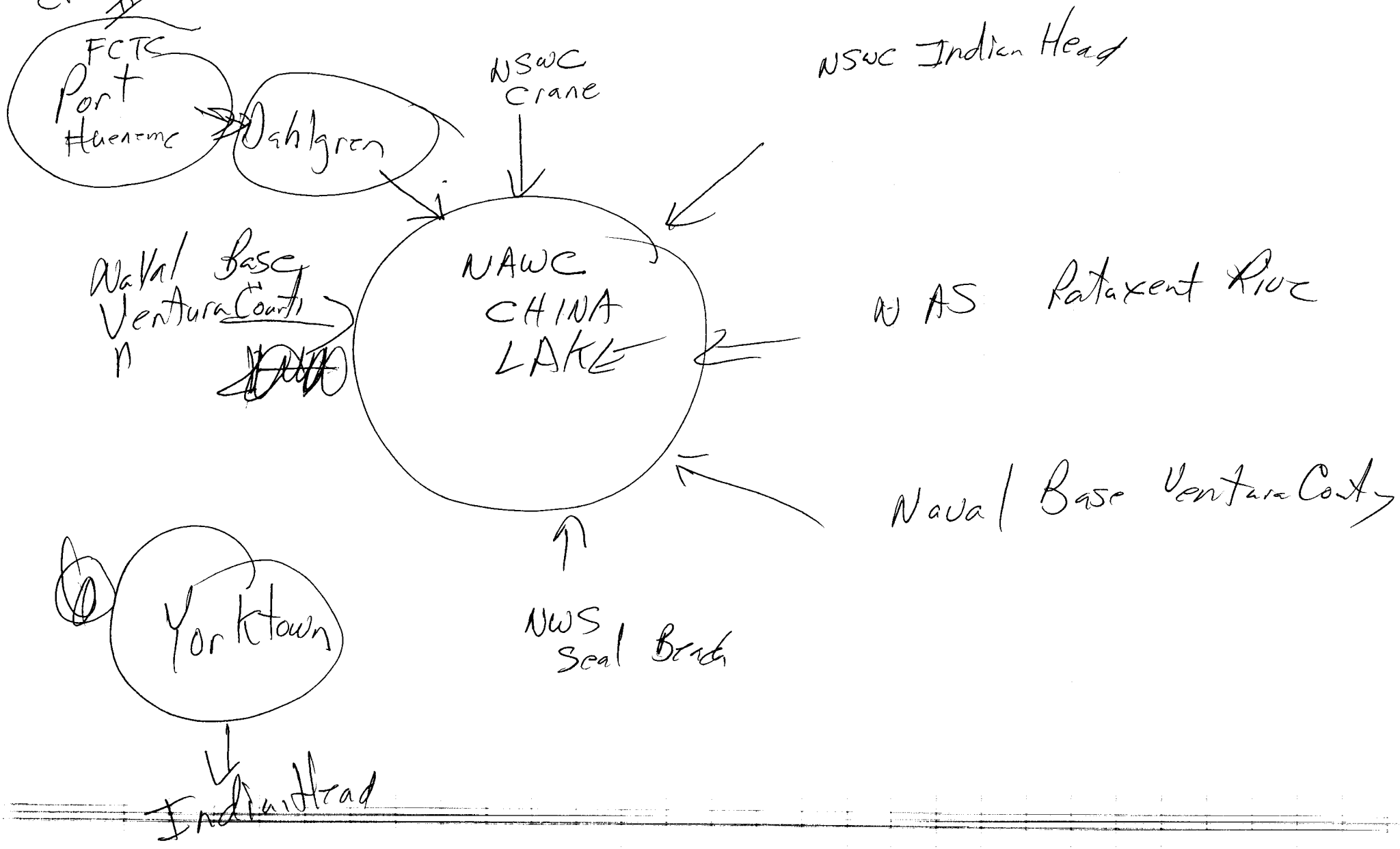
The overall impact of this recommendation will be to: increase W&A life cycle and mission related synergies/integration; increase efficiency; reduce operational costs; retain the required diversity of test environments; and facilitate multiple uses of equipment, facilities, ranges, and people. Hill AFB and DTRA NCR technical facilities recommended for relocation have lower quantitative MV than Eglin AFB in all functional areas.

This recommendation includes Research, D&A, and T&E conventional armament capabilities in the Air Force and DTRA NCR. It consolidates armament activities within the Air Force and promotes jointness with DTRA NCR. It also enables technical synergy, and positions the DoD to exploit center-of-mass scientific, technical, and acquisition expertise within the RDAT&E community that currently resides as DoD specialty locations. This recommendation directly supports the Department's strategy for transformation by moving and consolidating smaller W&A efforts into high military value integrated centers, and by leveraging synergy among RD&A, and T&E activities. Capacity and military value data established that Eglin AFB is already a full-service, integrated W&A RDAT&E center. Relocation of W&A D&A In-Service Engineering (ISE) from Hill AFB to Eglin AFB will increase life cycle synergy and integration. ISE encompasses those engineering activities that provide for an "increase in capability" of a system/sub-system/component after Full Operational Capability has been declared. ISE activities mesh directly with on-going RDAT&E at Eglin AFB.

Relocation of DTRA NCR W&A technical capabilities will increase life cycle synergy and integration at Eglin AFB. Conventional armament capabilities possessed by DTRA NCR directly complement on-going RDAT&E at Eglin AFB. Cost savings from the relocation of DTRA NCR to Eglin AFB will accrue largely through the elimination of the need for leased

Weapons & Armaments

China Lake pg #2



No

30EC

of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Create an Air Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation Center

Recommendation: Realign Hill Air Force Base, UT, by relocating Weapons and Armaments In-Service Engineering Research, Development & Acquisition, and Test and Evaluation to Eglin Air Force Base, FL. Realign Fort Belvoir, VA, by relocating Defense Threat Reduction Agency National Command Region conventional armament Research to Eglin Air Force Base, FL.

Justification: Eglin is one of three core integrated weapons and armaments RDAT&E centers (with China Lake, CA, and Redstone Arsenal, AL) with high MV and the largest concentration of integrated technical facilities across all three functional areas. Eglin AFB has a full spectrum array of Weapons & Armaments (W&A) Research, Development & Acquisition, and Test & Evaluation (RDAT&E) capabilities. Accordingly, relocation of Hill AFB and DTRA NCR W&A capabilities will further complement and strengthen Eglin as a full spectrum W&A RDAT&E Center.

The overall impact of this recommendation will be to: increase W&A life cycle and mission related synergies/integration; increase efficiency; reduce operational costs; retain the required diversity of test environments; and facilitate multiple uses of equipment, facilities, ranges, and people. Hill AFB and DTRA NCR technical facilities recommended for relocation have lower quantitative MV than Eglin AFB in all functional areas.

This recommendation includes Research, D&A, and T&E conventional armament capabilities in the Air Force and DTRA NCR. It consolidates armament activities within the Air Force and promotes jointness with DTRA NCR. It also enables technical synergy, and positions the DoD to exploit center-of-mass scientific, technical, and acquisition expertise within the RDAT&E community that currently resides as DoD specialty locations. This recommendation directly supports the Department's strategy for transformation by moving and consolidating smaller W&A efforts into high military value integrated centers, and by leveraging synergy among RD&A, and T&E activities. Capacity and military value data established that Eglin AFB is already a full-service, integrated W&A RDAT&E center. Relocation of W&A D&A In-Service Engineering (ISE) from Hill AFB to Eglin AFB will increase life cycle synergy and integration. ISE encompasses those engineering activities that provide for an "increase in capability" of a system/sub-system/component after Full Operational Capability has been declared. ISE activities mesh directly with on-going RDAT&E at Eglin AFB.

Relocation of DTRA NCR W&A technical capabilities will increase life cycle synergy and integration at Eglin AFB. Conventional armament capabilities possessed by DTRA NCR directly complement on-going RDAT&E at Eglin AFB. Cost savings from the relocation of DTRA NCR to Eglin AFB will accrue largely through the elimination of the need for leased

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space, and by virtue of the fact that Eglin AFB can absorb the DTRA NCR (and Hill AFB) functions without the need for MILCON.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $2.7M. The net of all costs and savings to the Department during the implementation period is a savings of $4.9M. Annual recurring savings to the Department after implementation are $1.4M with payback expected in 2 years. The net present value of the costs and savings to the Department over 20 years is a savings of $17.9M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 64 jobs (33 direct jobs and 31 indirect jobs) over the 2006-2011 period in the Ogden-Clearfield, UT, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 114 jobs (67 direct and 47 indirect jobs) over the 2006-2011 period in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: Additional operations may impact archeological sites at Eglin AFB and restrict operations. Additional operations may compound the need for explosive safety waivers at Eglin AFB. Additional operations may further impact threatened and endangered species and/or critical habitats at Eglin AFB. Modification of Eglin AFB's treatment works may be necessary. This recommendation may impact wetlands at Eglin AFB. This recommendation has no impact on air quality; dredging; marine mammals, resources, or sanctuaries; noise; or water resources. This recommendation will require spending approximately less than $0.05M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Create an Integrated Weapons & Armaments Specialty Site for Guns and Ammunition

Recommendation: Realign the Adelphi Laboratory Center, MD, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

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No Impact

CHINA LAKE
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CHINA LAKE gun + ammo RDA → ?? Picatinny Arsenal

space, and by virtue of the fact that Eglin AFB can absorb the DTRA NCR (and Hill AFB) functions without the need for MILCON.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $2.7M. The net of all costs and savings to the Department during the implementation period is a savings of $4.9M. Annual recurring savings to the Department after implementation are $1.4M with payback expected in 2 years. The net present value of the costs and savings to the Department over 20 years is a savings of $17.9M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 64 jobs (33 direct jobs and 31 indirect jobs) over the 2006-2011 period in the Ogden-Clearfield, UT, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 114 jobs (67 direct and 47 indirect jobs) over the 2006-2011 period in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: Additional operations may impact archeological sites at Eglin AFB and restrict operations. Additional operations may compound the need for explosive safety waivers at Eglin AFB. Additional operations may further impact threatened and endangered species and/or critical habitats at Eglin AFB. Modification of Eglin AFB's treatment works may be necessary. This recommendation may impact wetlands at Eglin AFB. This recommendation has no impact on air quality; dredging; marine mammals, resources, or sanctuaries; noise; or water resources. This recommendation will require spending approximately less than $0.05M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Create an Integrated Weapons & Armaments Specialty Site for Guns and Ammunition

Recommendation: Realign the Adelphi Laboratory Center, MD, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Surface Warfare Center Division Crane, IN, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign the Fallbrook, CA, detachment of Naval Surface Warfare Center Division Crane, IN, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Surface Warfare Center Division Dahlgren, VA, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign the Louisville, KY, detachment of Naval Surface Warfare Center Division Port Hueneme, CA, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Air Warfare Center Weapons Division China Lake, CA, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Surface Warfare Center Division Indian Head, MD, by relocating gun and ammunition Research and Development & Acquisition to Picatinny Arsenal, NJ.

Realign Naval Surface Warfare Center Division Earle, NJ, by relocating weapon and armament packaging Research and Development & Acquisition to Picatinny Arsenal, NJ.

Justification: This recommendation realigns and consolidates those gun and ammunition facilities working in Weapons and Armaments (W&A) Research (R), Development & Acquisition (D&A). This realignment would result in a more robust joint center for gun and ammunition Research, Development & Acquisition at Picatinny Arsenal, NJ. This location is already the greatest concentration of military value in gun and ammunition W&A RD&A.

Picatinny Arsenal is the center-of-mass for DoD's Research, Development & Acquisition of guns and ammunition, with a workload more than an order of magnitude greater than any other DoD facility in this area. It also is home to the DoD's Single Manager for Conventional Ammunition. Movement of all the Services' guns and ammunition work to Picatinny Arsenal will create a joint center of excellence and provide synergy in armament development for the near future and beyond, featuring a Joint Packaging, Handling, Shipping and Transportation (PHS&T) Center, particularly important in this current time of high demand for guns and ammunition by all the services. Technical facilities with lower quantitative military value are relocated to Picatinny Arsenal.

This recommendation includes Research, Development & Acquisition activities in the Army and Navy. It promotes jointness, enables technical synergy, and positions the Department of Defense to exploit center-of-mass scientific, technical, and acquisition expertise within the weapons and armament Research, Development & Acquisition community that currently resides at this DoD specialty location.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $116.3M. The net of all costs and savings to the Department during the implementation period is cost of $81.2M. Annual recurring savings to the Department after implementation are $11.3M with a payback expected in 13 years. The net present value of the costs and savings to the Department over 20 years is a savings of $32.6M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 11 jobs (5 direct jobs and 6 indirect jobs) over the 2006-2011 period in Bakersfield, CA, Metropolitan Statistical Area which is less than 0.1 percent of economic area employment. ?

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 83 jobs (43 direct jobs and 40 indirect jobs) over the 2006-2011 period in the Bethesda-Frederick-Gaithersburg, MD, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 421 jobs (289 direct jobs and 132 indirect jobs) over the 2006-2011 period in Martin County, IN, economic area, which is 4.9 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 126 jobs (67 direct jobs and 59 indirect jobs) over the 2006-2011 periods in the Edison, NJ, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 506 jobs (296 direct jobs and 210 indirect jobs) over the 2006-2011 periods in the Louisville, KY-IN, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 302 jobs (146 direct jobs and 156 indirect jobs) over the 2006-2011 periods in the San Diego-Carlsbad-San Marcos, CA, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 76 jobs (43 direct jobs and 33 indirect jobs) over the 2006-2011 periods in the Washington-Arlington-Alexandria, DC-VA-MD-WV, Metropolitan Division, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 202 jobs (93 direct jobs and 109 indirect jobs) over the 2006-2011 periods in the King George County, VA, economic area, which is 1.4 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: This recommendation is expected to impact air quality at Picatinny, which is in severe non-attainment for Ozone. This recommendation may have a minimal effect on cultural resources at Picatinny. Additional operations may further impact threatened/endangered species at Picatinny, leading to additional restrictions on training or operations. This recommendation has no impact on dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; waste management; or wetlands. This recommendation will require spending approximately $0.3M for environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Defense Research Service Led Laboratories

Recommendation: Close the Air Force Research Laboratory, Mesa City, AZ. Relocate all functions to Wright Patterson Air Force Base, OH.

Realign Air Force Research Laboratory, Hanscom, MA, by relocating the Sensors Directorate to Wright Patterson Air Force Base, OH, and the Space Vehicles Directorate to Kirtland Air Force Base, NM.

Realign Rome Laboratory, NY, by relocating the Sensor Directorate to Wright Patterson Air Force Base, OH, and consolidating it with the Air Force Research Laboratory, Sensor Directorate at Wright Patterson Air Force Base, OH.

Realign Air Force Research Laboratory, Wright Patterson Air Force Base, OH, by relocating the Information Systems Directorate to Hanscom Air Force Base, MA.

Realign Army Research Laboratory Langley, VA, and Army Research Laboratory Glenn, OH, by relocating the Vehicle Technology Directorates to Aberdeen Proving Ground, MD.

Realign the Army Research Laboratory White Sands Missile Range, NM, by relocating all Army Research Laboratory activities except the minimum detachment required to maintain the Test and Evaluation functions at White Sands Missile Range, NM, to Aberdeen Proving Ground, MD.

Justification: This recommendation realigns and consolidates portions of the Air Force and Army Research Laboratories to provide greater synergy across technical disciplines and functions. It does this by consolidating geographically separate units of the Air Force and Army Research Laboratories.

China Lake
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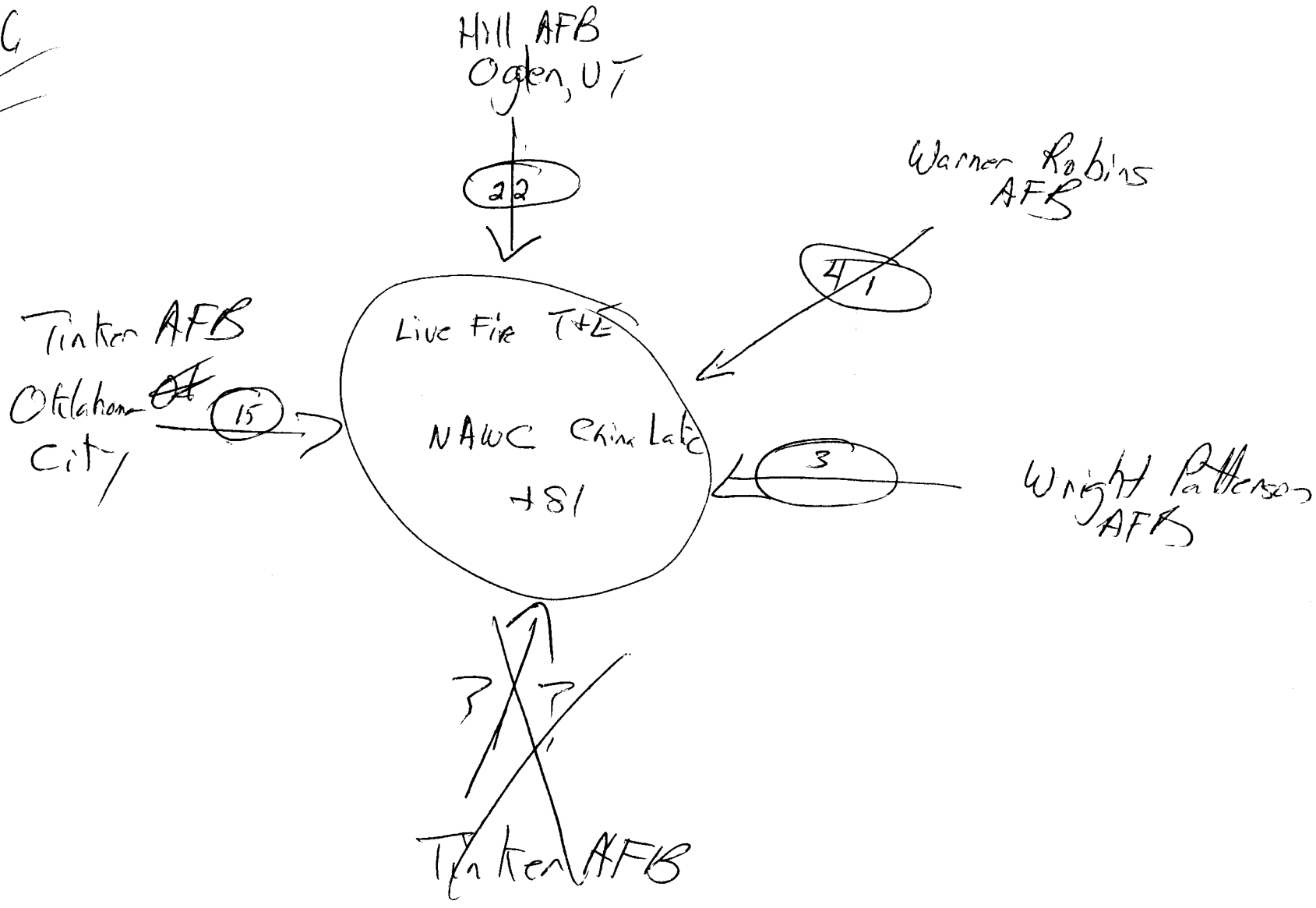

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: An Air Conformity Analysis and a New Source Review and permitting effort is required at Aberdeen. This recommendation may impact cultural resources and threatened and endangered species at Aberdeen. Additional operations at Hanscom and Kirtland may impact cultural sites, which may constrain operations. This recommendation may require building on constrained acreage at Hanscom. Additional operations at Wright Patterson may further impact the Indiana Bat, a threatened and endangered species. Additional operations at Hanscom, Kirtland, and Wright Patterson may impact wetlands, which may restrict operations. This recommendation has no impact on air quality; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; waste management; or water resources. This recommendation requires spending approximately $0.4M for waste management and environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Establish Centers for Fixed Wing Air Platform Research, Development & Acquisition, Test & Evaluation

Recommendation: Realign Tinker Air Force Base, OK, Robins, Air Force Base, GA, and Hill Air Force Base, UT, by relocating fixed wing related Air Platform Development and Acquisition to Wright Patterson Air Force Base, OH.

Realign Wright Patterson Air Force Base, OH, by relocating fixed wing related Live Fire Test and Evaluation to Naval Air Weapons Station China Lake, CA.

Justification: This recommendation completes the consolidation of all Fixed Wing Air Platform RDAT&E, begun during the previous BRAC rounds, at two principal sites: Naval Air Station (NAS) Patuxent River, MD, and Wright-Patterson Air Force Base (AFB), OH, while retaining several specialty sites. Research and Development & Acquisition will be performed at NAS Patuxent River and Wright-Patterson AFB. Lakehurst will be retained as a dedicated RDAT&E facility for Navy Aircraft Launch and Recovery Equipment and Aviation Support Equipment.

This recommendation includes Research, Development & Acquisition and Test & Evaluation activities in Fixed Wing Air Platforms across the Navy and Air Force. The planned component moves will enhance synergy by consolidating to major sites, preserve healthy competition, leverage existing infrastructure, minimize environmental impact, and effect reasonable homeland security risk dispersal. The relocation of Fixed Wing Air Platform Research was previously accomplished in response to the S&T Reliance Agreements resulting in the consolidation at

Wright Patterson AFB with the maritime related Fixed Wing Air Platform Research consolidated at NAS Patuxent River.

This recommendation consolidates Air Force Development & Acquisition functions currently resident at Logistic Centers (Hill AFB, Tinker AFB, and Robbins AFB) at Wright-Patterson AFB. These moves will increase efficiency by creating RD&A centers with all attendant support activity and a robust acquisition organization available to all Air Force Fixed Wing Air Platform D&A functions.

The consolidation of all Fixed Wing Air Platform Survivability Live Fire T&E at China Lake is driven by the inefficiencies that currently exist between the two sites (Wright Patterson AFB and China Lake), and the potential savings afforded by establishing a single live fire test range for fixed wing air platforms. China Lake has this capability and has been doing similar work related to weapons lethality for many years. This action will increase efficiency by reducing overall manpower requirements while also reducing redundancies that exist across the Live Fire Testing domain.

Payback: The total estimated one-time cost to the Department of Defense to implement this recommendation is $17.7M. The net of all costs and savings to the Department during the implementation period is a cost of $7.9M. Annual recurring savings to the Department after implementation are $2.7M with a payback expected in 9 years. The net present value of the costs and savings to the Department over 20 years is a savings of $17.9M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 43 jobs (22 direct jobs and 21 indirect jobs) over the 2006-2011 period in the Ogden-Clearfield, UT, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 33 jobs (15 direct jobs and 18 indirect jobs) over the 2006-2011 period in the Oklahoma City, OK, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 67 jobs (41 direct jobs and 26 indirect jobs) over the 2006-2011 period in the Warner Robins, GA, Metropolitan Statistical Area, which is 0.1 percent of economic area employment.

Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1 job (3 direct jobs lost and 2 indirect jobs gained) over the 2006-2011 period in the Dayton, OH, Metropolitan Statistical Area, which is less than 0.1 percent of economic area employment.

The aggregate economic impact of all recommended actions on these economic regions of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel.

Environmental Impact: A conformity analysis is required at Wright-Patterson. An initial analysis indicates a conformity determination is not required. Additional operations may impact archeological or historic areas, which may restrict operations. Additional operations at Wright Patterson may further impact the Indiana Bat, a threatened and endangered species. The hazardous waste program at Wright-Patterson will require modification. Additional operations at Wright Patterson may impact wetlands, which may restrict operations. This recommendation has no impact on dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; or water resources. This recommendation will require spending approximately $0.2M for waste management and environmental compliance activities. This cost was included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, and environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

Establish Centers for Rotary Wing Air Platform Development & Acquisition, Test & Evaluation

Recommendation: Realign Wright Patterson Air Force Base, OH, by relocating Air Force Materiel Command V-22 activities in rotary wing air platform development and acquisition to Patuxent River, MD. Realign the Naval Air Engineering Station Lakehurst, NJ, by relocating activities in rotary wing air platform development, acquisition, test and evaluation to Patuxent River, MD. Realign Ft. Rucker, AL, by relocating the Aviation Technical Test Center to Redstone Arsenal, AL, and consolidating it with the Technical Test Center at Redstone Arsenal, AL. Realign Warner-Robins Air Force Base, GA, by relocating activities in rotary wing air platform development and acquisition to Redstone Arsenal, AL.

Justification: This Air Land Sea & Space (ALSS) recommendation realigns and consolidates those activities that are primarily focused on Rotary Wing Air Platform activities in Development, Acquisition, Test and Evaluation (DAT&E). This action creates the Joint Center for Rotary Wing Air Platform DAT&E at the Redstone Arsenal, Huntsville, AL, and enhances the Joint Center at the Naval Air Warfare Center Aircraft Division (NAWCAD), Patuxent River, MD. The end state of this recommendation builds upon existing rotary wing air platform technical expertise and facilities in place at the two principal sites and provides focused support for future aviation technological advances in rotorcraft development.

The planned component moves enhance synergy by consolidating rotary wing work to major sites, preserving healthy competition, and leveraging climatic/geographic conditions and existing infrastructure, minimize environmental impact. These consolidations co-locate aircraft and aircraft support systems with development and acquisition personnel to enhance efficiency and effectiveness of rotary wing air platform design and development activities.

See Pt. Mugu
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Navy Sensors, Electronic Warfare, and Electronics
Research, Development & Acquisition, Test & Evaluation

Recommendation: Realign Naval Air Warfare Center, Weapons Division, Point Mugu, CA. Relocate the Sensors, Electronic Warfare (EW), and Electronics Research, Development, Acquisition, Test & Evaluation (RDAT&E) functions to Naval Air Warfare Center, Weapons Division, China Lake, CA.

Justification: Consolidating the Sensors, EW, and Electronics RDAT&E functions at China Lake will eliminate redundant infrastructure between Point Mugu and China Lake and provide for the more efficient use of the remaining assets including the Electronic Combat Range and other integration laboratories at China Lake.

Payback: The total estimated one-time cost to implement this recommendation is $72.7M. The net of all costs and savings to the Department of Defense during the implementation period is a cost of $50.9M. Annual recurring savings to the Department after implementation are $6.7M with a payback expected in 12 years. The net present value of the costs and savings to the Department over 20 years is a savings to the Department of $16.9M.

Economic Impact on Communities: Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1,075 jobs (479 direct jobs and 596 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA, Metropolitan Statistical Area economic area, which is 0.3 percent of economic area employment. The aggregate economic impact of all recommended actions on this economic region of influence was considered and is at Appendix B of Volume I.

Community Infrastructure Assessment: A review of community attributes indicates no issues regarding the ability of the infrastructure of the communities to support missions, forces, and personnel. There are no known community infrastructure impediments to implementation of all recommendations affecting the installations in this recommendation.

Environmental Impact: An air conformity determination will be needed. Industrial waste management permits may need to be amended and additional water resources may be necessary at China Lake to accommodate new mission. This recommendation has no impact on cultural, archeological, or tribal resources; dredging; land use constraints or sensitive resource areas; marine mammals, resources, or sanctuaries; noise; threatened and endangered species or critical habitat; waste management; or wetlands. This recommendation will require spending approximately less than $0.04M for waste management and environmental compliance activities. These costs were included in the payback calculation. This recommendation does not otherwise impact the costs of environmental restoration, waste management, or environmental compliance activities. The aggregate environmental impact of all recommended BRAC actions affecting the bases in this recommendation has been reviewed. There are no known environmental impediments to implementation of this recommendation.

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Pt. Mugu
NAWC Weapons Div
various RDAT+E

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NAWC
China
Lake

NAVAL AIR WARFARE CENTER, WEAPONS DIVISION/ CHINA LAKE

JULY 11, 2005

INSTALLATION CONCERNS RAISED:

- Significant concerns were expressed over both major realignment recommendation and the associated scenarios. In particular many base civilian employees believe that the Navy should confirm to the SECDEF recommendations, whereas some of the military personnel suggested that the SECDEF recommendations were not consistent with the SECNAV desires and in fact may not have been reviewed at that level.
- As for the sensors/EW recommendation the predominant feeling among the military personnel was that the {see box Lower Right} which involve 369 employees would remain at Pt. Mugu. VCNB. The other parts of sensors/EW would move to China Lake.
- As for the Weapons and Armament recommendation, the major point of confusion was that the scenario in the SECDEF recommendation did not adequately address the numbers and types of personnel that would have to support the sea range. There was universal agreement as to the fact that the Sea Range is a national asset, should remain in active use, and could not be safely or efficiently operated by China Lake personnel. In addition, there was total agreement as to the need to retain target launching and development at Pt. Mugu. We asked China Lake personnel to develop a revised COBRA and scenario that properly reflects the number and type of personnel that are required at each location.
- There seemed to be a fairly broad consensus that the C-130 and P-3 aircraft and their support should remain at Point Mugu to support the sea range. This would avert the need to build a new hanger at China Lake. There was widespread agreement that the F-18s should be consolidated at China Lake. However, the disposition of the EA-6Bs was quite contentious. Some meeting participants advocated moving the EA-6Bs to China Lake, whereas other said that since the Arms and Warfare work should remain at Pt. Mugu, the planes should also be kept there until the EA-6Bs are phased out at the end of the decade. It was recognized that the EA-6B expertise resides at Pt. Mugu.
- We were consistently reminded that in 1992, a combined China Lake/Pt. Mugu command had emerged and that the two facilities wee managed under the same leadership, reporting to NAVAIR. They had eliminated instances of dual management and had wrung out all possible duplication. Furthermore, NAVAIR has already prescribed a goal of a ten percent reduction in operating costs by the beginning of FY 2007.
- We were told that the two principal scenarios were never part of the NAVAIR startedgic plan. It is unknown what the intent of the TJCSG was in developing these two scenarios. This issue was never raised to "NAVAIR Corporate" to confirm that this scenario should be implemented. It was believed that the TJCSG was "gaming" the system.

COMMUNITY CONCERNS RAISED:

- Program Management personnel should be moved from Naval Air Station at Patuxent River, MD to NAWC China Lake. They said this would greatly reduce travel time between the PM offices and the RDT&E personnel. It would also reduce travel time and cost between the PM offices and the aircraft manufacturer, in Arizona. (However, the BRAC staff observes that there appears to have been a conscious Navy-wide decision to keep program managers near the acquisition community/hardware systems command, rather than at the field activities – a practice followed by both
- Army and the Air Force. Examples include C4ISR –SPAWAR San Diego, and Eglin AFB, Redstone Arsenal, and Wright Patterson AFB.
- Implement the two key realignment recommendations as detailed in the SECDEF recommendations.
- China Lake was rated as having the highest military value for the Weapons and Armaments RDAT&E recommendation for acquisition, research, and T&E. And first in two of the three categories for the Sensors/EW and Electronics recommendation. The community said China Lake is the best site to locate for synergism, efficiency, etc.
- The infrastructure, to include water, sewer, schools, housing, and roads presents no insurmountable obstacles, and in fact the schools and their students perform at a level significantly higher than the State average. They pointed out that NAW C China Lake employment dropped nearly in half I the mid-1990s and the proposed growth at this time represents a relatively small increase from Ridgecrest's peak population. They are already proactively planning for the growth.
- They did not object to the other recommendations, even those that represented employment reductions at NAWC China Lake (i.e., NAS Lemoore and Picatinny Arsenal.
- They pointed out that F-18 Growler is the Naval aviation system of the future and it makes no sense to divide that workforce, except they recognized the need to retain the Range and supporting infrastructure at Pt. Mugu. They specifically did not advocate having NAWC personnel shuttling several time each week with their equipment to conduct tests.
- Although recruiting is not necessarily easy, they have a high retention rate and over 80% of the NAWC China Lake retirees stay n the community.
- Housing prices average about $250k, significantly less than at VCNB.
- Shuttle flights between VCNB and NAWC China Lake operate several times per day and only take about 35 minutes. The planes hold about 15 passengers.
- The community observed that the Sensors and Electronic Warfare recommendation RDAT&E Consolidation at China Lake (Tech 0054), DOD used a 5.7% civilian personnel efficiency factor, resulted in a slow payback. They provided us with a revised COBRA that reflected a 15% efficiency factor and a payback in only six years, one-half of the DOD payback period. [However, the

BRAC staff noted that GAO had recommended the consistent use of 5.6%.] This recommendation has a one-time cost of $72.7 M and a NPV savings in 2025 of $83.8 M.

- The community believes that the sea range is vital and is a critical joint service asset that must be preserved. The issue is how many people should be kept at Point Mugu to efficiently and effectively operate the sea range, including San Nicholas Island; range, target development and launching operations.

Epstein

NAVAL AIR WEAPONS STATION CHINA LAKE

China Lake Defense Alliance

Ridgecrest, California

July 2005

OUR REQUESTS

- Support Naval Integrated RDAT&E Center at China Lake Per DOD Recommendations
  - But reject decision to exempt Program Managers from move to China Lake
- Support relocating Sensors, Electronic Warfare and Electronics RDAT&E to China Lake
- Accept recommendations on aircraft intermediate maintenance and guns and ammunition

INTEGRATED RDAT&E CENTER MAKES SENSE

- Meets criteria and SECDEF goals
- Scattering W&A across 10 bases
  - Wastes resources
  - Degrades focus
- Consolidating saves money
- Weapons are small piece of budget
  - Fragmented effort especially unacceptable

INTEGRATED RDAT&E CENTER MAKES SENSE

- Placing one center in each service assures competition of ideas
- Consolidation should be as complete as possible
  - Truncation of functions/number of personnel erodes value of integration

CHINA LAKE IS RIGHT SITE FOR INTEGRATED W&A RDTA&E CENTER

- Highest military value
  - Most complete staff, laboratories and ranges
  - Full spectrum capability to support all aspects of weapons and armament RDAT&E
  - Not encroached, room to grow
- Cost Effective
- Community infrastructure can handle
- No environmental problems

MILITARY VALUE RANK

WEAPONS & ARMAMENTS RDAT&E

ACQ		RESEARCH		T&E	
China Lake	0.4982	China Lake	0.5062	China Lake	0.6391
Dahlgren	0.4669	Indian Head	0.3336	Point Mugu	0.6238
Patuxent River	0.3660	Dahlgren	0.2834	Dahlgren	0.4055
Port Hueneme	0.3103	Patuxent River	0.1826	Patuxent River	0.1074
Indian Head	0.2782	Point Mugu	0.1770	Crane	0.0930
Point Mugu	0.2252	Crane	0.1754	Indian Head	0.0787
Crane	0.2292	Port Hueneme	0.1156	Port Hueneme	0.0622
Seal Beach	0.1424	Seal Beach	0.0375	Seal Beach	0.0564

CHINA LAKE IS RIGHT SITE FOR INTEGRATED W&A RDTA&E CENTER

China Lake selection supports transformation:

- Joint service customers
- Combat aircraft-weapon integration - Level 5 rating by Software Engineering Institute
  - EA-18G EW aircraft and JSF on horizon
- System integration capability beyond weapon-platform

SEA RANGE IS VITAL

- Critical joint service asset that must be preserved
- Issue is how many stay at Mugu-San Nicolas and what moves to China Lake

SEA RANGE ISSUE

- Everything doesn't need to stay at Point Mugu
  - Range/target operators need to be on site
  - Other functions should go to China Lake as recommended by TJCSG per certified China Lake-Pt Mugu-Navy data
- Value in consolidating functions that aren't needed on the Sea Range premises

PROGRAM MANAGEMENT ISSUE

- We disagree with exemption of Program Management Offices from move to China Lake
- We don't challenge exemption of Program Executive Offices
- Decision to exempt PMs not documented by TJCSG

PROGRAM MANAGEMENT ISSUE

If management is at RDAT&E Center:

- Manager access to technical team for better response and decision making
- Staff and support contractor redundancy eliminated
- Manager travel cost offset by reduced technical travel
- Electronic communications maintains ties to headquarters - don't need 'business as usual'
- Puts managers closer to service customers

PROGRAM MANAGEMENT ISSUE

- Management at field locations successful at Eglin AFB, Redstone Arsenal, Wright Patterson AFB (Aircraft) and C4IS-SPAWAR San Diego
- Many joint programs managed at Eglin AFB - JSF at WPAFB (not at Patuxent River)

ELECTRONIC WARFARE SHOULD BE CONSOLIDATED AT CHINA LAKE

- China Lake appropriate location for consolidation
  - Payoff in 6 years vice 12 years (TJCSG used wrong factor in calculations)
  - Split staff inefficient
- China Lake higher overall military value
  - EW competency
- Leverage transition from EA-6B to EA-18G
  - China Lake integration team
- Weapons, EW and platform integration are closely related
  - Co-location promotes synergism

SENSORS, EW & ELECTRONICS MILITARY VALUE

Dev. & Acq.		Research		Test & Eval.	
Pt. Mugu	0.3495	China Lake	0.3594	China Lake	0.5610
China Lake	0.3267	Pt. Mugu	0.2811	Pt. Mugu	0.3103

COMMUNITY

- "Navy town" can handle influx
- BRAC recommendations bring China Lake work force to pre-downsizing level
- Ready for proposed transfers and indirect growth
  - Basic resources in place
    - Water
    - Waste treatment
    - Space for housing, contractors, businesses
  - Plans in place for population upturn
    - Schools
    - Housing
    - Public facilities and support

CONCLUSIONS

We respectfully recommend Commission:

- Approve creation of Naval Integrated Weapons and Armaments RDAT&E Center at China Lake
  - Include Program Management Offices in Center
  - Resist proposals to truncate/reduce moves
- Approve relocation of Sensors, Electronic Warfare and Electronics RDAT&E to China Lake

THANK YOU FOR SERVING COUNTRY ON BRAC COMMISSION

White Paper
Issue for Consideration
Do We Need a Naval Integrated Weapons and Armaments Center at China Lake?

BRAC 2005 Commission Issue for Consideration: The DoD Technical Joint Cross Service Group increased personnel and workload at Naval Air Weapons Station, China Lake by over 50% of the current workforce (+2469 direct jobs), by selecting discrete functions from seven Navy facilities that have been previously consolidated by Service or BRAC Commissions. The creation of a "Naval Integrated Weapons & Armaments RD&A T&E Center at China Lake results in a disruption and weakening to seven Navy facilities that were already consolidated entities, does not close any bases, and increases overhead at a large number of bases to plus-up one base.

Background: The new Naval Integrated Weapons and Armaments Center at China Lake is one element of a large plus-up of work years resulting from the Joint Cross Service Group process. Additionally, NAWC Pt Mugu provides all of its high-end sensors, EW, and electronics RD&A to China Lake. This envisioned "Super Lab," along with the USAF Super Lab at Eglin AFB and the Army Super Lab at Redstone Arsenal, fails to take into account careful consolidations of fixed-wing and rotary aircraft, energetics, and weapons systems integration across the NAVAIR and NAVSEA enterprises.

Specific Issues and Considerations: Seven Navy facilities will provide hundreds of work years to achieve the new mission envisioned at China Lake. However, none of the seven bases will close. For example, NAS Patuxent River is the Navy's leader in fixed-wing and rotary-wing RD&A, T&E and was consolidated as a result of BRAC 93 and 95 to form the *NAVAIR Model*, one center that provides for acquisition and RDT&E, integrated at a principal site to maximize the synergy, efficiency, and effectiveness for full life-cycle development of naval/maritime rotary and fixed-wing aircraft. Movement of 142 personnel from Patuxent River will disrupt aircraft separation simulation and software processes that are organic to and integrally linked to software, simulation, and testing of airframe R&D and design.

Indian Head NSWC provides another example; despite being designated as a joint center of energetics in the DoD BRAC 2005 recommendation, no energetics functions move to Indian Head as a result of this decision. Instead, Indian Head's weapons and armaments RD&A and T&E are directed to move to China Lake. Similar to Patuxent River, energetics, including weapons and armaments RD&A and T&E has been consolidating at Indian Head via the majority of BRAC decisions, including the 1995 decision to relocate the White Oak NSWC underwater munitions functions to Indian Head. Finally, Dahlgren NSWC is designated as a specialty center for the system integration of naval surface weapons systems in the DoD BRAC 2005 recommendation. However, all weapons and armaments RD&A and T&E is also being removed from Dahlgren to China Lake.

Alternative Issues and Considerations:

Consolidated Joint Range at China Lake – Edwards AFB: The Education and Training had three areas of responsibilities, ranges among them. However, not a single range recommendation was forwarded from this group. China Lake's strengths are not based on its technical competencies, but on large and accessible range space. Instead of forcing the work-loading of China Lake from a variety of high military value locations, efforts should be conducted to analyze the consolidation of China Lake to the USAF range architecture, specifically with Edwards AFB. This would alleviate the need to artificially inflate workload and return China Lake to a mission it is suited for: range operations.

Consolidated Joint Energetics at Indian Head NSWC: The Technical Joint Cross Service Group characterized Indian Head NSWC as a "center for energetics" but made no effort to further consolidate redundant and excess energetics capabilities to Indian Head. Specifically, it appears there were no scenarios to consolidate remaining energetics functions at Eglin AFB (HERD), energetics R&D at Picatinny Arsenal, and the energetics pilot plant at China Lake. All three activities represent small energetics capabilities that could be effectively consolidated at Indian Head.

Recommendations:

1. Analyze the viability of China Lake to absorb a large influx of people given workforce recruitment issues, unlikelihood of the majority of personnel to move, and significant and well documented environmental issues, including a paucity of water to support growth.

2. Analyze whether or not China Lake received scrutiny as a closure candidate or as a realignment candidate for consolidation with Edwards AFB or whether its designation as a newly –conceived "Naval Integrated Weapons and Armaments Center" fire-walled China Lake from scrutiny. A joint range using China Lake under the Air Force has precedent and many recent events support this arrangement: Pope and Ft Bragg, Ft. Story and Norfolk, Ft. Eustis and Langley, Lakehurst and McGuire.

3. Analyze joint opportunities for China Lake and advantages of moving China Lake to Air Force control in a joint range arrangement with Edwards AFB.

4. Analyze joint consolidation of energetics at Indian Head by consolidating China Lake's energetics pilot plant to Indian Head.

5. Analyze the impact of moving weapons captive carriage, separation, simulation, and software functions from Patuxent River and the resulting impact of lost technical expertise developed over the past 60 years and the degradation of the NAVAIR model and processes for integrated fixed-wing aircraft design and development.

Navy Region Southwest

One Team. One Voice. One Mission.

NAWS

NAVAL AIR WEAPONS STATION · CHINA LAKE, CALIFORNIA

NAWC

NAVAL AIR WARFARE CENTER

PROGRAM
FOR

BRAC COMMISSION STAFF

10-11 JULY 2005

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COMMANDING OFFICER
NAVAL AIR WEAPONS STATION
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NAVAIR WEAPONS DIVISION HOST:
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COMMANDER
NAVAL AIR WARFARE CENTER WEAPONS DIVISION (NAWCWD)

SUNDAY, 10 JULY

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MR. BRAD HARLOW
DEPUTY, RESEARCH AND ENGINEERING

MS. DORIS SORENSEN
LEAD, DISTINGUISHED VISITORS PLANNING AND RESOURCE OFFICE
CORPORATE OPERATIONS

PROCEED TO NAVAL AIR WEAPONS STATION, MICHELSON LABORATORY

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ACTING EXECUTIVE DIRECTOR
NAVAL AIR WARFARE CENTER WEAPONS DIVISION (NAWCWD)

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1715 DAY ONE WRAP-UP

MONDAY, 11 JULY

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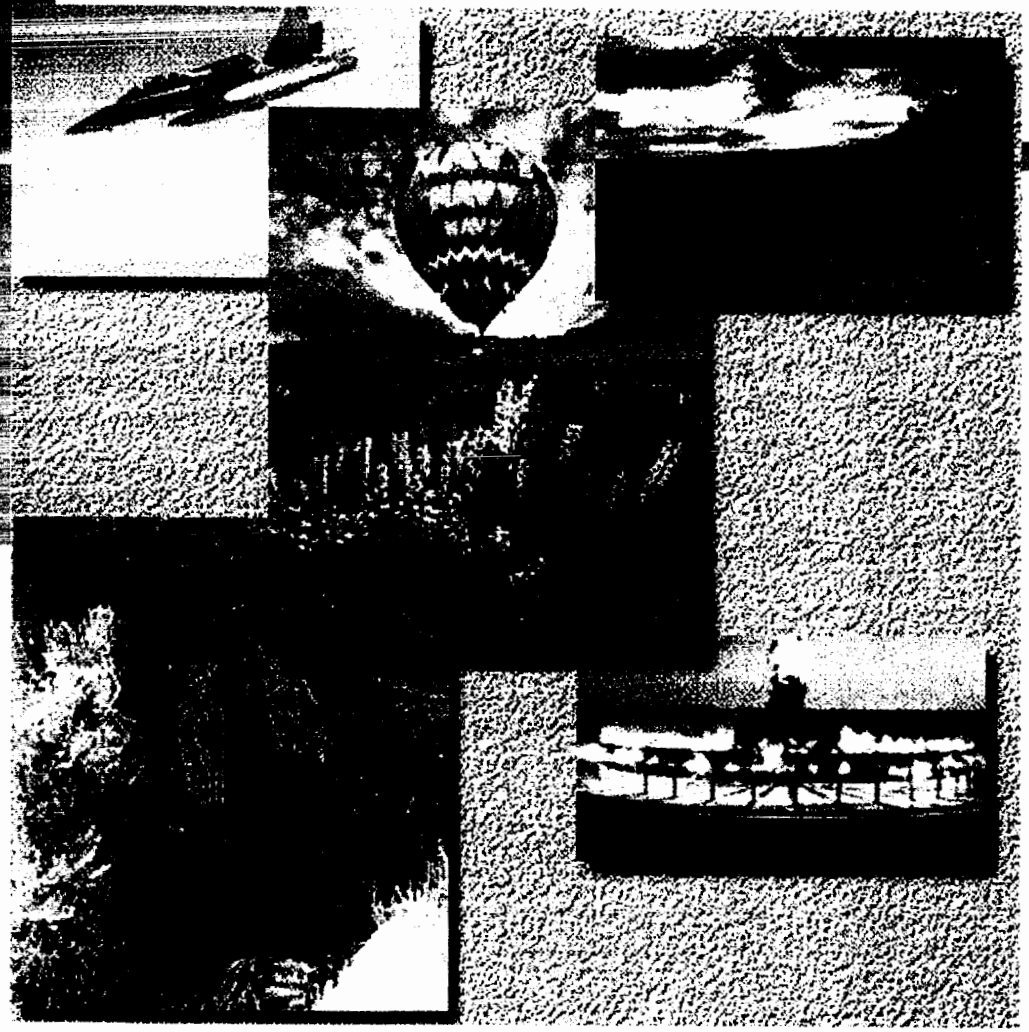
July 2005



NAWS China Lake Overview for the BRAC Commission

Captain Mark Storch
Commanding Officer

China Lake Mission

Support NAVAIR Weapons Division and other tenants:

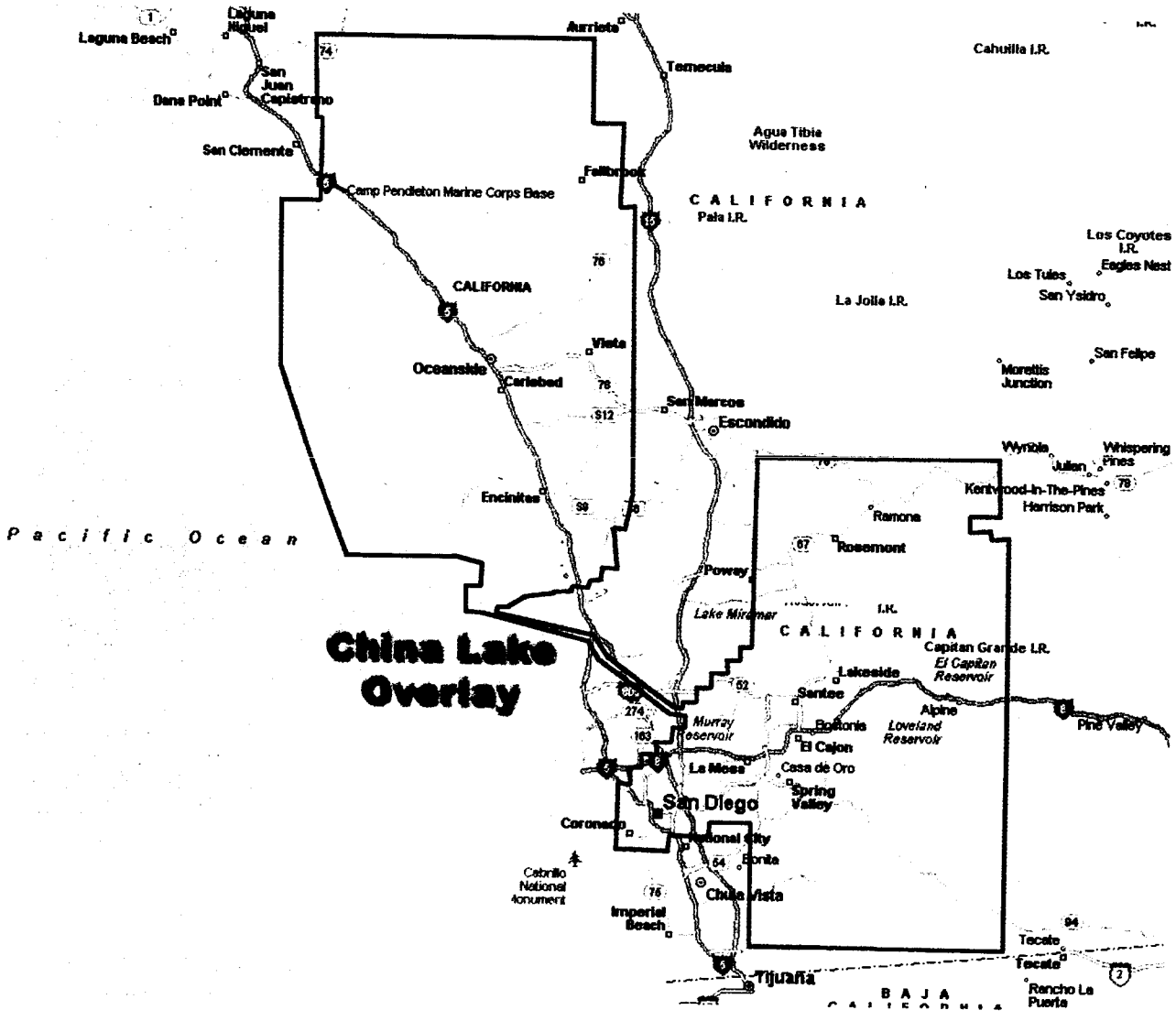
- Safety and Security
- Base Operating Services/Public Works
- Safe Airfield Operations
- Weapons support (magazines and handling)
- Environmental Planning and Execution
- Morale, Welfare, Recreation services

China Lake Vital Statistics

Land Area	1,110,272 acres (1735 sq miles)
(less than 5% disturbed!)	(34% of Navy's land)
Restricted airspace	R-2508 = 19,600 sq miles
(Barstow to Bishop, Nevada to San Joaquin Valley)	
Buildings/Structures	2,326
Square Footage	5,019,659 sq. ft
Roads	386 miles, paved
	333 miles, unpaved
Airfields	1 (3 runways), (+1 expeditionary)
Runways	26,773 lineal ft
Taxiways	20,541 lineal ft

Perspective on Size

■1,110,272 Acres



China Lake facts

- Started as a place to test air-to-ground rockets (Cal-Tech contract with Navy)
- Part of Manhattan Project in WWII
- One endangered (fish) and two threatened (tortoise and bird) species
- Maximum demonstrated NEW – 500K Lbs
- More civilians than military (6:1)
- 7 Federally recognized tribes
- No encroachment

China Lake facts

- Geothermal Power Plant (270MW)
- Subject to START and Chemical Weapons Convention Treaty inspections
- Supersonic Research Track (B-Busters)
- "MRI" facility for Trident boosters
- Dozens of National Register of Historic Places sites and districts
- Coso Rock Art National Historic Landmark

NAWS China Lake Tenants

Navair Weapons Division
Airtevron Three One, VX-31 (Navair)
Airtevron Nine, VX-9 (Optevfor)
Public Works Det / ROICC
Branch Health Clinic
NCIS
Defense Printing Service, Det
Marine Aviation Detachment
DRMO
Defense Investigative Service
Defense Commissary Agency (#1 Small Store in Conus)
Navy Exchange
Personnel Support Activity Detachment
0176 & 0276 Reserve Units
EOD Mobile Unit Three Detachment China Lake
EOD Training and Evaluation Unit One Detachment
SEABEE Well Drilling School
SEABEE Quarry Blasting School

NAWS China Lake
Air Operations

Past Calendar Year:
22,446 sorties:

USN/USMC	Other Military	Air Carrier	General Aviation
20,839	1,190	144	273

Emergency Responses: 62
Field Arrestments: 16

NAWS China Lake
Air Operations

Current and Recent Detachments and Aircraft:

- MH-47/60
- DC-9
- Top-Gun
- HMM-163
- Australian & Canadian F-18
- V-22 (USMC and USAF)
- British Tornados
- British AV-8s
- Typhoon (Eurofighter)
- Italians
- C-130

BRAC Realignment at CL

- Transfer in. Consolidate seven different sites at China Lake for "Weapons and Armament" RDAT&E
- Transfer in. Sensors, EW and Electronics RDAT&E
- Transfer in. USAF Fixed Wing Live Fire testing
- Transfer out "Guns and Ammunition" RDAT&E to Picatinny Arsenal
- Transfer out Aircraft Intermediate Maintenance Activity to Lemoore (consolidation)

Questions?

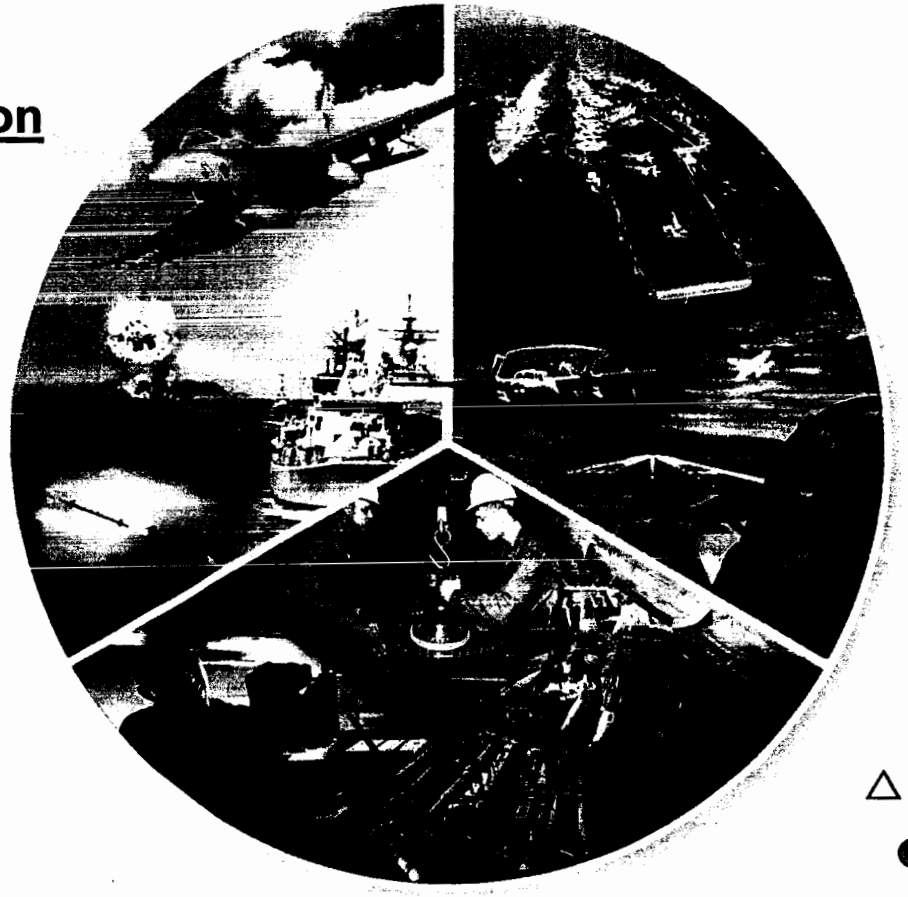
NAVAIR

Naval Air Warfare Center Weapons Division

Overview

NAWC
Scott O'Neill

Naval Air Systems Command



Weapons Division

largely integrated
- China Lake
- Point Mugu

little redundancy

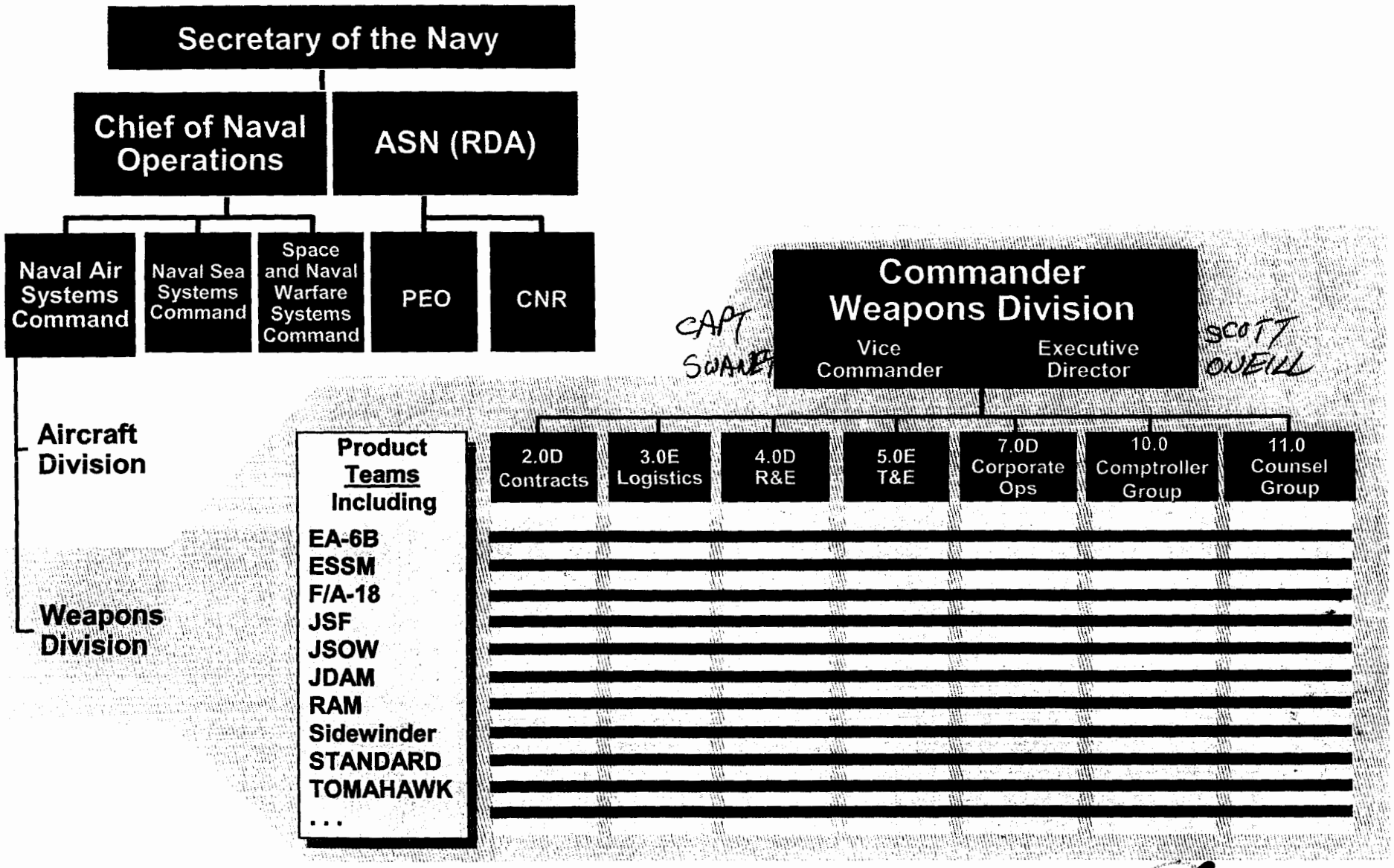
Aircraft Division

- Lakehurst
- Patuxent River
- Orlando

Depots

- Cherry Point
- Jacksonville
- North Island

An Integrated Organization



3.0, 4.0, 5.0 most people here

Brad Harlow 3.0 Dave Jan's 4.0 Steve Mendace 5.0

The Weapons Division Workforce

had been ~8,000

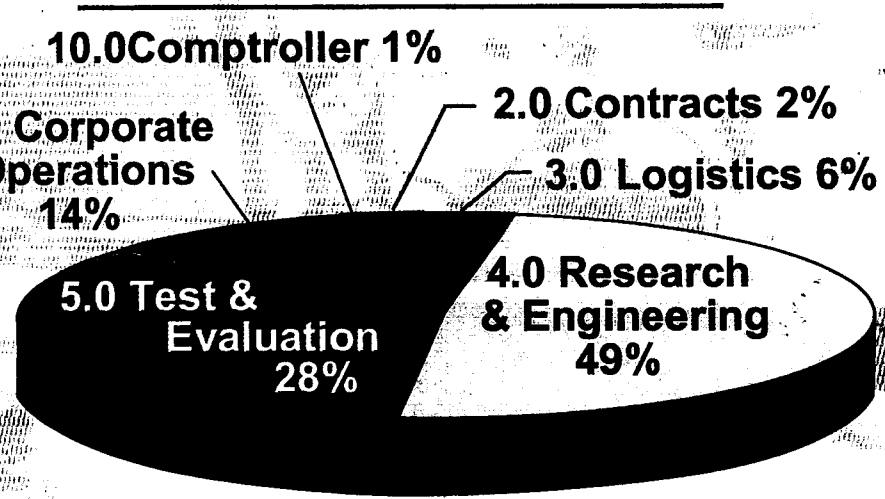
	China Lake	Point Mugu	Totals
*Full-time Civilians	2,589	1,509	4,098
Military Onboard	307	239	546
Contract Support	1,245	173	1,418
WD Total	4,141	1,921	6,062
Other Navy Onboard			939
Workforce Total			**7,001**

was 5400 in 1989

2004 Summary

- WD Payroll- $260-million
- Other Navy Payroll- $63-million
- Contracts Valued at $476-million
- Average Age 47 years
- Average Salary $80,347

Workforce Distribution



As of 1June 2005

support air & surface launch program

Focus is weapons

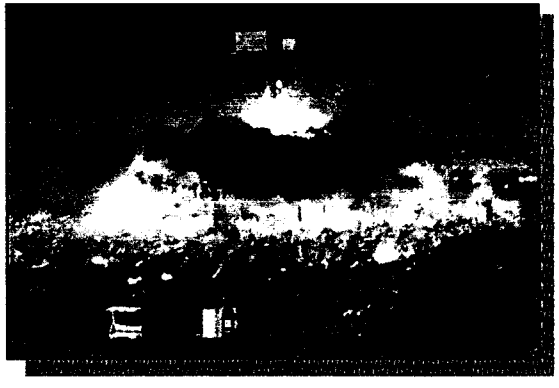
Weapons Division
Full-Spectrum RDT&E

Our Mission is to provide effective, affordable, integrated, interoperable warfare systems to the warfighter, and to support those systems for life.

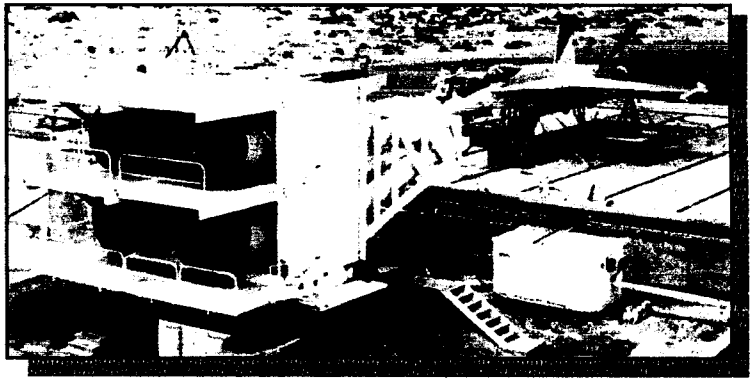
Our Foundation

People

Ranges



Laboratories



What We Do For The Fleet

1970s moved towards integration of planes + weapons

Steve Mendoce heads

Echo Range

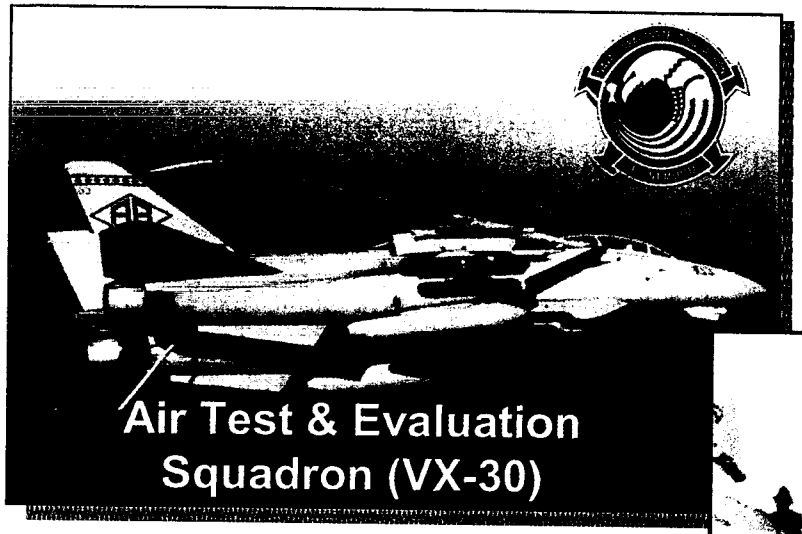
thus Naval Warfare Center

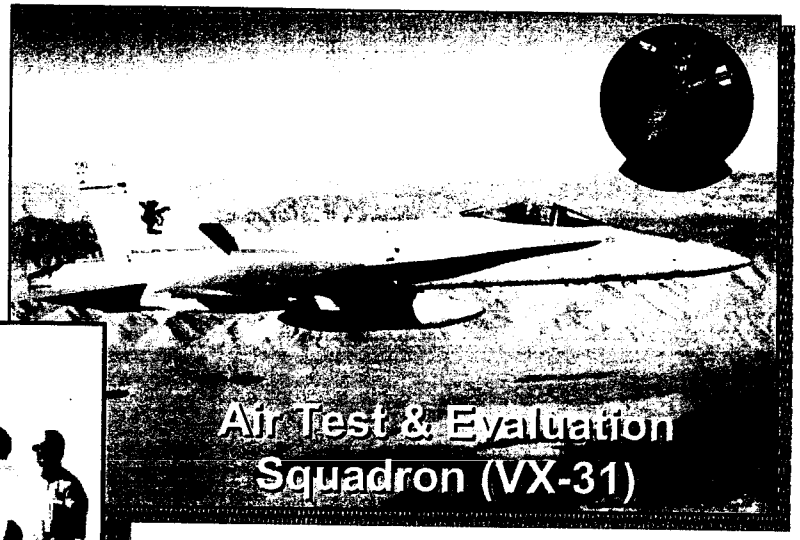
fleet or real entities or simulation

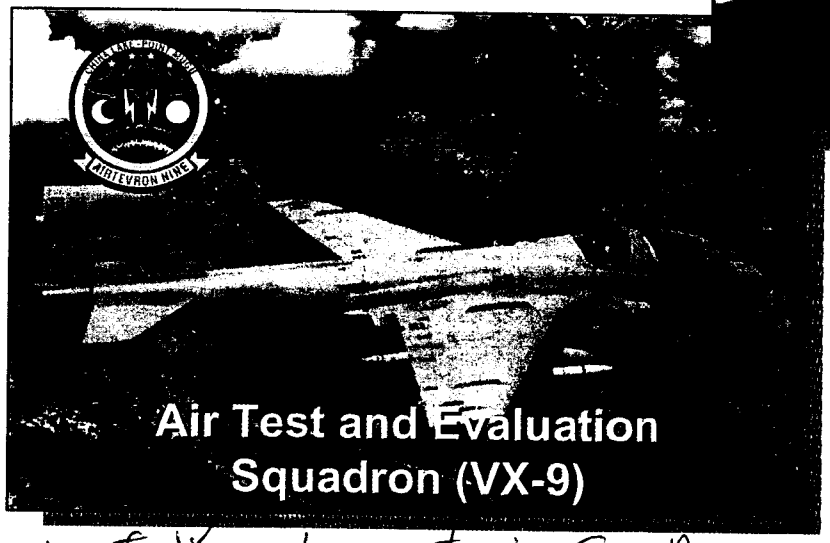
500,000 lbs of ordnance mat'l for Army !!

Do Live Fire Testing for Navy + much Air Force

Military / Civilian Team





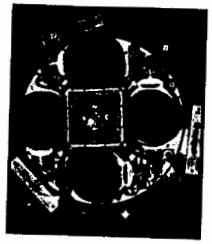


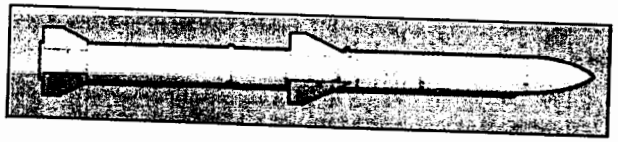
OPTEV N

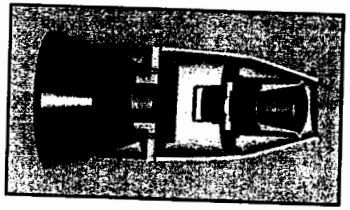
Lots of collaboration ↳ reports in San Diego
ADM Zarban
at China Lake

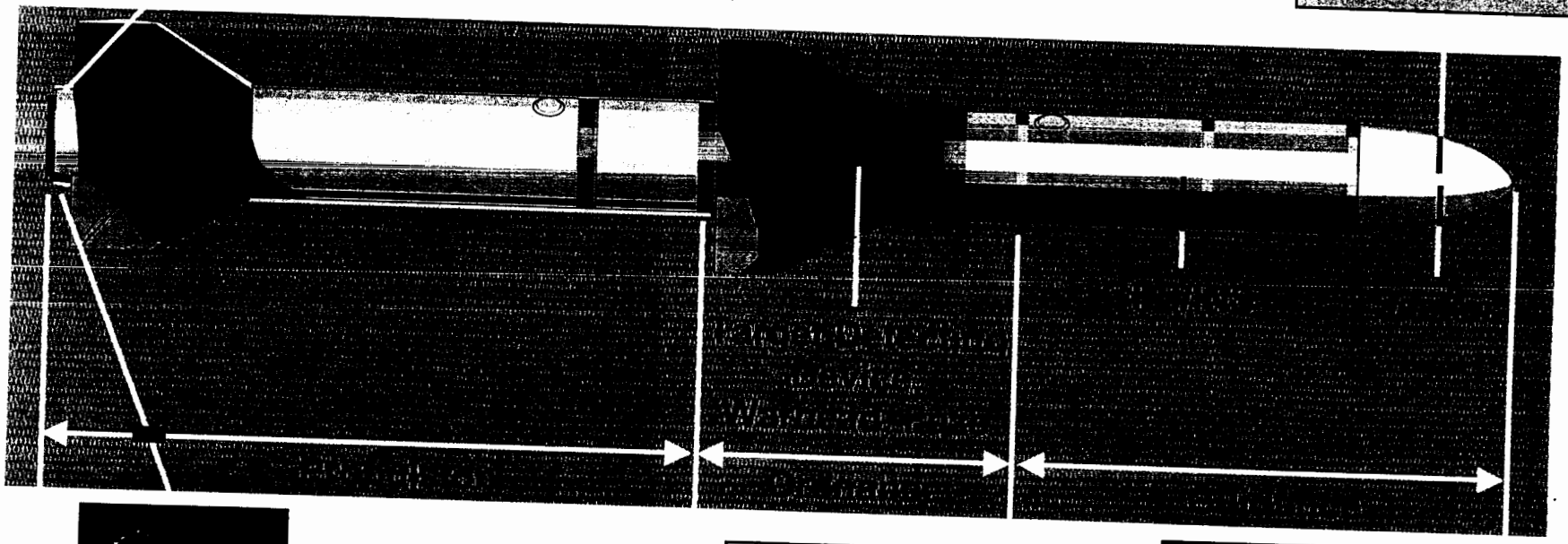
Oversee Marines that are embedded in VX-9 & VX-31

The Weapon and Its Subsystems

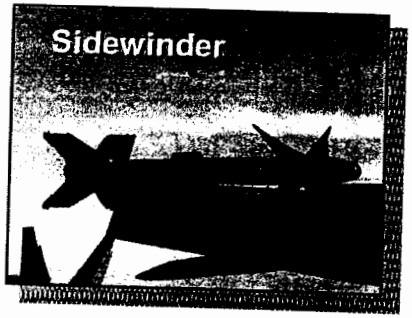


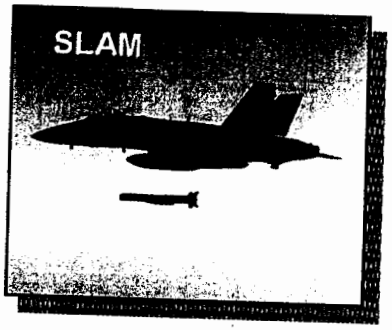


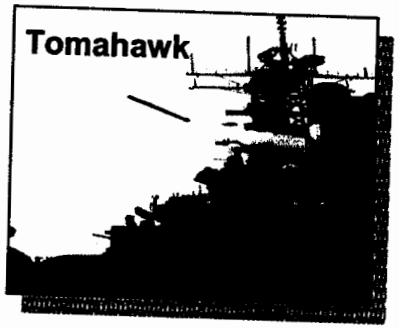


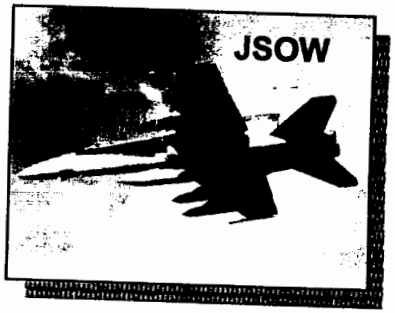


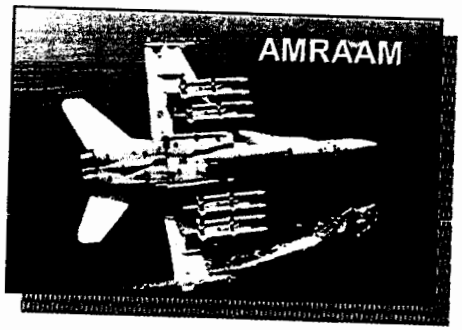
Family of Weapons

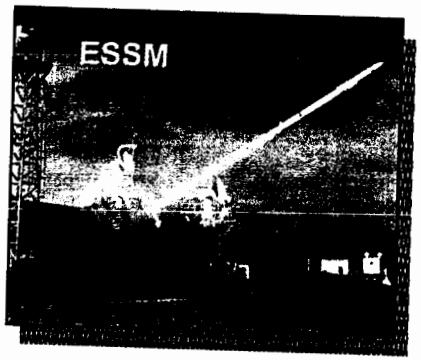


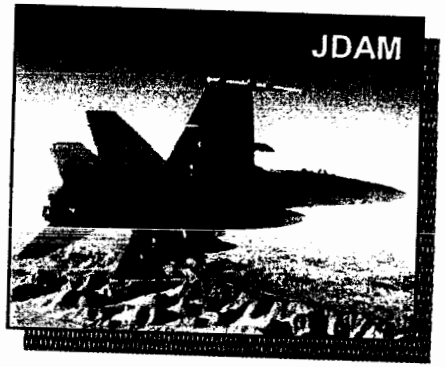


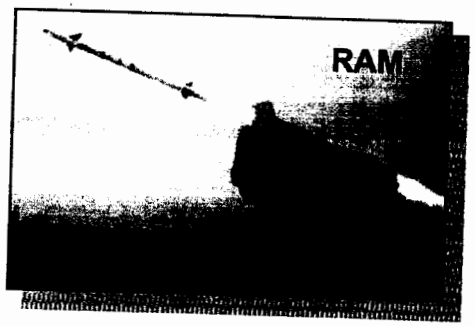


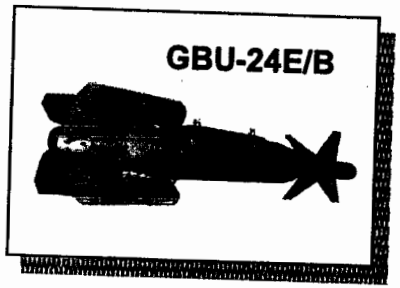






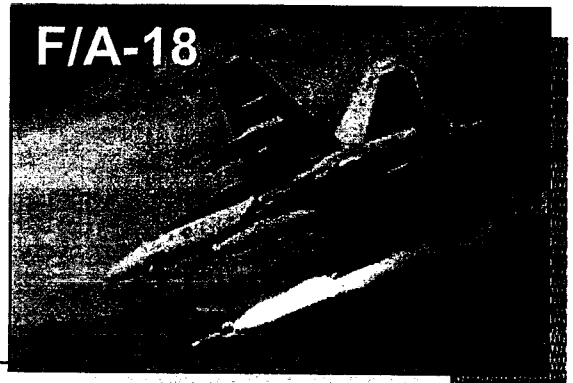


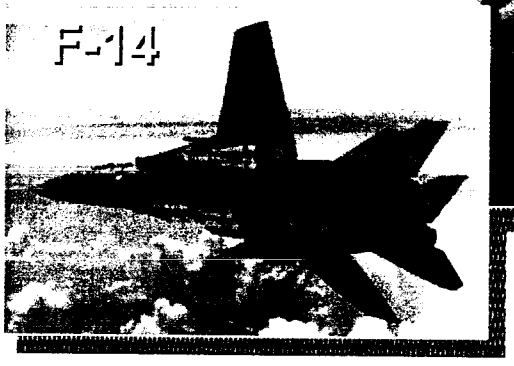


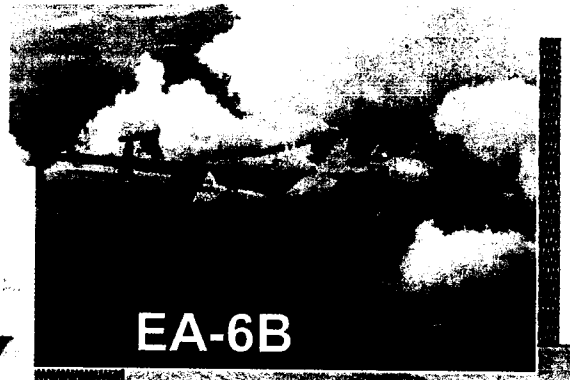


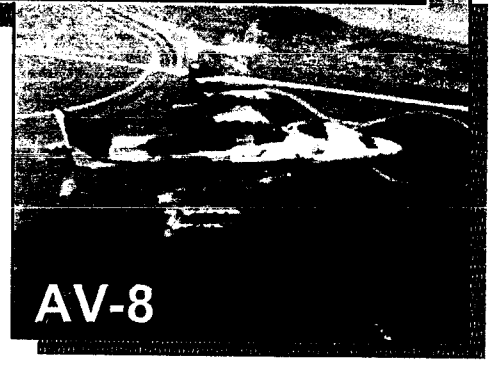
Support every Navy Weapons system!
move support is at China Lake

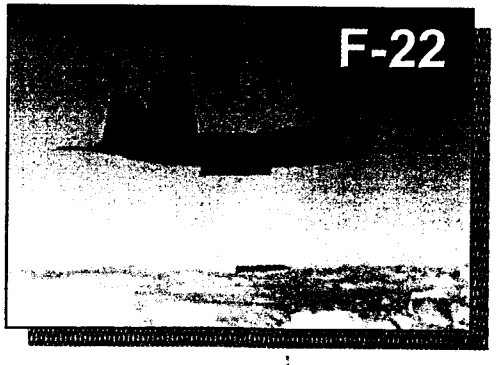
Weapon Platform Integration

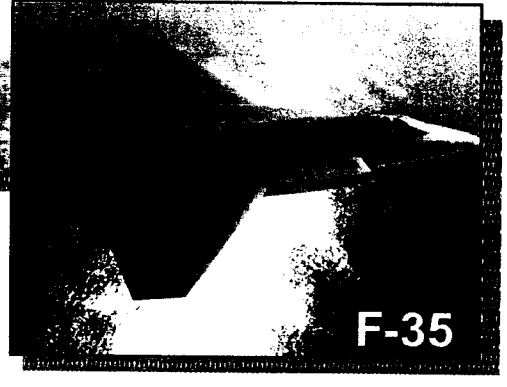






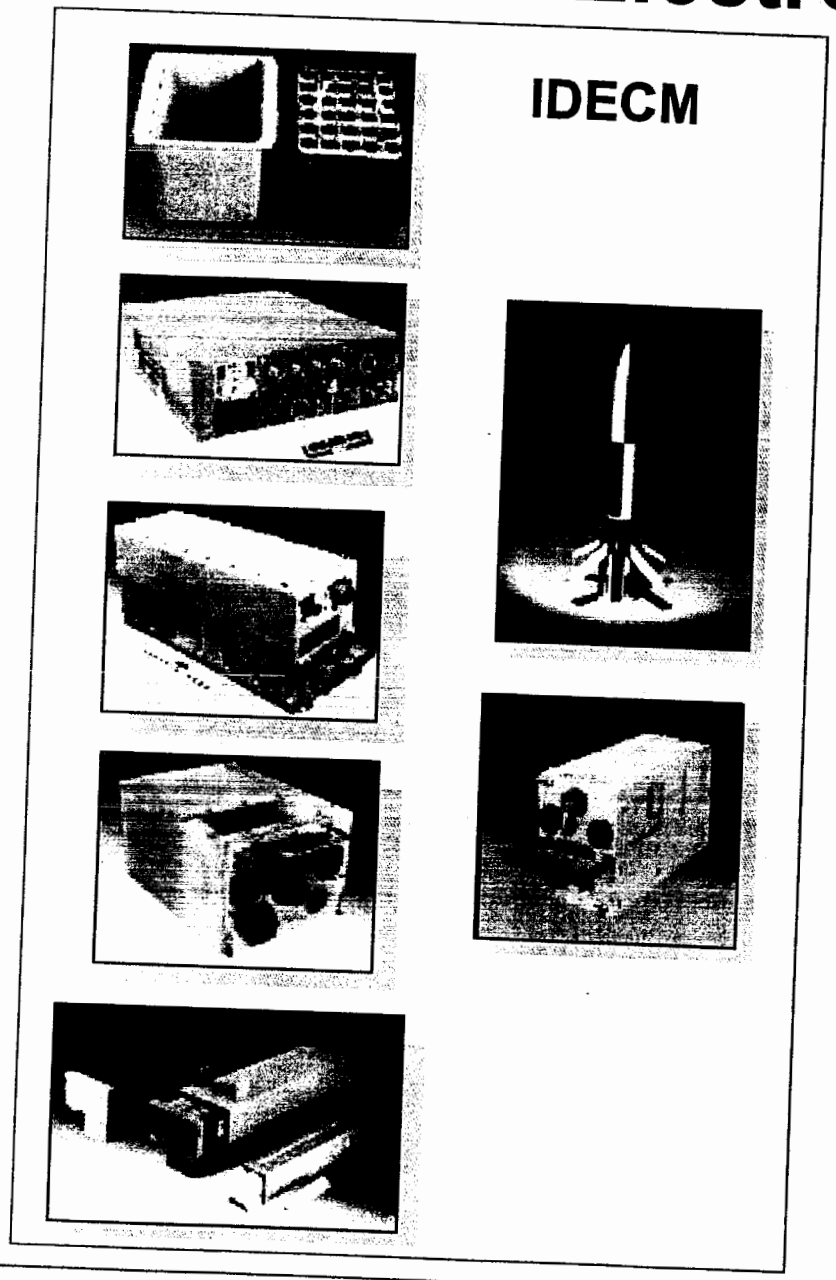






support USAF

Electronic Warfare



Pacific Range Capabilities

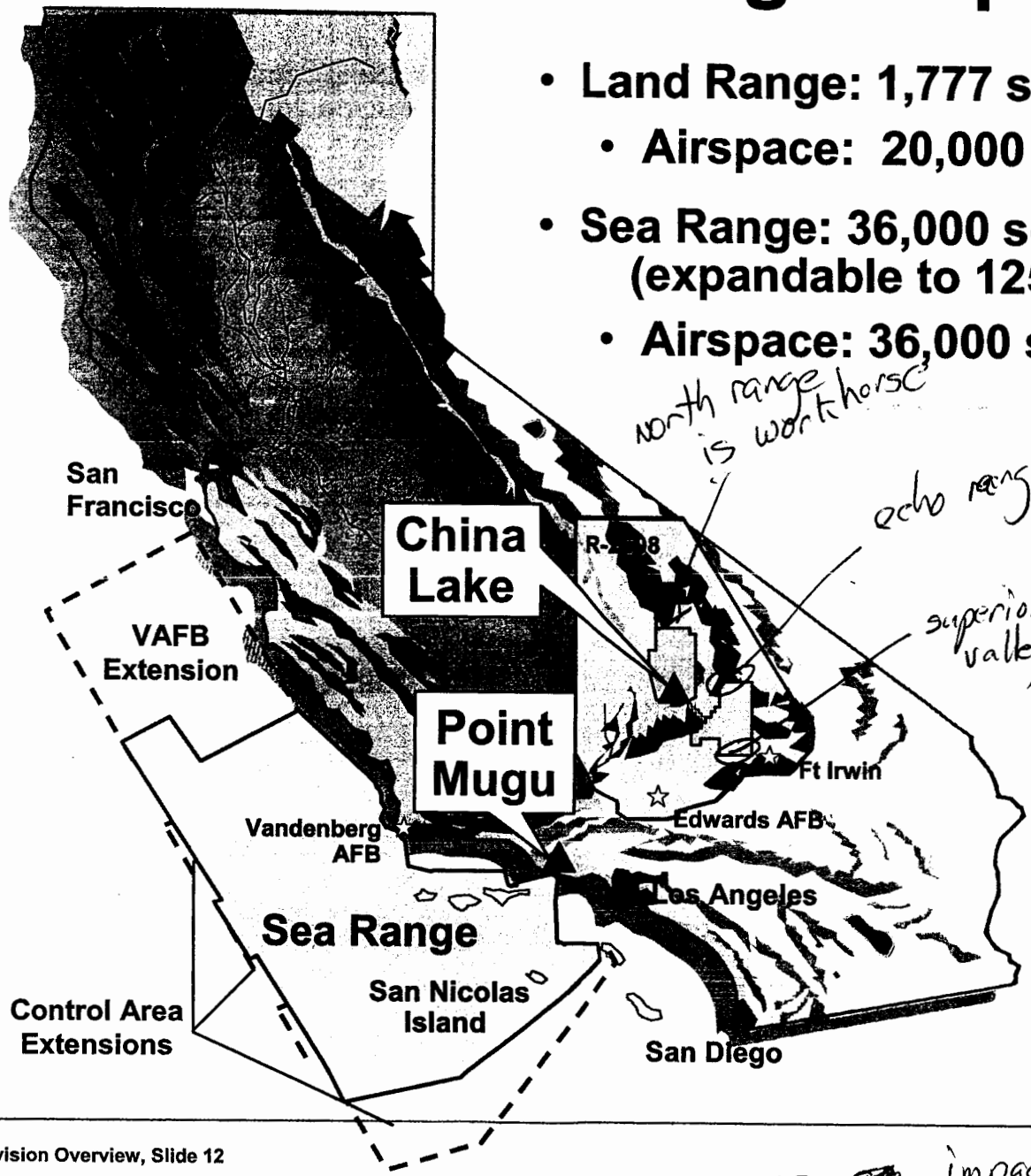
occassional launch from SNI or offshore to China Lake

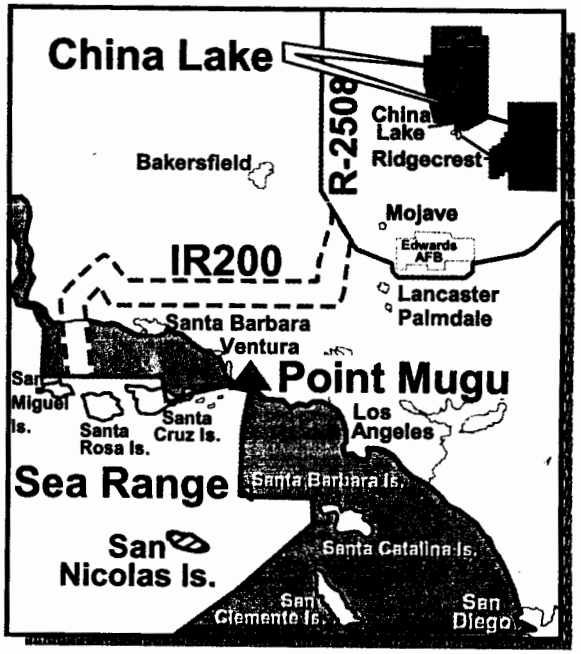
- Land Range: 1,777 square miles
  - Airspace: 20,000 square miles
- Sea Range: 36,000 square miles (expandable to 125,000 square miles)
  - Airspace: 36,000 square miles

north range is workhorse

echo range

superior valley





weapon impact area north range

Land and Sea Range FY04
Testing and Training

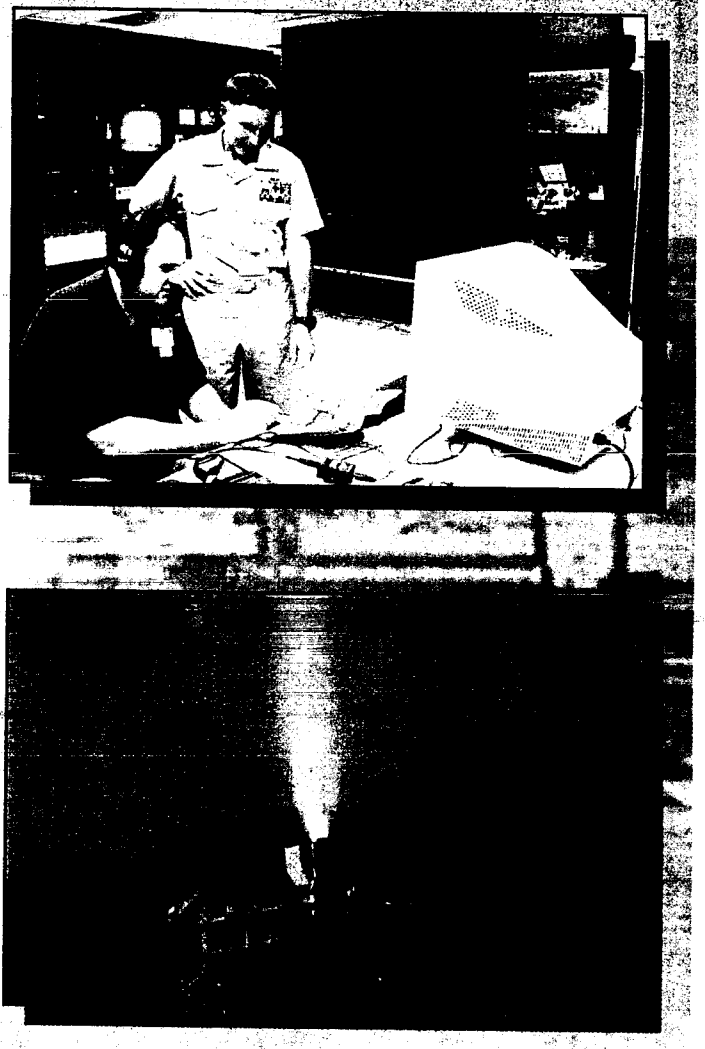
Test / Training events

Land	1,371
Sea	1,138
Electronic Combat Range	603
Total	3,112

Training Sorties

Superior Valley	3,895
R-2508 Complex	19,625

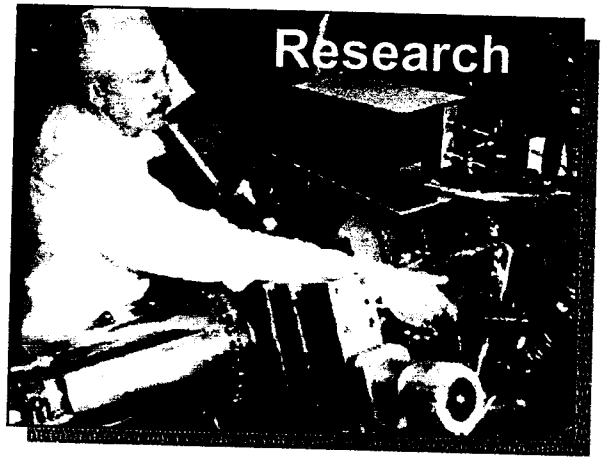
Fleet Training

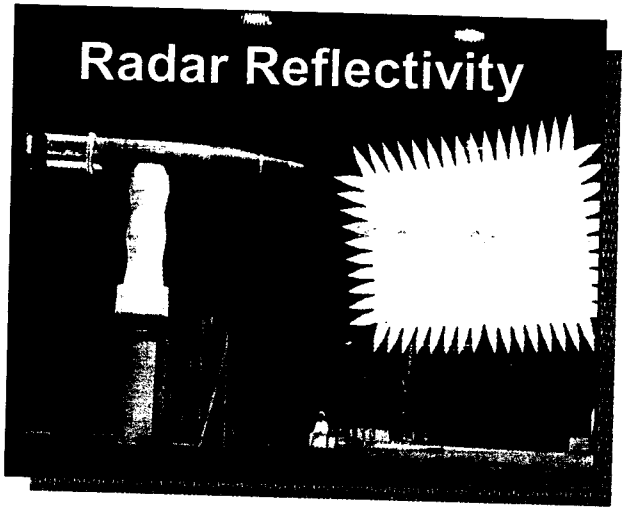


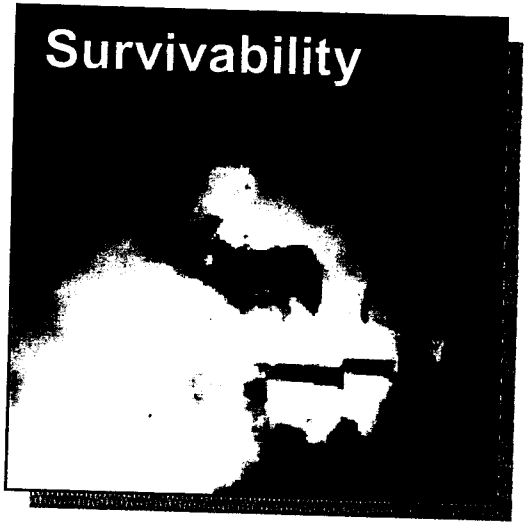
9% Increase Over FY03

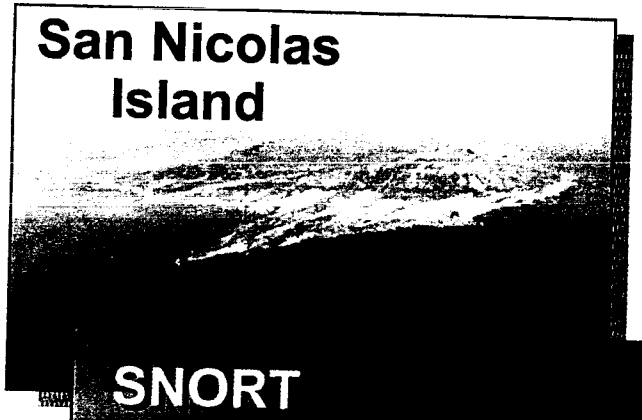
Laboratories and Facilities

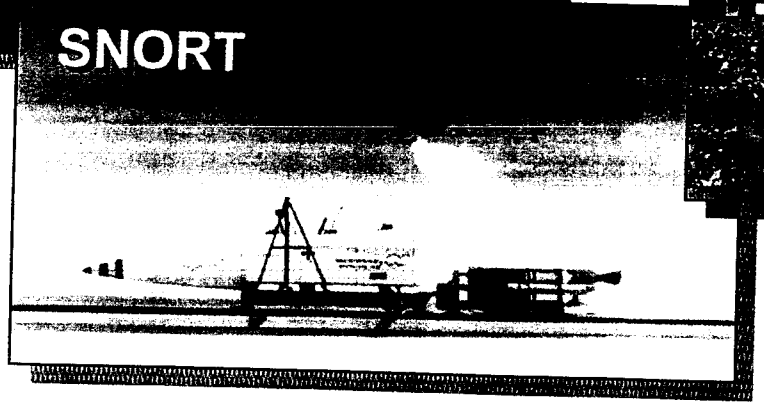
40 Major Facilities

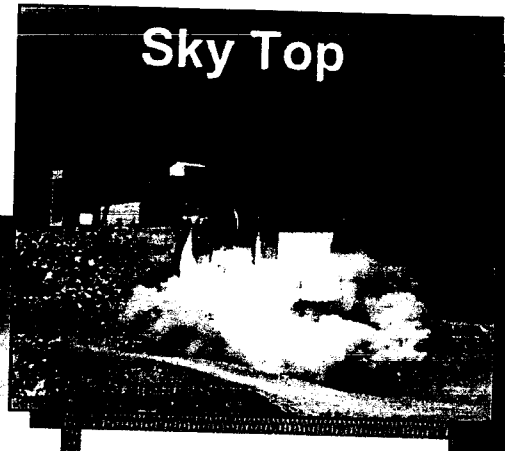


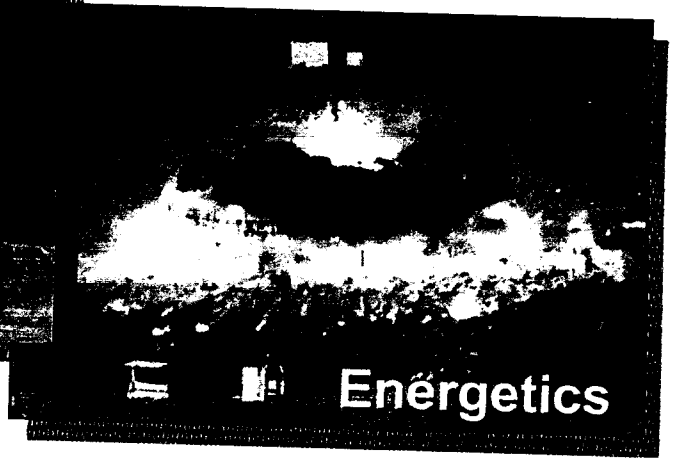






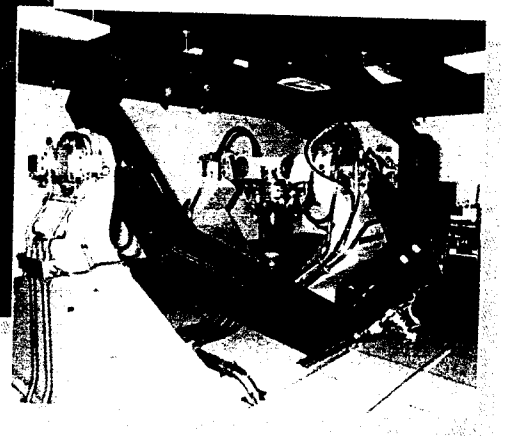




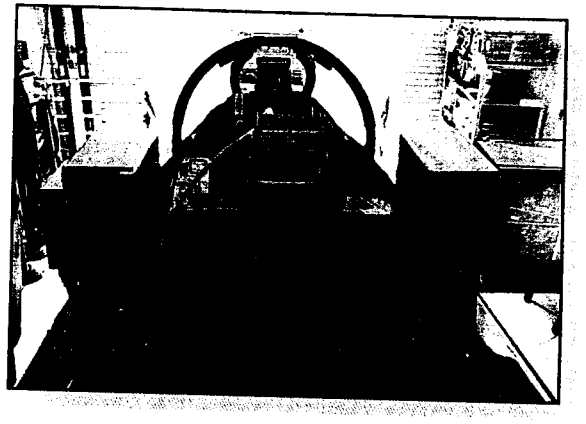


Integrated Modeling and Simulation

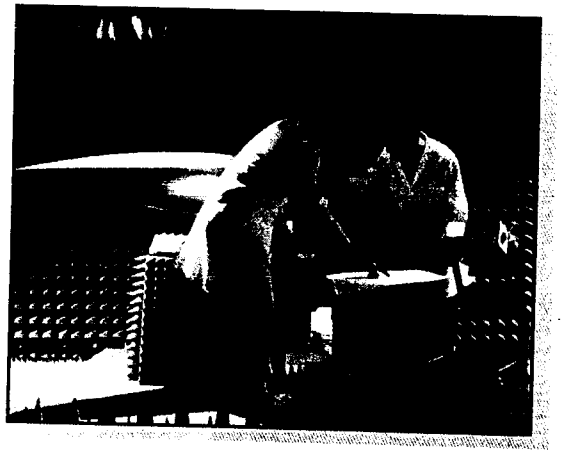
Virtual Prototyping Facility



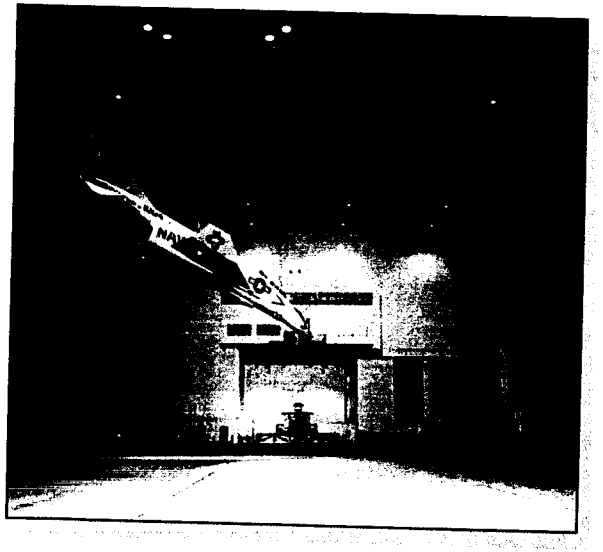
Carco Five-Axis Table



F-14 Weapon Integration



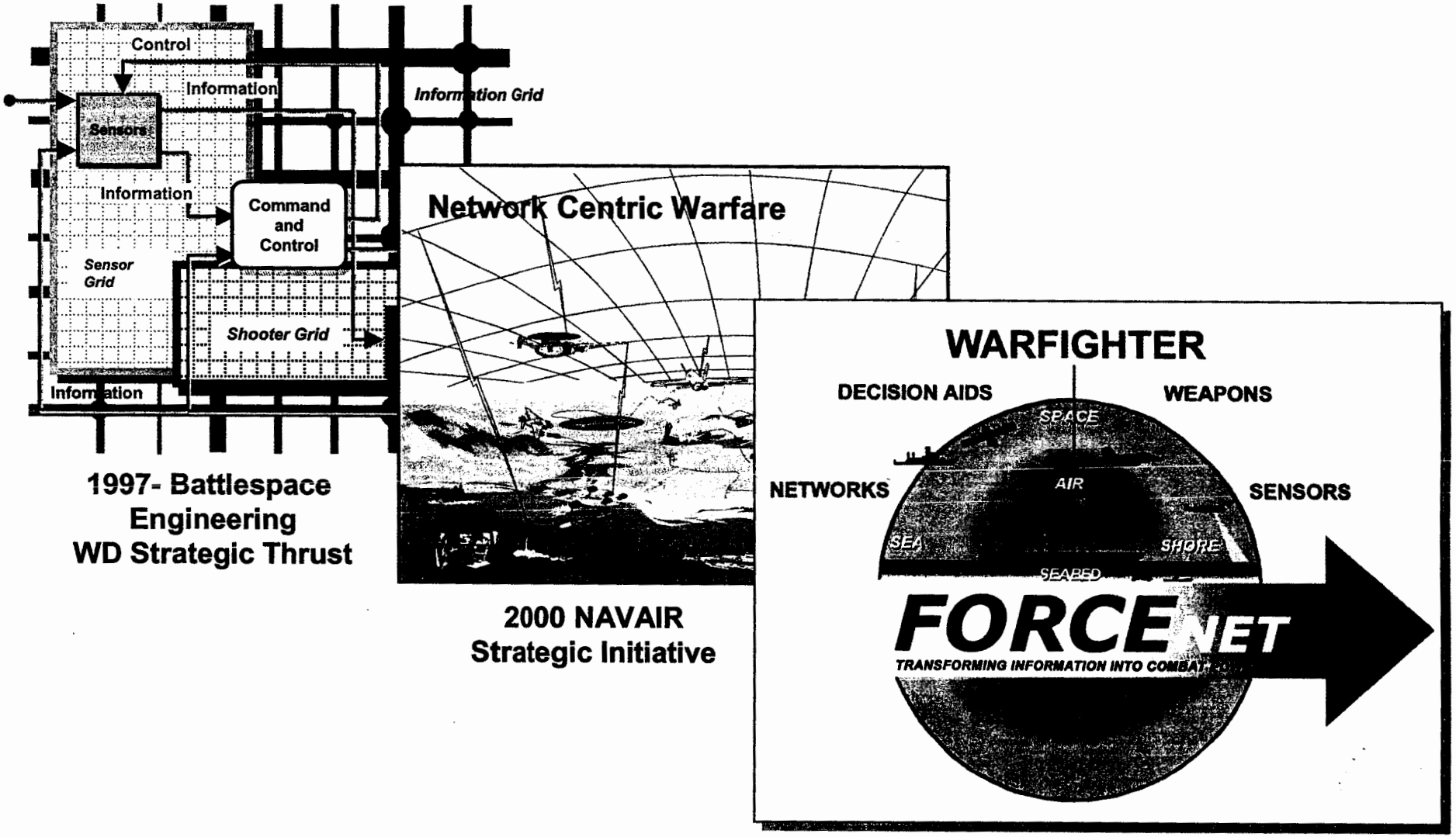
Electronic Combat Simulation and Evaluation Laboratory



MESA

F/A-18 AWL

Force Net Evolution in NAVAIR



1997- Battlespace Engineering WD Strategic Thrust

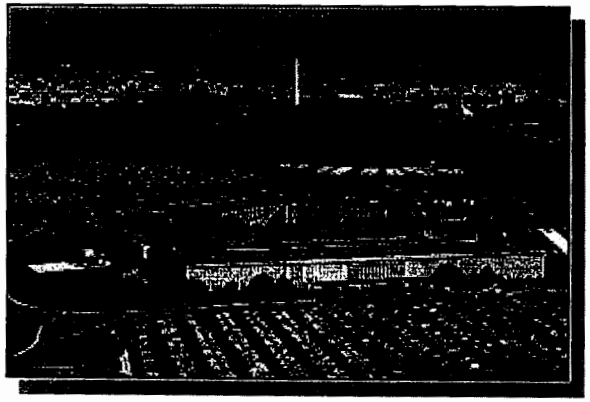
2000 NAVAIR Strategic Initiative

Today

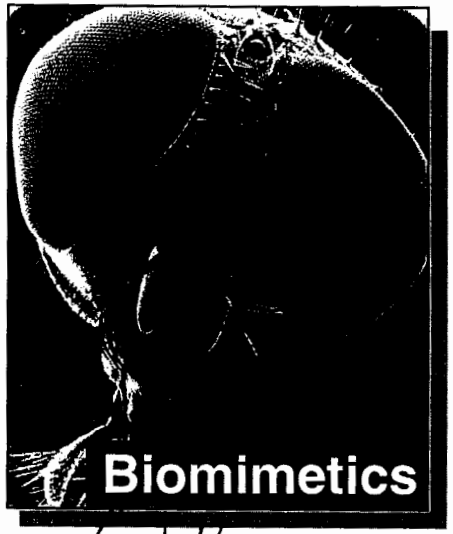
6.1 + 6.2

New Technologies

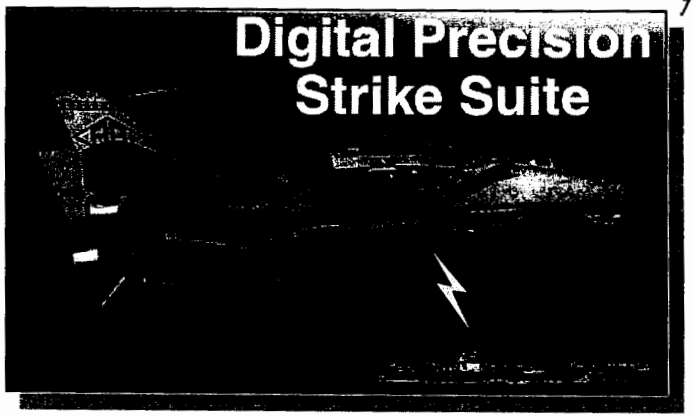
Fleet Response Cont

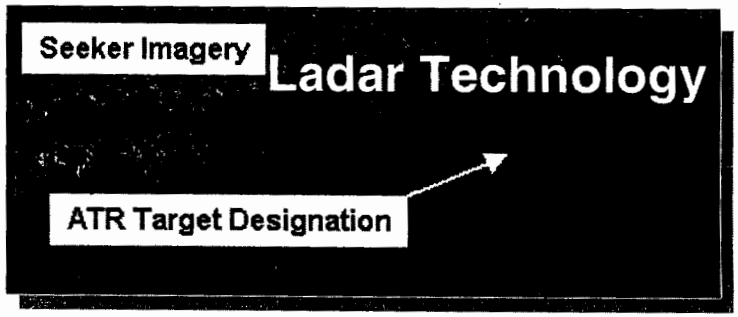


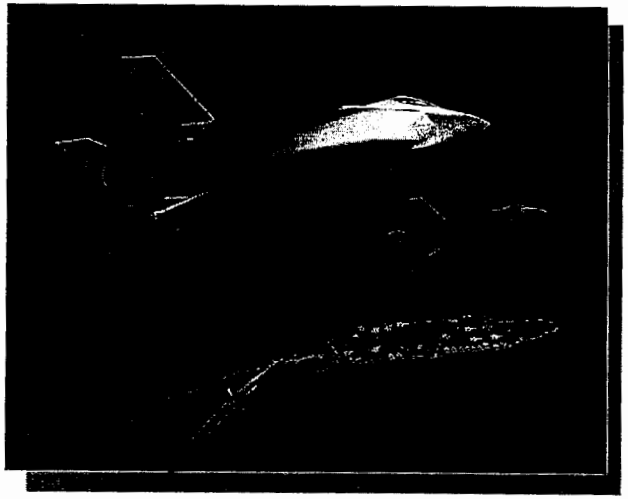
Homeland Defense



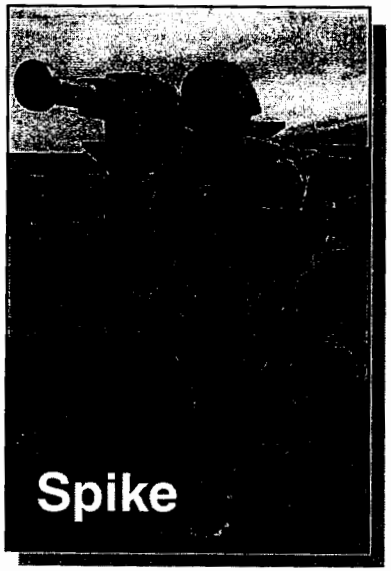
Neat!!

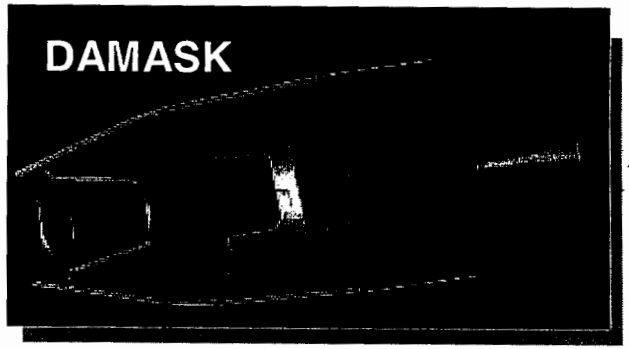






Directed Energy Weapons



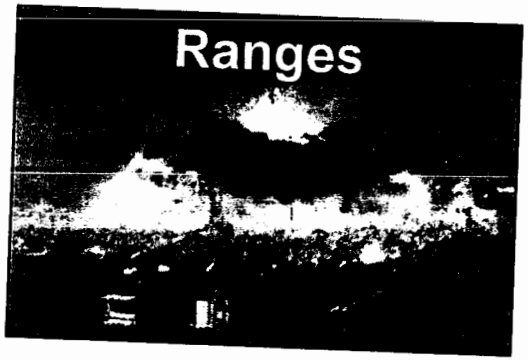


NAVAIR

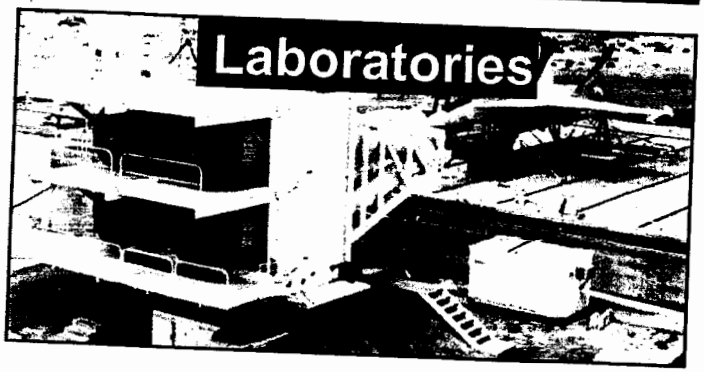
Integrate weapons for UAV

Warfighter Support
Then, Now, and Into the 21st Century

Personnel: 7,001
- Civilians: 4,587
- Military: 996
- Contractors: 1,418



- Land Ranges: 1.1 million acres
- Sea range: 36,000 square miles
- Number of annual test events: 3,112

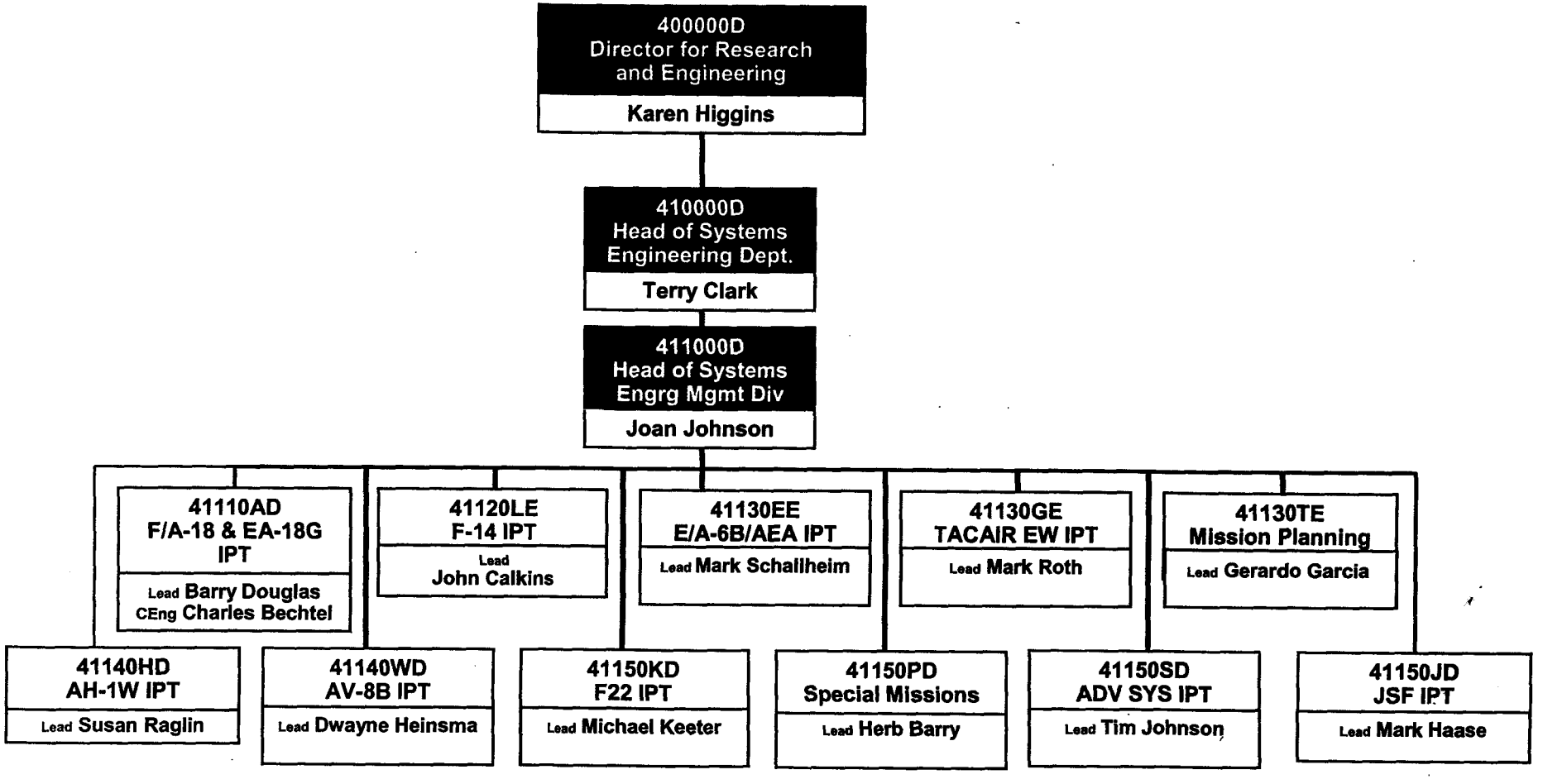


- Annual revenue: $1.1 billion
- Plant replacement value: $2.8 billion
- Over 40 major laboratories

System Support Activities

The F/A-18 & EA-18G Advanced Weapons Lab
China Lake

4.0 / 4.1 / 4.1.1 ORGANIZATION

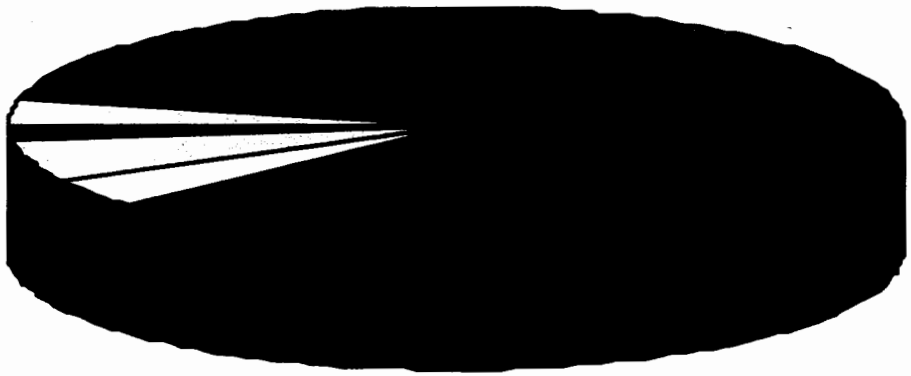


F/A-18 & EA-18G IPT MANPOWER & SPACE

690 Work Years

- Government
- Industry - local
- Industry - onsite prime
- Industry - offsite prime

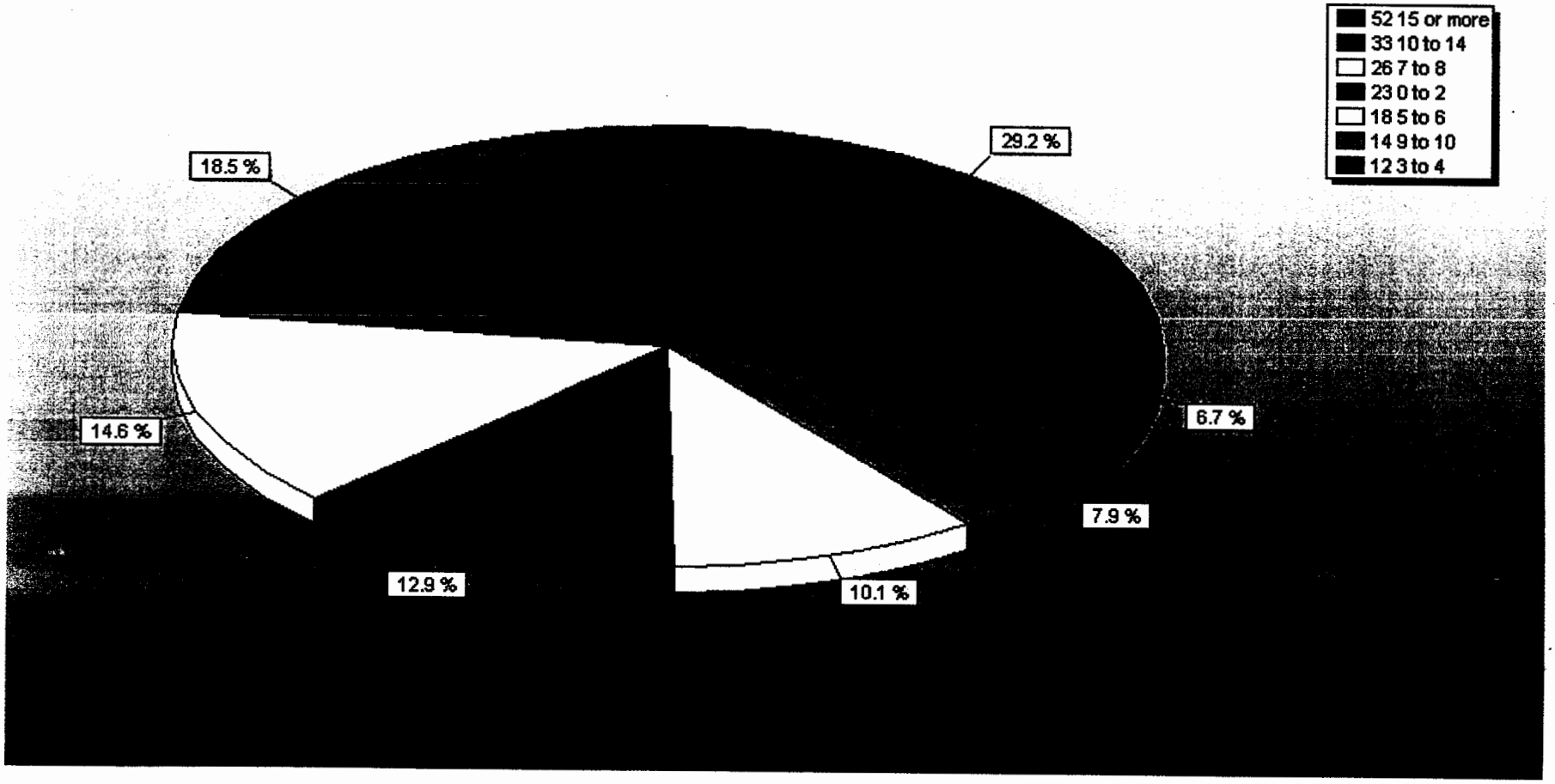
100,000 Sq Feet



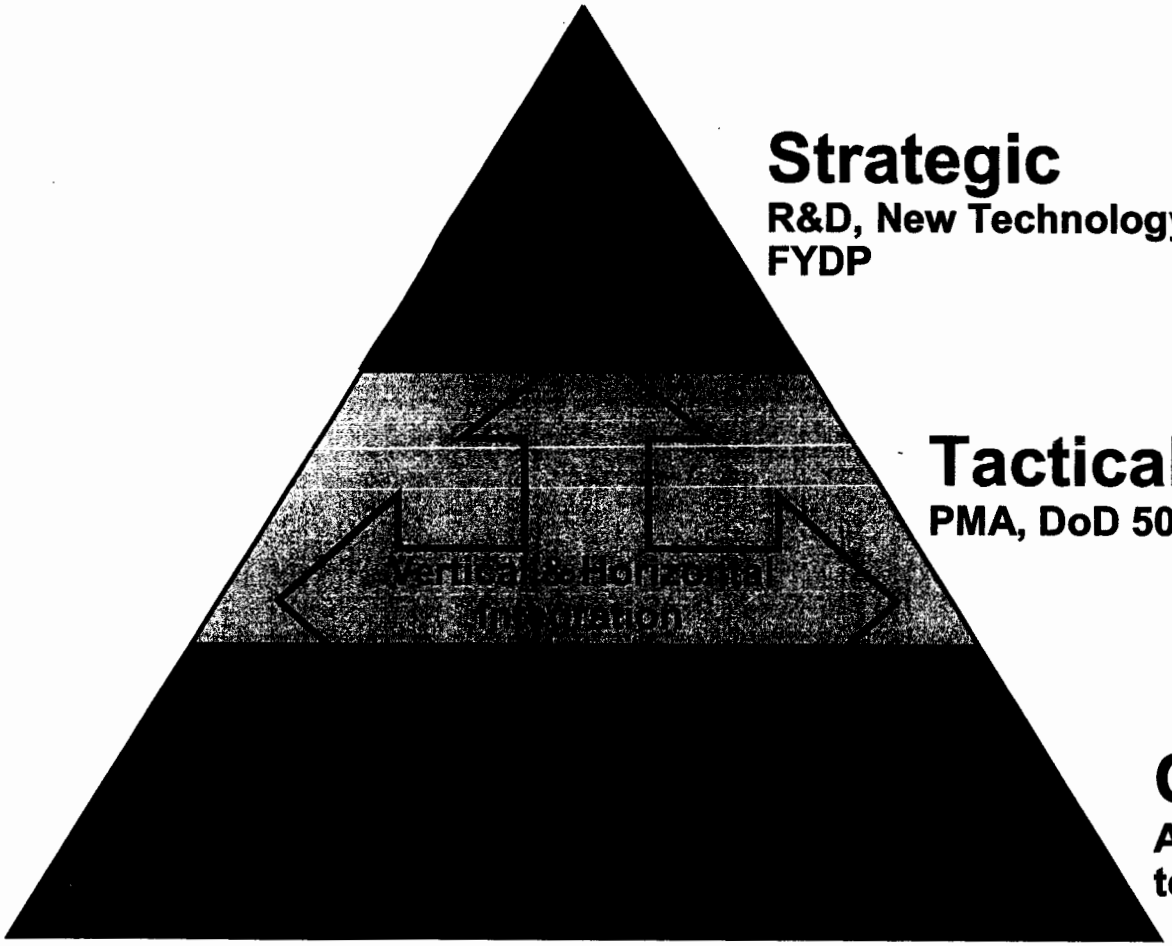
- Hangar 5 Office Spaces
- Software Bldg
- FMS
- FMS Trailers
- Test Support
- Boeing
- Laboratories

F/A-18 & EA-18G AWL RELEVENT WORK EXPERIENCE

How many years of F/A-18 relevant work experience do you have?



SYSTEM ENGINEERING FLOW DOWN



Strategic
R&D, New Technology, Roadmap, FYDP

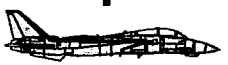
Tactical
PMA, DoD 5000 execution

Operational
AWL, design agent test and evaluation

CVW TACTICAL AVIATION EVOLUTION

1985 | 1995 | 2005 | 2015 | 2020

Mission Centric Operations



F-14A

- Outer Air Battle
- Fighter Sweep

A-6 / KA-6

- Strike
- Tanking

A-7

- Light Attack

F/A-18A

- Light Attack

S-3B

- ASUW

EA-6B

- SEAD

E-2C

- Blue Water AEW

Multi-Mission Operations

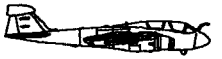
F-14D

F/A-18A/C

- Precision Strike
- Air Superiority
- RECCE
- FAC(A)

S-3B

- ASUW
- Tanking



EA-6B

- AEA/SEAD

E-2C

- Littoral Ops (Limited)

Technologies :
Multi-role, GPS,
Night Attack.....

Network Centric Operations

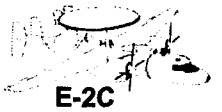
F/A-18E/F

F/A-18C

- Time Critical Strike
- Precision Strike (Fixed and Moving)
- Air Superiority
- CSAR
- RECCE
- FAC(A)
- Battlefield Persistence
- Tanking

EA-6B

- AEA/SEAD



E-2C

- Littoral Ops
- Digital Collaborative Targeting

Technologies :
AESA, Link-16, DCS,
Geo-Registration

Future Operations

F/A-18E/F

EA-18G

F-35B/C

E-2C

- JUCAS

Technologies :
JAN-TE, JTRS, WPNS
DATA LINKS,
SATCOM, Blue Force
Tracker, Combat ID

F/A-18E/F STRATEGIC CAPABILITY ROADMAP
FY 2005-2012 Plan 05-1.2

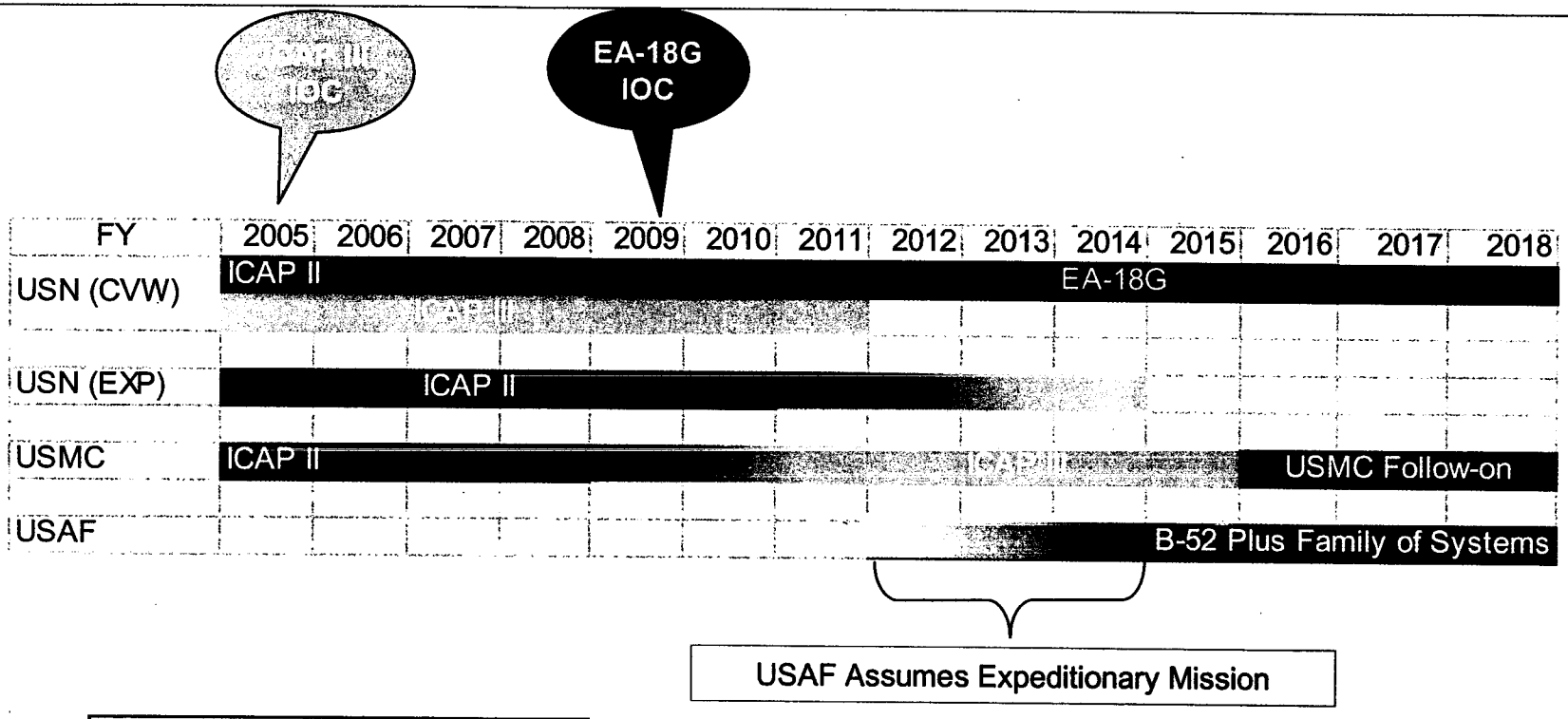
Jan 2005

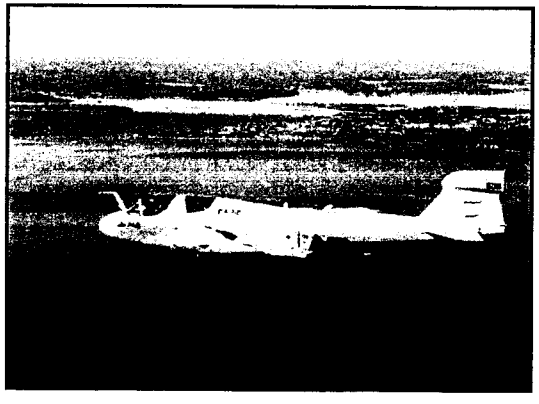
EA-18

Delivery Year	05 FY 05	06 FY 06	07 FY 07	08 FY 08	09 FY 09	10 FY 10	11 FY 11	12 FY 12
Incremental Upgrades to Basic Plan	Increment 1 • M2M Precision targeting • RTIC/RTOC Info & Imagery • Better Mission Assessment • Control of A/C via Digital CAS • Improved mission recording and debrief		Time Critical Strike Generation of precise target coordinates Passive emitter targeting Improved survivability vs RF threats • Precision SOPD and DA weapons • Increased comm range, reliability & QofS Combat ID & Blue Force Tracking			Increased comm range, reliability & QofS (SATCOM) Real time mission assessment		
	Increment 1							Increment 7
		• M2M Precision Targeting • RTIC/RTOC Info & Imagery • Time Sensitive / Relocatable Target Attack • Enhanced A/G Target Acq and Cueing • Increased aimpoints on each pass		Increment 4	Precision moving target engagement Combat ID & Blue Force Tracking Improved survivability Integrated tactical picture for ground and surface targets Precision SOPD and DA Weapons			
			Increment 2					
			• Real-time mission assessment Control of A/C via Digital CAS M2M Precision targeting • Increased aimpoints on each pass • Precision SOPD and DA Weapons APG-73 High Res Maps (Exp 4/5)		Increment 5	Land target ATC and ATR Moving target ID RECCE improvements Battlespace awareness Prec. Engagement in a high work load env. UAV connectivity Increased comm range, reliability & QofS (wideband waveform, networked)		
				Increment 3			Increment 6	
Proposed Technical Solutions → System Design	Image Receive/Transmit Solid State Recorder ACAS 9-line via Link 16 Precision coord via L16 APG-73 EP		L16 / VMF HAE Tgt Ht Precision J12.6 (L16) Off Board Image Mensuration A/G Target Points L16 Multiple DMPI Tgting ATFLIR IR Marker	AMC T3 w/Dig Video DMD SIAP Blk 0 BHA Message CIT Mode S ~~& RNAV~~ Link 16 CAS TPDF via Link 16	Image Processor/MSU MIDS-JTRS Digital RWR and SEI Image Geo-registration Ground BFT via Link 16 Mode 5 Smart Images	AESA GMTI/SAR ATFLIR MMTT A/G MSI TADIRCM SDB Increment 2 Laser JDAM Common Tactical Gnd & Surface Picture	MIDS-JTRS (WNW/TTNT like) AESA/SHARP RECCE AESA/ATFLIR ATC/ATR AESA GMT ID AESA Large Scale SAR UAV connectivity Real Time Msn Planning	SATCOM AESA SAR BHI
Basic Plan → Sea Power 21 Baseline	AESA Phase I Fibre Channel Net ACS AMC T2 ATFLIR LST	IBKL-3 - ALQ-214 w/ALE-55 (FOTD)	MIDS MAGR 2000	AESA Phase 1 (E's) JHMCS (aft)-ACS only ANAV - Full ANAV/AESA int.	NAVWAR			
	J 82 on Parent Rack JSOW Unitary ATA AIM-120C7			JASSM J 82/83 w/BRU-55/A J 83 Parent Rack AIM-120D	~~JSM~~ AARGM			
	Funded							

■ Unfunded or technical issues

EA-18G Growler Schedule





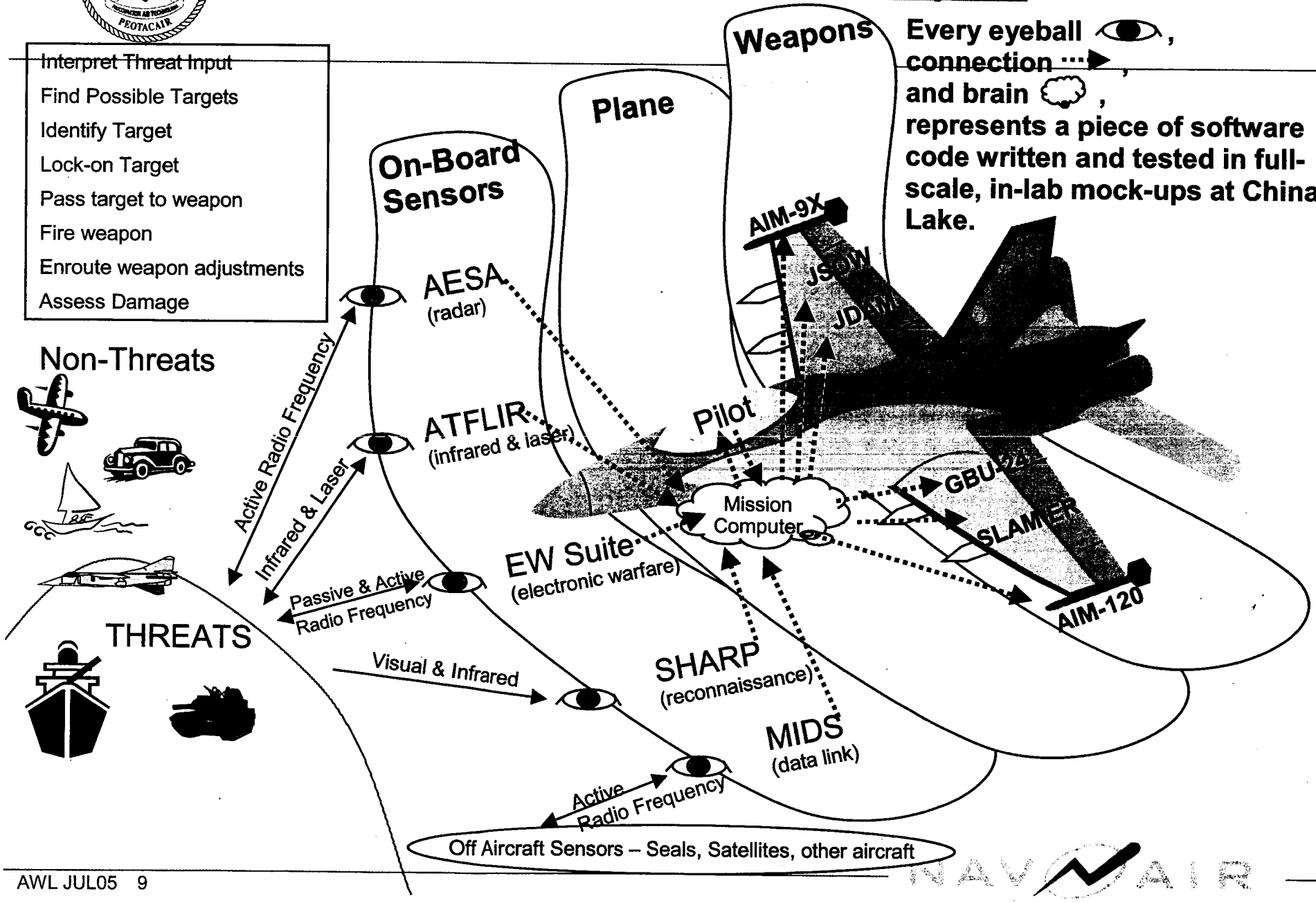
UNCLASSIFIED

WIRED TOGETHER

i.e., an example of *Weapons and Systems Integration*

- Interpret Threat Input
- Find Possible Targets
- Identify Target
- Lock-on Target
- Pass target to weapon
- Fire weapon
- Enroute weapon adjustments
- Assess Damage

Every eyeball 👁, connection ···▶, and brain 💭, represents a piece of software code written and tested in full-scale, in-lab mock-ups at China Lake.



SENSORS IN THE ELECTROMAGNETIC SPECTRUM

Sensors = U.S.'s latest technological edge.

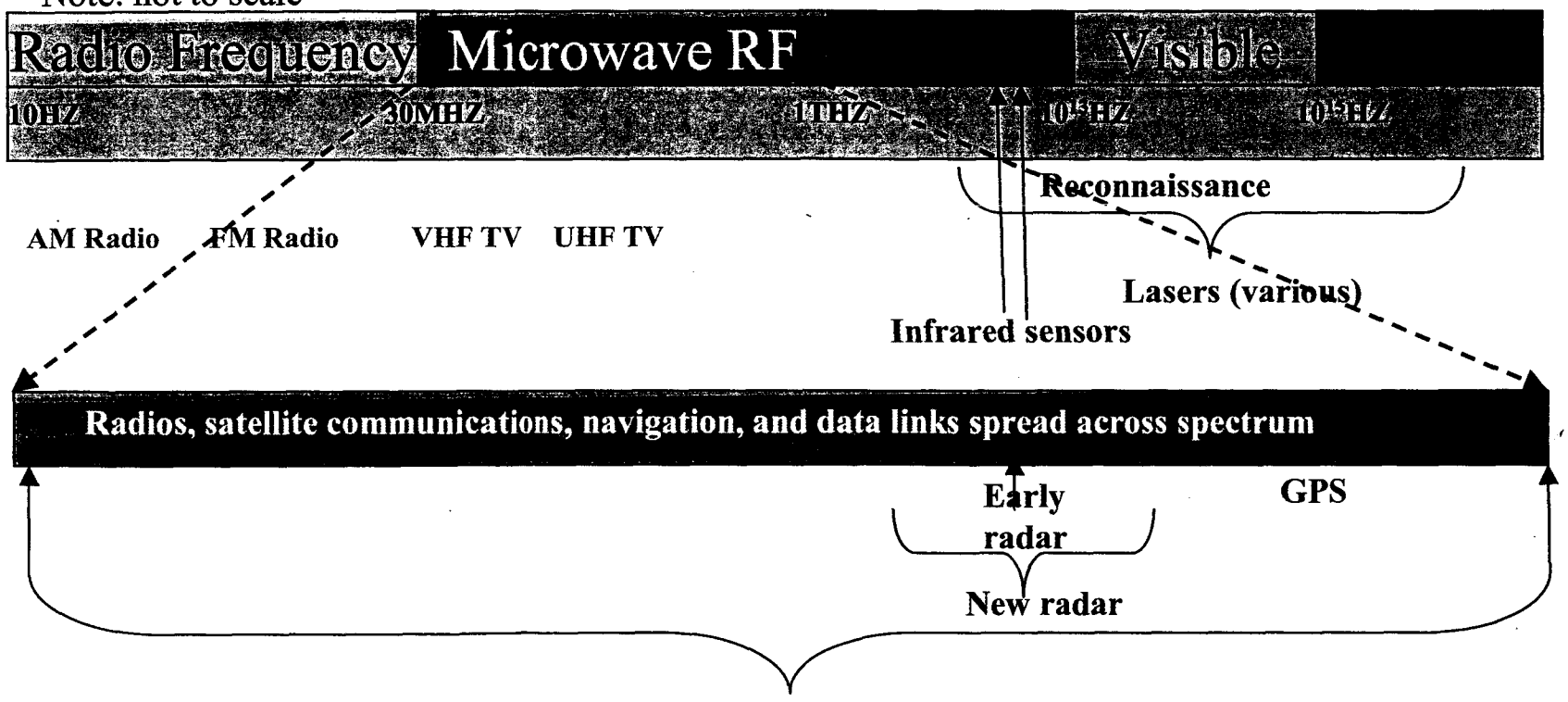
Air War = Public's preferred type of war.

Sensors on Aircraft = U.S.'s point of maximum opportunity.

The "eyes and ears" of a smart plane and a smart bomb.

Different kinds of Sensors for different areas of the Electromagnetic Spectrum.

Note: not to scale

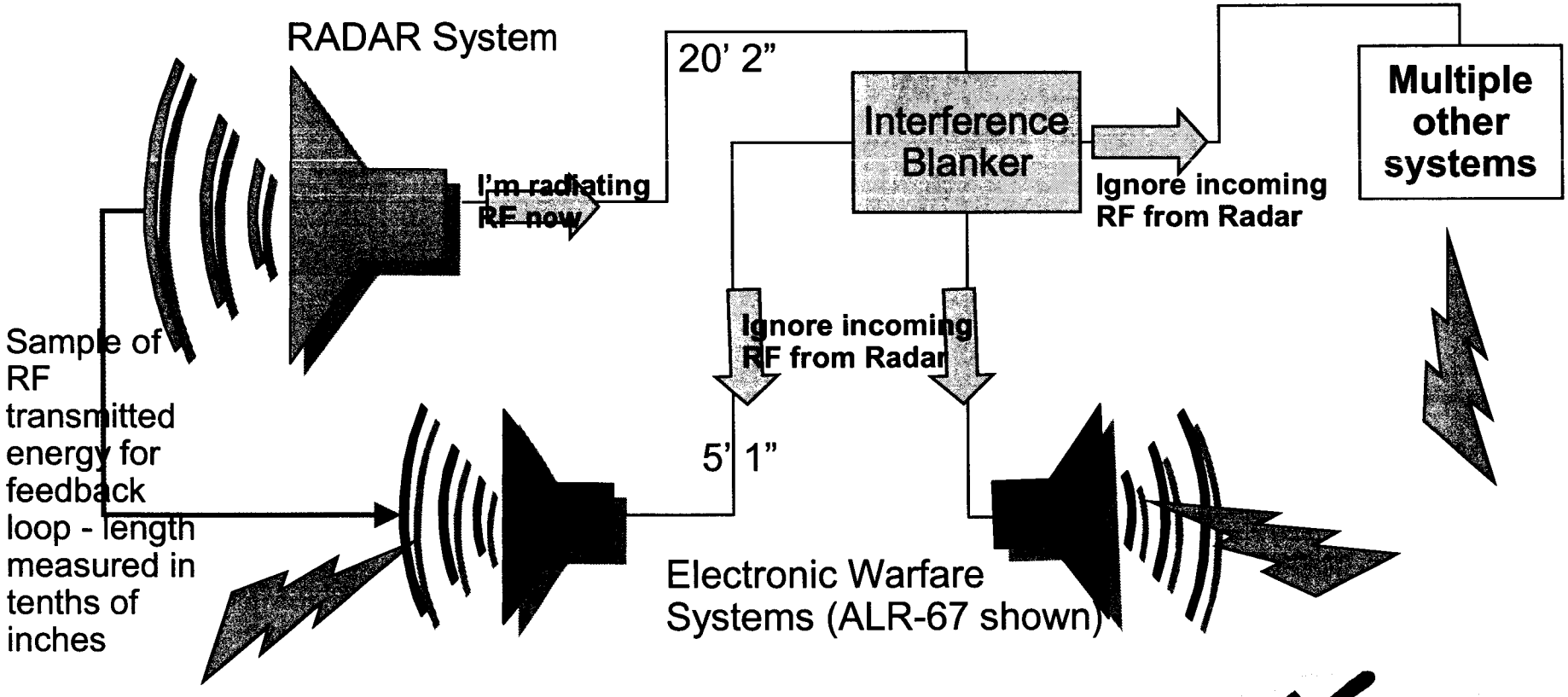


Passive EW - identify and locate threat transmissions
Active EW - jam or deceive threat systems

NANOSECOND PRECISION

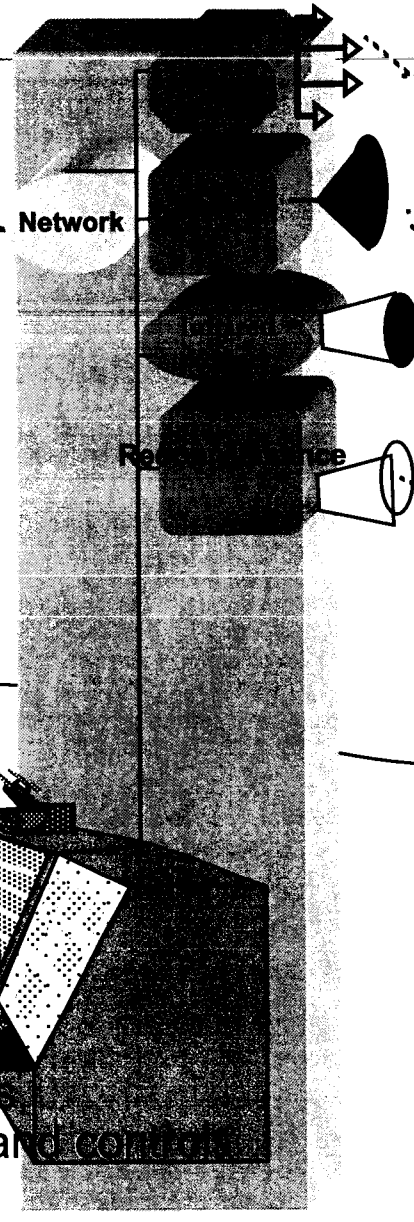
Signals travel about I foot per nanosecond in wiring. Nanosecond accuracy is required. Therefore length of wiring must accurately replicate aircraft wire lengths, and all systems must be collocated.

Only Radar RF interference shown for simplicity

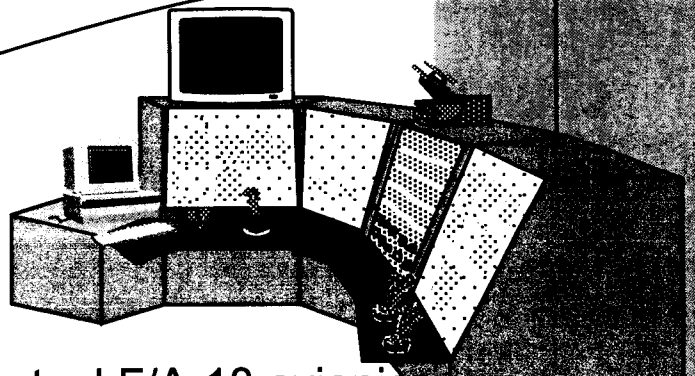


IN LAB MOCK-UPS

Point Mugu, Edwards, and Fort Irwin Ranges



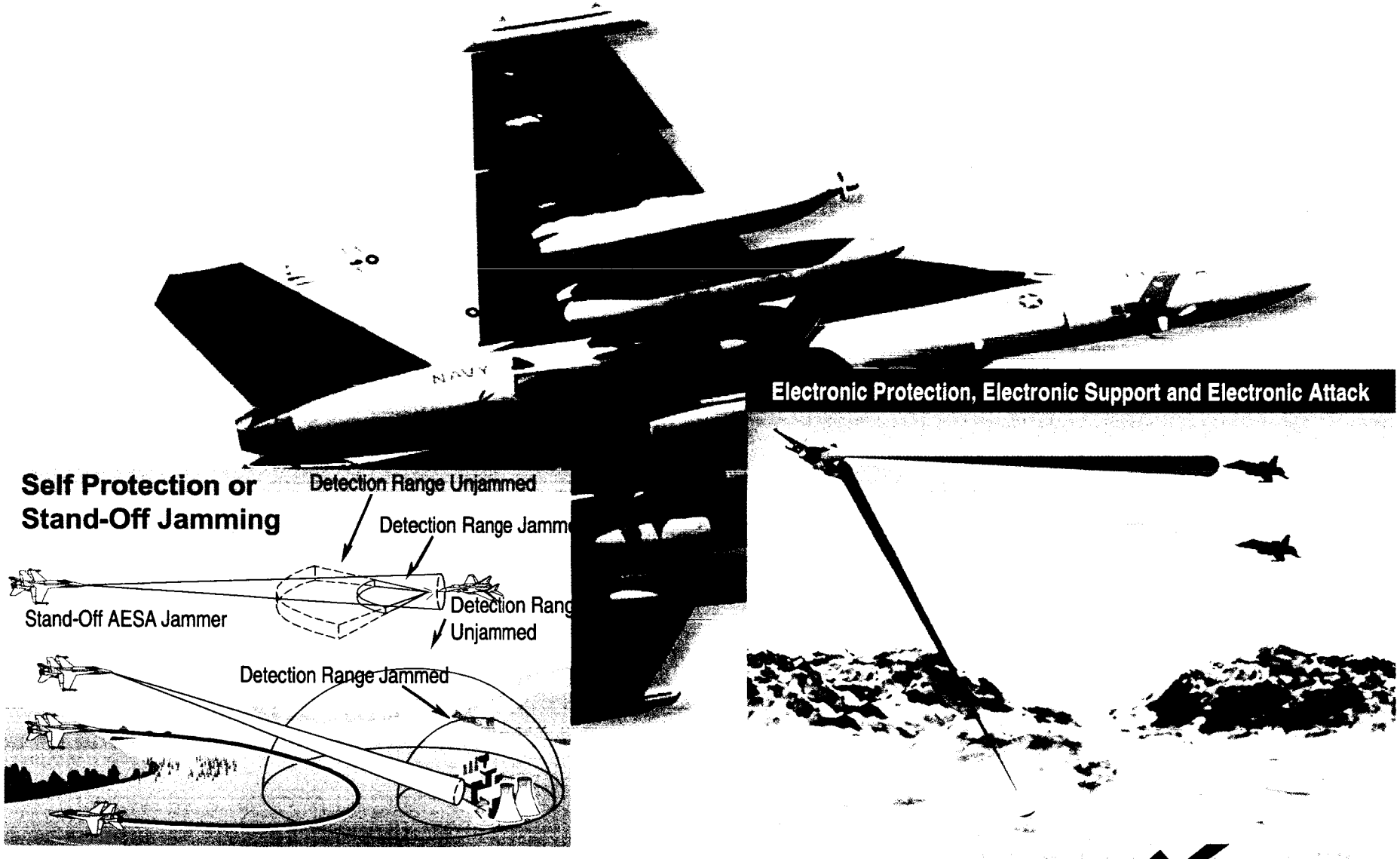
China Lake Ranges



Actual F/A-18 avionics, computers, sensors, and controls

- Access to open air range
  - Existing range target set
- Full scale
  - Hi-fidelity simulation of aircraft
    - Out of ground clutter extends line of sight
  - Real, live targets
- Efficient
  - Cost saving
- Effective
  - Non-intrusive testing

AESA, THE GROWLER AND SPOT JAMMING



EARLY OPERATIONAL CAPABILITY IN OIF

- The following were pulled out of development before Operational Evaluation, or pulled out of Operational Evaluation, to provide an Early Operational Capability (EOC) for Operation Iraqi Freedom (OIF).
  - An advanced infrared system provided the Fleet with stand-off targeting and attack, and reconnaissance.
    - Delivered 3 refurbished Engineering Manufacturing Development (EMD) pods
    - Also used in Operational Enduring Freedom and Southern Watch
  - A new reconnaissance pod provided the Fleet reconnaissance capability.
    - Delivered 3 pods, one we delivered directly to ship pier-side in San Diego

EARLY OPERATIONAL CAPABILITY IN OIF, cont'd

- A new digital radio provided digital forward air control for close air support.
  - This was a software installation, hardware already extant
- A new data link system provided network centric warfare capabilities.
  - Low Rate Initial Production systems
  - Used for finding & designation targets, finding tankers, passing section/division data, and general situational awareness.

QUICK FLEET RESPONSE

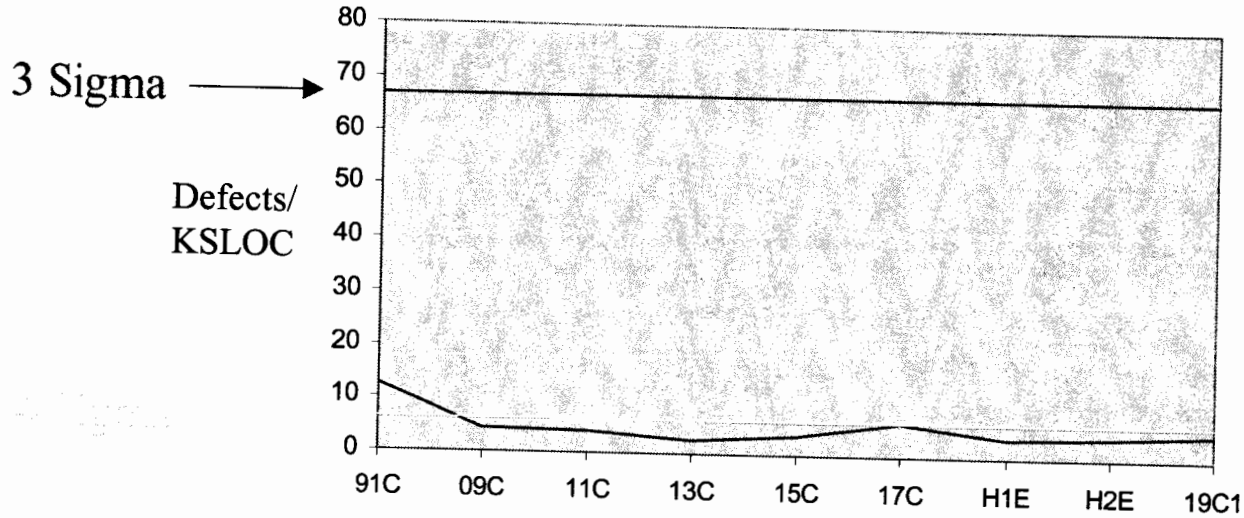
- In Afghanistan, the Fleet needed to simultaneously carry both a weapon to attack caves and a weapon to attack troops in the open
  - We provided a software solution in 20 days
- We supplied testing for the requested deployment of the Rapid Precision Targeting System (RPTS)
- In Kosovo they needed reconnaissance. We pulled a new development system forward and deployed it in less than 4 weeks

TYPICAL DATA PROVIDED AT THE "FLEET BRIEF" W/EACH NEW SCS

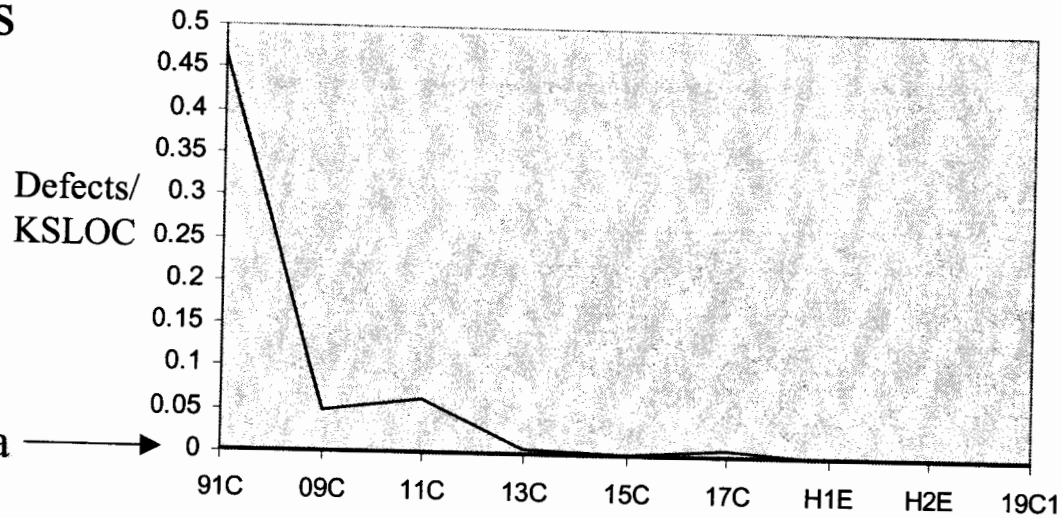
- Aircrew questions:
  - LCDR Allen "Caulk" Blocker
    - DSN 437-4987
    - allen.blocker@navy.mil
    - blockera@chinalake.navy.smil.mil (SIPRNET)
- Maintenance questions:
  - SSgt Kevin Schiermeyer
    - DSN 437-0118
    - kevin.schiermeyer@navy.mil
- Hornet Hotline
  - (760) 939-FA18 (3218)
  - DSN 437-FA18 (3218)
  - NWFA18AWL@NAVAIR.NAVY.MIL
  - Classified.Hornethelp@chinalake.navy.smil.mil (SIPRNET)

6 SIGMA QUALITY

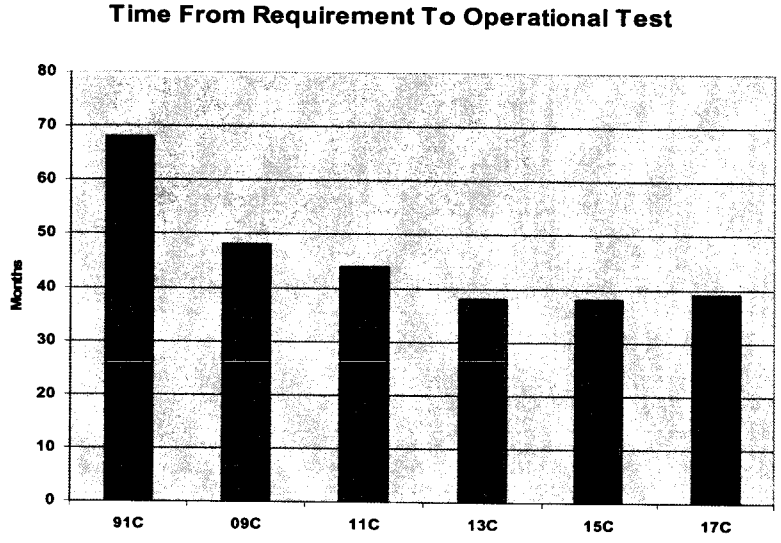
Life Cycle Defects
(all defects)

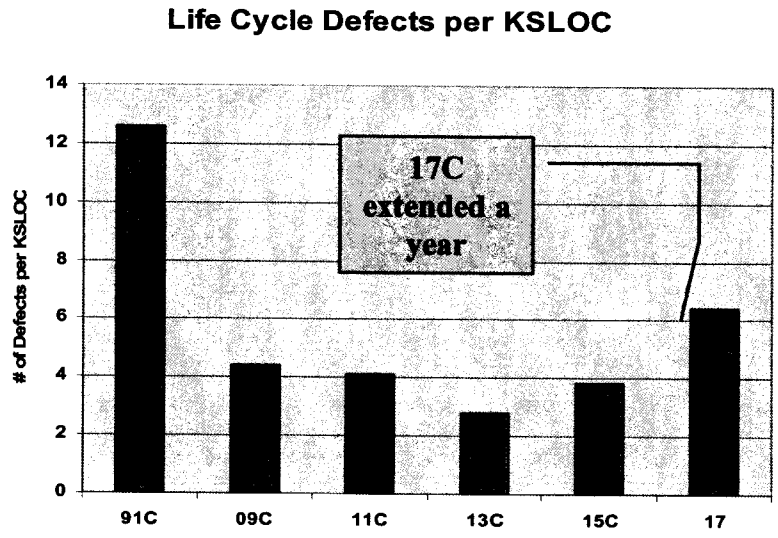


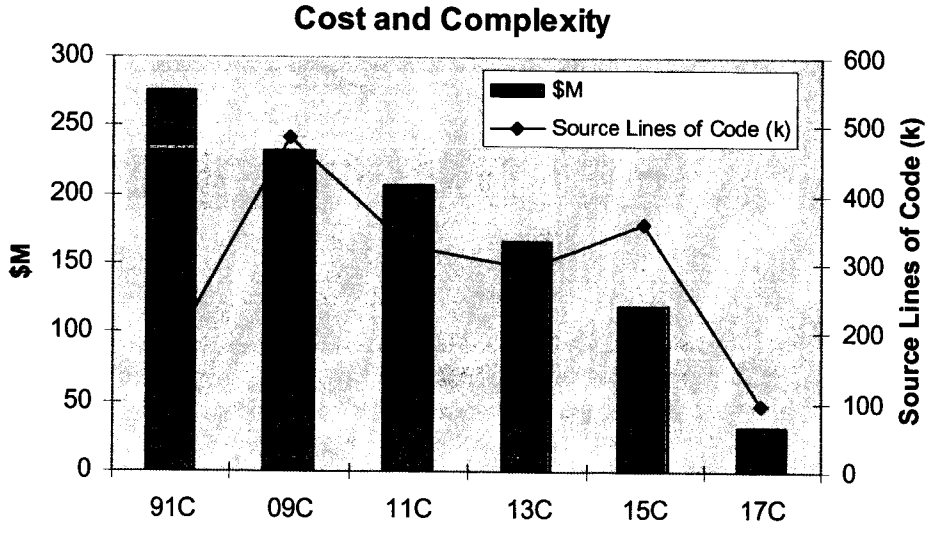
Customer Reported Defects
(that impact operations)

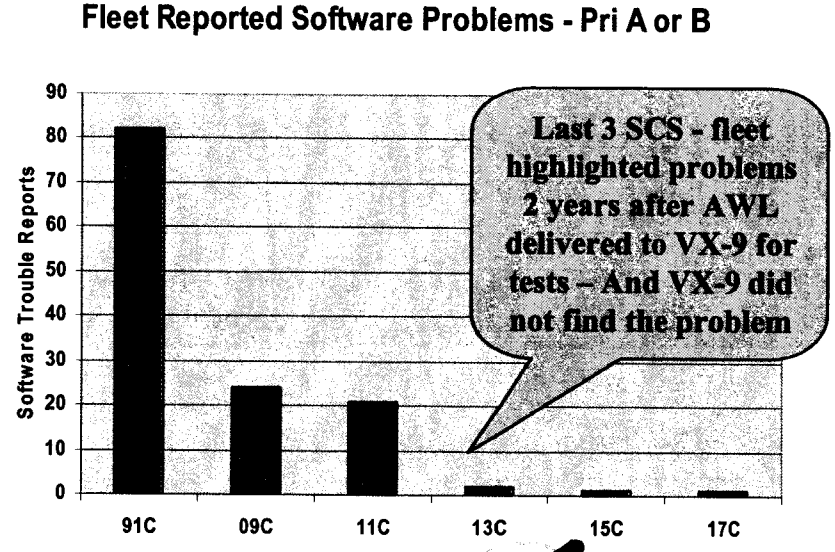


F/A-18C/D
HISTORICAL DATA

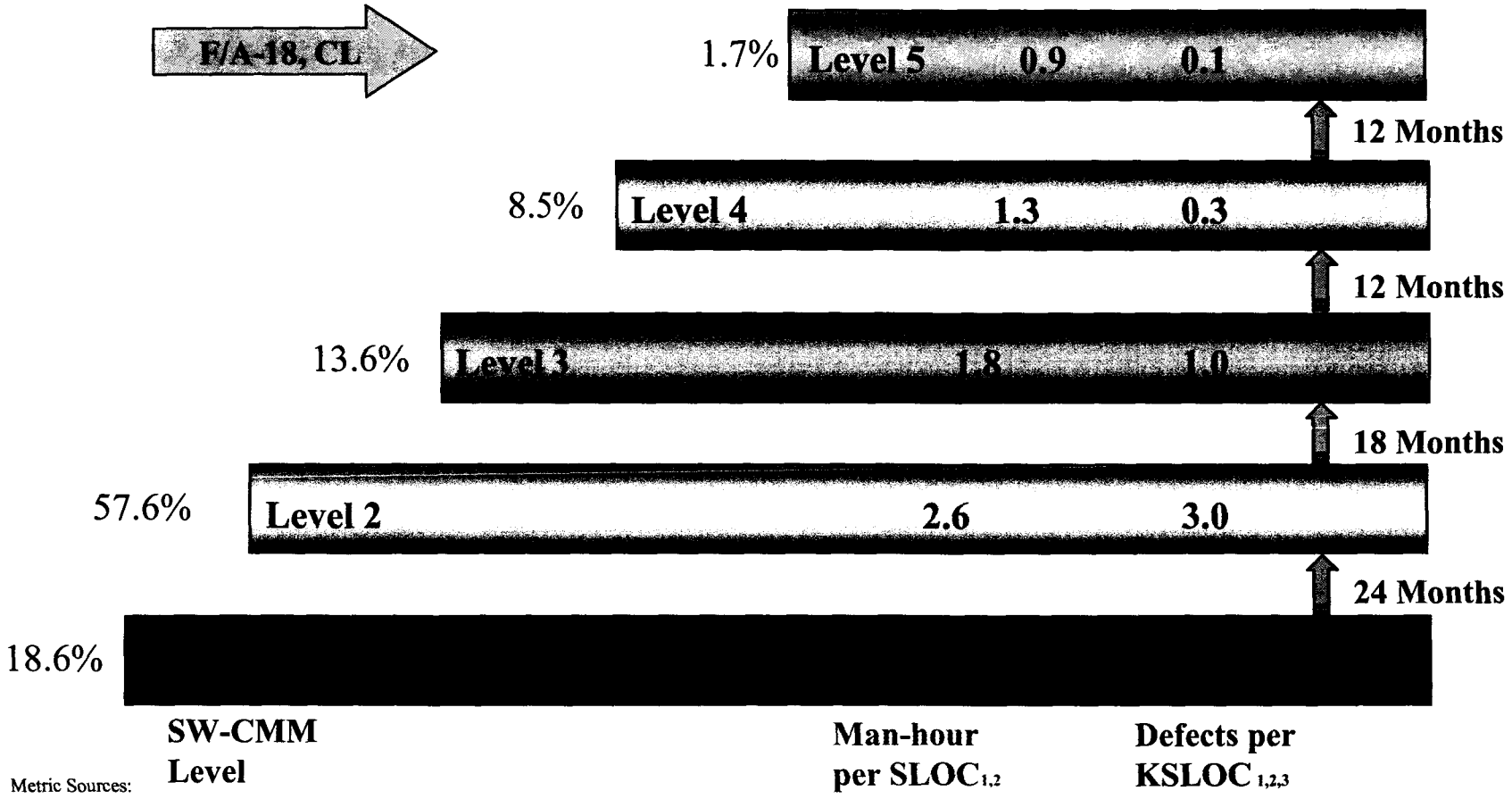








SW-CMM JOURNEY



Metric Sources:

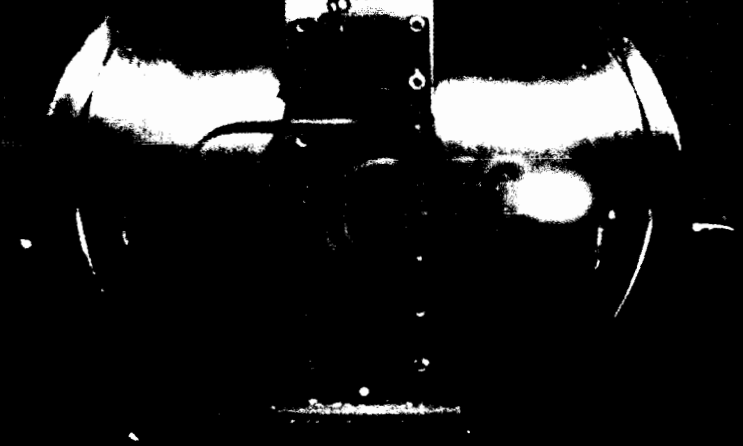
1. 1994 Citibank Analysis
2. Applied Software Measurement, Capers Jones
3. Benchmarking F/A-18 Mission Computer Inspection 2000
4. March 2001 ISD, Inc and Carnegie Mellon University adapted

TWO TIME WINNERS OF *CrossTalk*

(Journal of Defense Software Engineering)

Winner of the *CrossTalk* 2001 Top 5 U.S. Government Quality Software Projects

Awarded for 1 [illegible]m Configuration Set.



From *CrossTalk* January 2002 "These top five projects were selected from 87 nominations in this first event. They demonstrate how competent software project teams go about building successful products"

"This is a very large, real[illegible]e operational system that has made significant improvement in cost, schedule, and quality."

Dr. Jack Ferguson a Top 5 Judge

Winner of the *CrossTalk* 2004Top 5 U.S. Gove[illegible]nt Quality Softwa[illegible]cts

Awarded for H1E System C[illegible]ration Set.

Pamela Pa[illegible]er, Cross[illegible]ed, "Recoding [illegible] million [illegible] F/A-18 assembly lan[illegible]e co[illegible]to a more cost effective High [illegible]anguage (HOL) has made every p[illegible] of aviator functionality fast, mo[illegible]ular, and inexpensive enou[illegible]e that aircraft capabilitie[illegible]panded for years to come. T[illegible]a significant leap forward in fl[illegible]computer code and test eff[illegible]

GAO REPORT ON DOD SOFTWARE MANAGEMENT

Defense Acquisitions, March 2004, GAO-04-393:

"Stronger Management Practices Are Needed to Improve DOD's Software-Intensive Weapons Acquisitions".

A GAO study to:

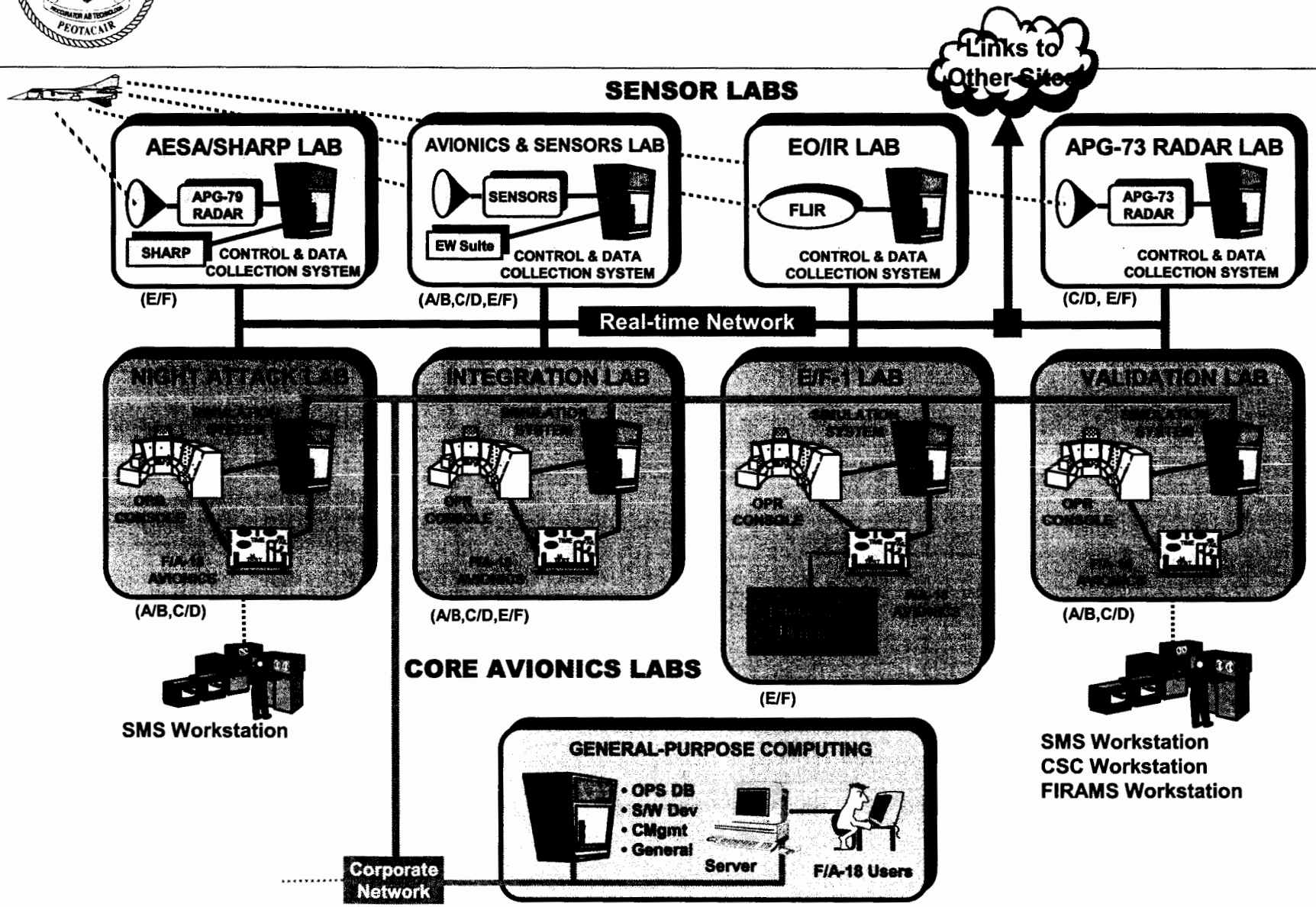
"...identify the practices used by leading companies...analyze the causes of poor outcomes of selected DOD programs...evaluate DOD's efforts to develop programs for improving software acquisition processes and to assess how these efforts compare with leading companies practices."

The study was very favorable to the F/A-18C/D in comparisons with 5 other DOD programs and 5 leading commercial companies:

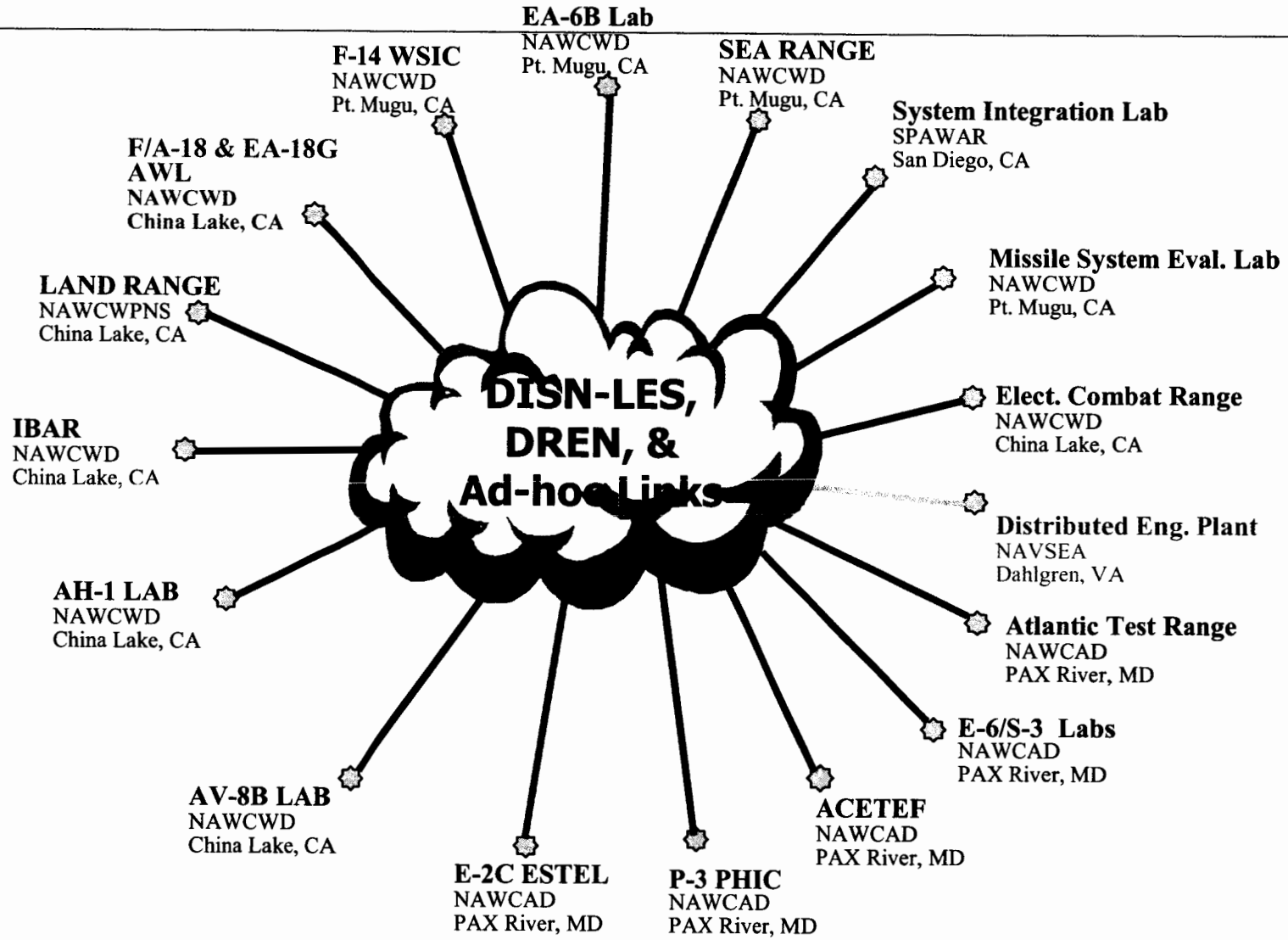
"...and F/A-18C/D programs were developed in an evolutionary environment, engaged in extensive work on requirements, controlled requirements' changes, collected and used detailed metrics to track development progress...."

"...software for the F/A-18C/D...were very successful in meeting initial cost and schedule estimates. These programs emulated leading software development companies practices..."

The F/A-18 AWL Labs



Missionized Test Via Existing Network Centric Dynamic Lab Links



Questions?

Synergistic; linked labs; single leadership

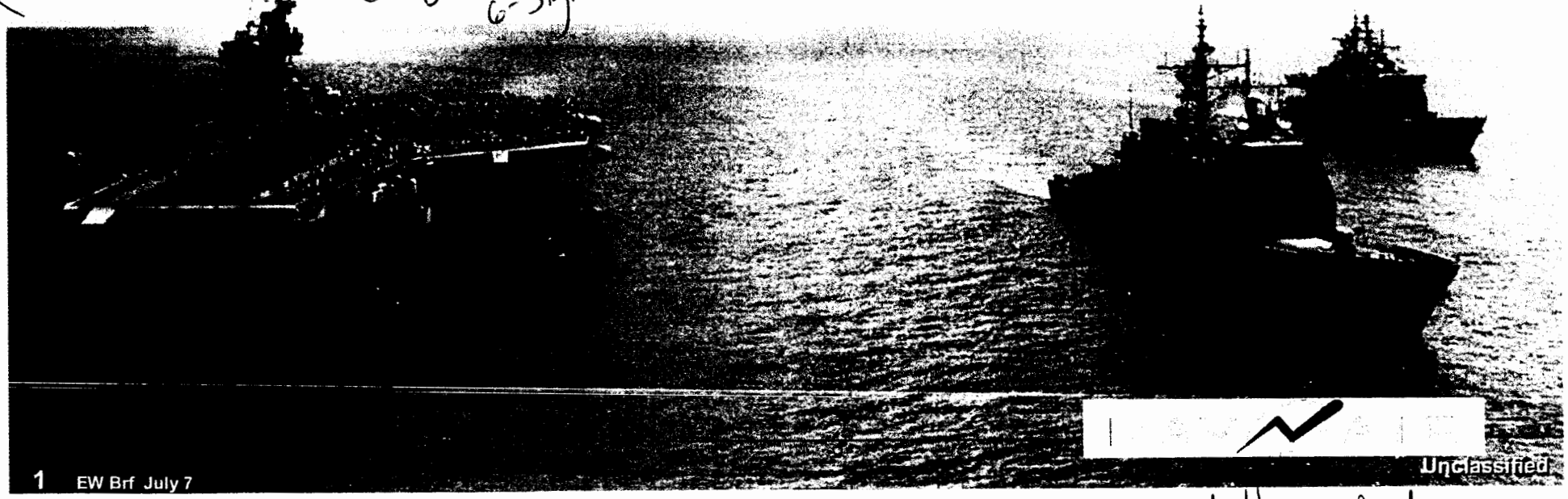
13-18 pax shuttles
35 minutes

see pp 8, 26

EW Capability At NAVAIR Weapons Division China Lake

work effectively as is; yes, might be good if all in one location but human capital

10% reduction already targeted by NAVAIR (across the board) 6-Sigma



Mallory Ward

OUTLINE

- Purpose of Today's Briefing
- EW Terms of Reference
- Comparison of NAVAIR WD Point Mugu and China Lake EW Capabilities
- China Lake Programs / Activities Examples
- Summary

Expected Takeaways

- NAWC Weapons Division understands and strongly supports the BRAC process goals:
  - Recommendations that facilitate transformation
  - Recommendations that deliver efficiencies
- The recommendations you are reviewing are the result of NAWC input and DoN / DoD analysis
- Your analysis will validate whether
  - The risks are reasonable
  - Transformation is achieved
  - Return on investment and efficiencies is substantiated

What is Electronic Warfare (EW)?

BRAC 05 definition

counter-measure

- Electronic Warfare (EW) encompasses the capability to disrupt or degrade an enemy's defenses throughout the areas and times – and across the entire electronic, infrared(IR), and visual spectrums – required to permit the deployment and employment of U.S. and allied combat systems. Electronic Warfare includes capabilities for deceiving, disrupting, or destroying enemy surveillance, command and controls (C^2), and weapons systems/sensors (e.g., early warning, acquisition and targeting functions) associated with the enemy's integrated air/area defense network. EW also includes the critical capabilities of recognizing attempts by hostile systems to attack or engage U.S. or friendly forces, automatically initiating the appropriate counter-measures or defensive response, and protecting friendly systems through redundancy and hardening.

electronic attack

assessment

This definition drove capacity

EW Terms of Reference

- ESM – Electronic Support Measures – search for, intercept, identify, and locate sources of radiated EMR (ELINT, COMINT et cetera) for EW threat recognition. ESM provides data ultimately used to develop ECM, ECCM, avoidance, targeting, mission planning, and other tactical deployment options
- ECM – Electronic Countermeasures – involving actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum
- ECCM – Electronic Counter-countermeasures – involving actions taken to ensure friendly, effective use of EMR despite the enemy's use of electronic warfare
- EA – Electronic Attack – involving the use of electromagnetic or directed energy to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability

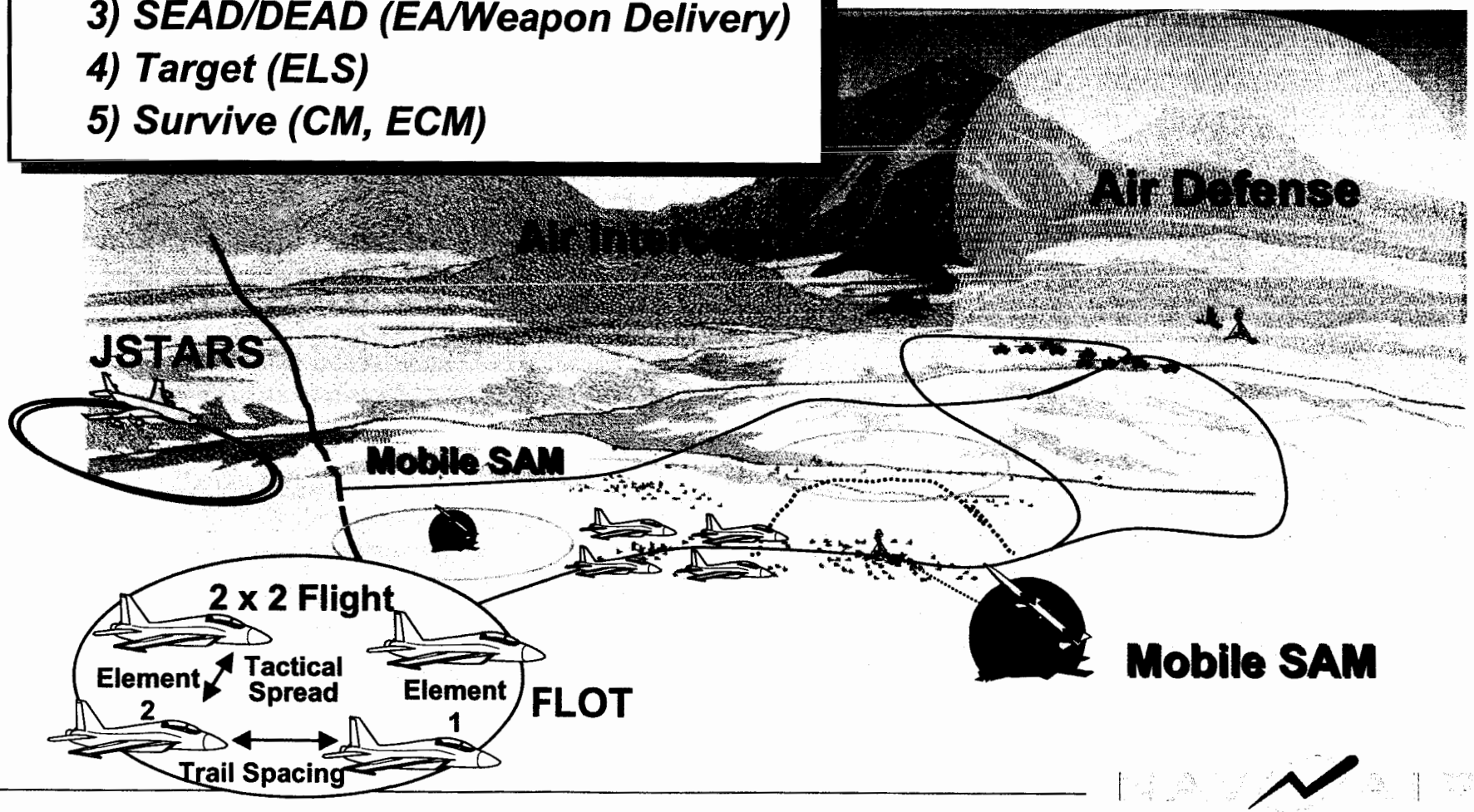
must be linked

Extracted from The History of US Electronic Warfare, Alfred Price

Specific Mission Example

EW Tactical Events:

1) *ESM (detect)*
2) *Avoid (reroute)*
3) *SEAD/DEAD (EA/Weapon Delivery)*
4) *Target (ELS)*
5) *Survive (CM, ECM)*



EW Mission Support at NAVAIR Point Mugu, CA

- EW for Tactical Aircraft (Rotary & Fixed Wing)
  - Radar Warning Receivers
  - Missile Warning Systems
  - Jammers
  - Dispensers / Expendables
  - Turn-Key Reprogramming Labs / FMS support
- EW Suite / Systems Integration
- EW Data Base Management (EWDB, TIRMS)
- USMC Tactical Electronic Reconnaissance Processing & Evaluation System
- Airborne Electronic Attack - ICAP 2, ICAP3
- Jammer Techniques Optimization (JATO)
- EW Mission Planning
  - JMPS (Joint Mission Planning System)
  - TEAMS (Tactical EA-6B Mission Support)
- High Fidelity EW Simulation Development & Support
  - Open / Closed-loop Systems and Capabilities
- EW Support Equipment (SE)
  - EW Test Program Set (TPS) Software Development and Fleet Support
  - EW SE Development and Fleet Support
  - Systems Supportability Analysis Services

OFPs, UDFs, Fleet, & Joint Service Support

Not duplicated at China Lake

Naval Air Warfare Center, Weapons Division
Sensors, Electronics and Electronic Warfare

	Sensors, Electronics	Electronic Warfare	
China Lake	**Development** **Systems Integration** **Test and Evaluation** **In-Service Engineering** **Life Cycle Support** **(333)**	**EW Systems Integration (inc FMS)** **EW Test and Evaluation** **(ECR, JR, AJ GPS, Mongoose etc)** **FME, Electronic Attack, …** **(318)**	**12**
Point Mugu	-	**EW Development** **EW In-Service Engineering** **EW Life Cycle Support** **(369)** Code 4.5	

sometimes Block 47 was disregarded

EW Mission Support at NAVAIR China Lake, CA

- China Lake complements Point Mugu EW expertise in the following areas
  - EW Intel analysis and database management ("Edna's")
    - HARM, RWR, and non-EA-6B Jammers
  - Next Generation EW Platform Integration
    - EA-18, JSF, UAV/UCAV...
  - Foreign Materials Evaluation – IADS, Weapons
  - ELINT/COMINT Sensor Systems Development
  - TACAIR Radar Warning Systems Expertise
  - Electronic Attack
    - Directed Energy
      - *Destruction* – HPM and Tactical Laser Research and Advanced Development
      - *Disruption* – Multi-mode RADAR
  - Core EW Facilities
  - EW Systems Development and Operational Test and Evaluation

EW is becoming part of the integrated sensor system

EW Intelligence Analysis Process To Support TACAIR EW & HARM Reprogramming

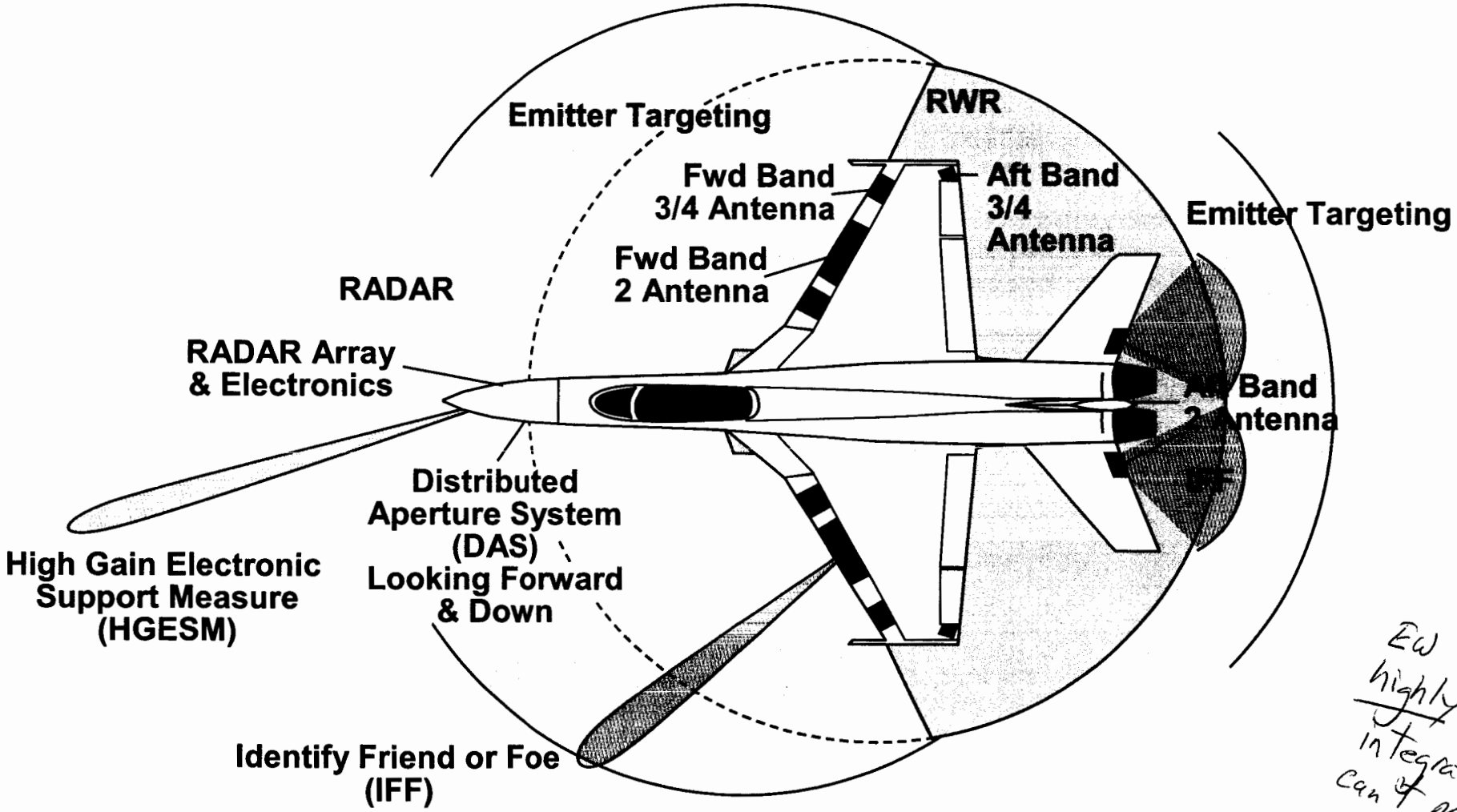
- Inputs – Fleet requests, OAG, TACAIR EW Technical Review Board, ARM Steering Committee, Order of Battle data, new emerging threats
- Threats list – EW Suite FRD lists, HARM Geo-tailored Emitter lists
- Multiple data sources – EWIR DB, FME, other intelligence sources
- Emitter Data for Naval Analysis (EDNA) Database-

  a relational Database where data is a parametric assessment of the threat emitter, provided to each system for sensor engineering

EW Mission Support at NAVAIR China Lake, CA

- **China Lake <u>complements</u> Point Mugu EW expertise in the following areas**
  - EW Intel analysis and database management
    - HARM, FWR, and non-EA-6B Jammers
  - **Next Generation EW Platform Integration**
    - **EA-18, JSF, UAV/UCAV…**
  - Foreign Materials Evaluation – IADS, Weapons
  - ELINT/COMINT Sensor Systems Development
  - TACAIR Radar Warning Systems Expertise
  - Electronic Attack
    - Directed Energy
      - *Destruction* – HPM and Tactical Laser Research and Advanced Development
      - *Disruption* – Multi-mode RADAR
  - Core EW Facilities
  - EW Systems Development and Operational Test and Evaluation

Typical Next Generation EW Platform



EW is highly integrated – can't point to it

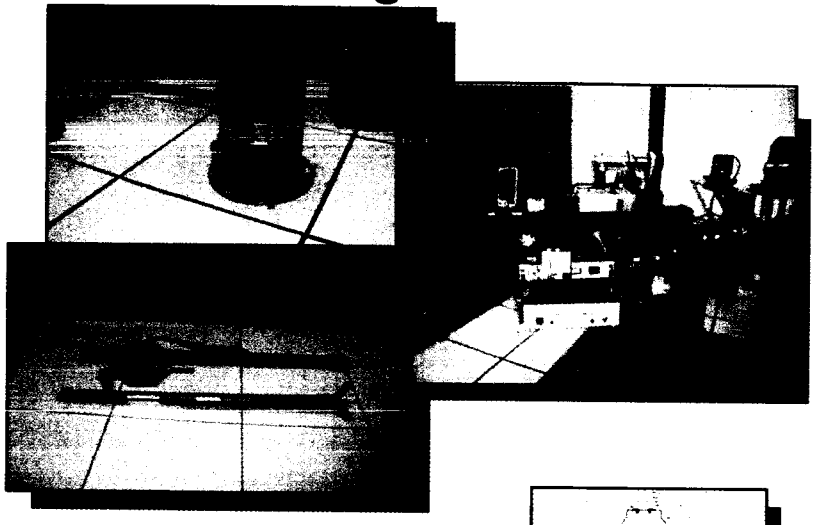
Sensor Suite Coverage Supports SA and Targeting

EW Mission Support at NAVAIR China Lake, CA

- **China Lake complements Point Mugu EW expertise in the following areas**
  - EW Intel analysis and database management
    - HARM, RWR, and non-EA-6B Jammers
  - Next Generation EW Platform Integration
    - EA-18, JSF, UAV/UCAV…
  - **Foreign Materials Evaluation – IADS, Weapons**
  - ELINT/COMINT Sensor Systems Development
  - TACAIR Radar Warning Systems / Jammer Expertise
  - Electronic Attack
    - Directed Energy
      - *Destruction* – HPM and Tactical Laser Research and Advanced Development
      - *Disruption* – Multi-mode RADAR
  - Core EW Facilities
  - EW Systems Development and Operational Test and Evaluation

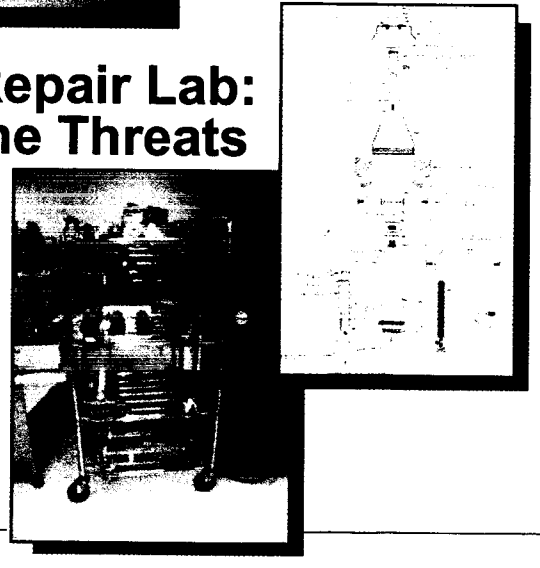
Foreign Materials Evaluation

Electro-optics / Infrared Evaluation Office: Characterizing the Threats

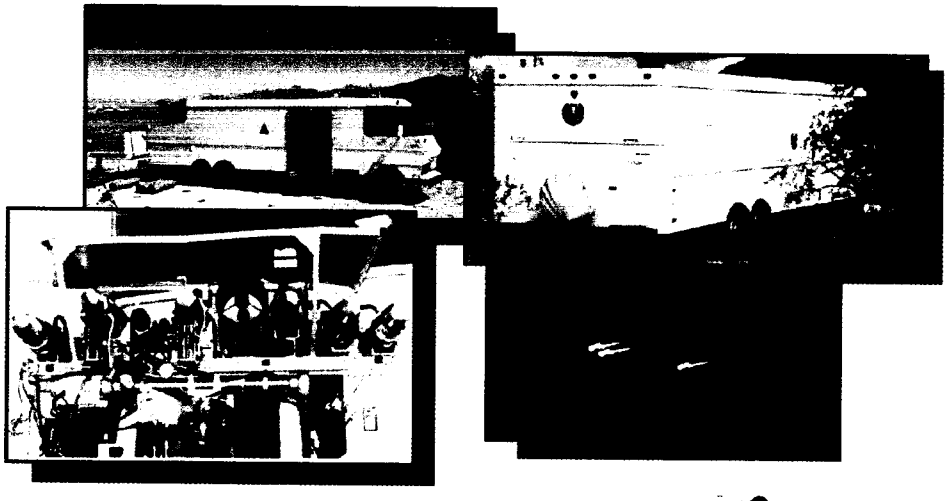


Threat Missile Simulation: Threat Missile in Flight

Seeker Repair Lab: Repair the Threats



Seeker Test Van/Infrared Signature Measurements: Threats in the Field



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  - Next Generation EW Platform Integration
    - EA-18, JSF, UAV/UCAV…
  - Foreign Materials Evaluation – IADS, Weapons
  - **ELINT/COMINT Sensor Systems Development** – can be viewed as sensor, but this is integral to EW
  - TACAIR Radar Warning Systems Expertise
  - Electronic Attack
    - Directed Energy
      - *Destruction* – HPM and Tactical Laser Research and Advanced Development
      - *Disruption* – Multi-mode RADAR
  - Core EW Facilities
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EW Mission Support at NAVAIR China Lake, CA

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  - Next Generation EW Platform Integration
    - FA-18, JSF, UAV/UCAV...
  - Foreign Materials Evaluation – IADS, Weapons
  - ELINT/COMINT Sensor Systems Development
  - **TACAIR Radar Warning Systems Expertise** (this may be the "12" identified by Dr. Smiley)
  - Electronic Attack
    - Directed Energy
      - *Destruction* – HPM and Tactical Laser Research and Advanced Development
      - *Disruption* – Multi-mode RADAR
  - Core EW Facilities
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EW Mission Support at NAVAIR China Lake, CA

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    - EA-18, JSF, UAV/UCAV…
  - Foreign Materials Evaluation – IADS, Weapons
  - SIGINT/COMINT Sensor Systems Development
  - TACAIR Radar Warning Systems Expertise
  - **Electronic Attack**
    - **Directed Energy**
      - ***Destruction* – HPM and Tactical Laser Research and Advanced Development**
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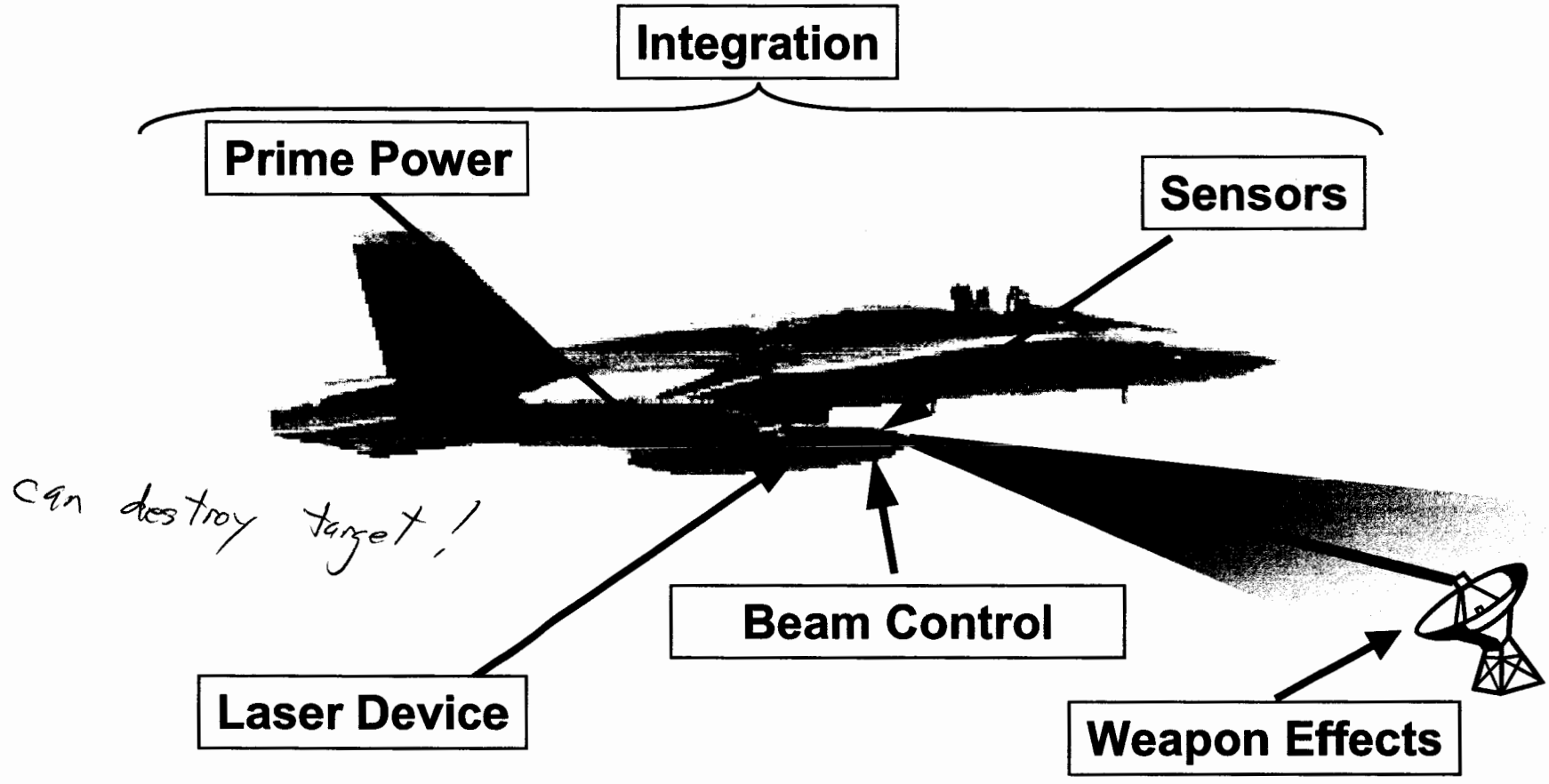
  - EW Systems Development and Operational Test and Evaluation

NAVAL AVIATION
DE HEL* S&T INVESTMENT AREAS



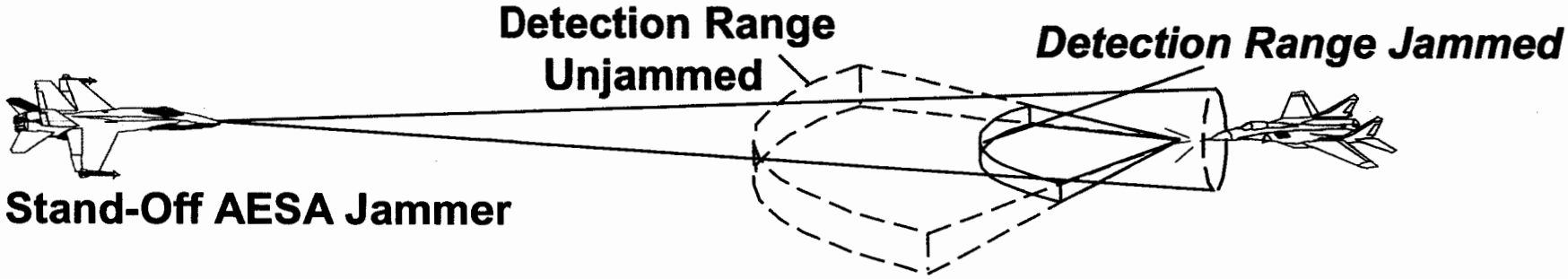
100 KW+ laser weapon that can be integrated into a flyable platform in less than 10 years

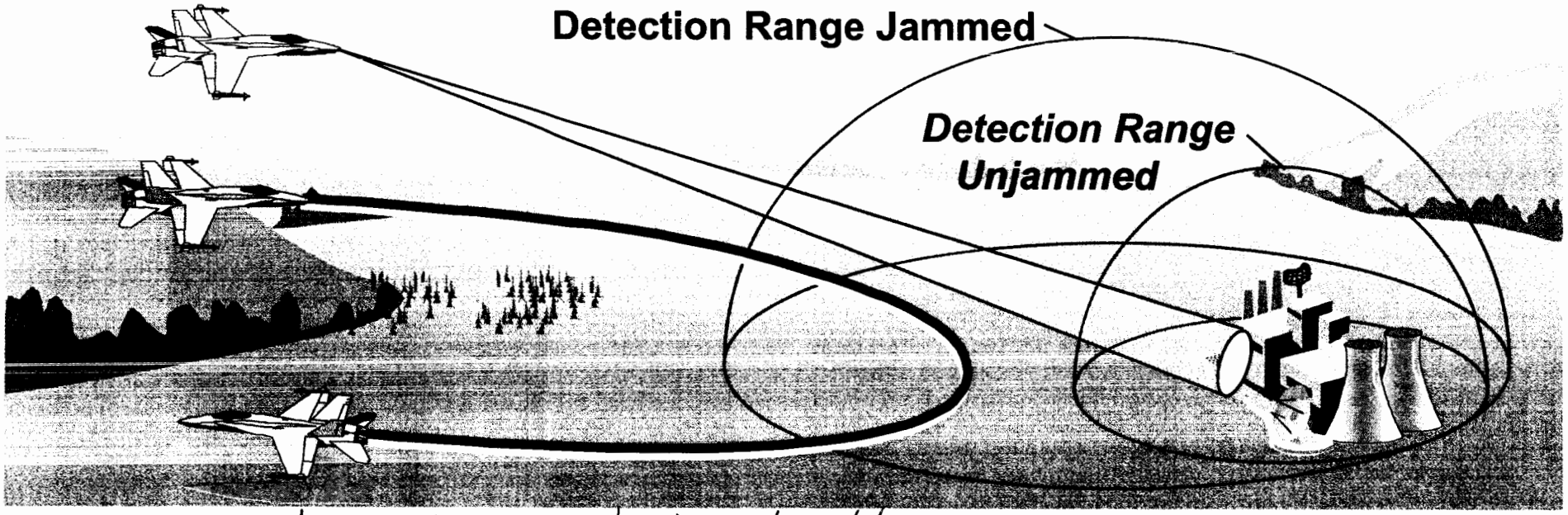
*Directed Energy, High Energy Laser

Electronic Attack –

utilizing advanced multi-mode sensor systems

Self Protection or Stand-Off Jamming





radar + jamming begin to blend

EW Mission Support at NAVAIR China Lake, CA

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    - HARM, RWR, and non-EA-6B Jammers
  - Next Generation EW Platform integration
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  - **Core EW Facilities**
  - EW Systems Development and Operational Test and Evaluation

NAWCWD EW FACILITIES COMPLEMENTARITY

- **PT MUGU**
  - Electronic Combat Simulation & Evaluation Laboratory (ECSEL): System UDF/OFP Development
  - Iron Crow: Support Equipment Development & TPS
  - EA-6B ICAP II BLK 89: Development and Integration
  - EA-6B ICAP III: Development and Integration
  - EA-18G AEA: Development and Integration
  - Tactical Electronic Reconnaissance Evaluation System (TERPES): Mission Planning & Processing
  - Electronic Warfare Database Support (EWDS): Threat Intelligence Support
  - Jamming Technique Optimization (JATO): Technique Development
- **CHINA LAKE**
  - Electronic Warfare Integration Laboratory (EWIL): Flight Test Support & Data Analysis
  - Electronic Combat Range (ECR): Open Air Range

Echo is more comprehensive than Eglin and is invaluable for early development

EW Mission Support at NAVAIR China Lake, CA

- **China Lake complements Point Mugu EW expertise in the following areas**
  - EW Intel analysis and database management
    - HARM, RWR, and non-EA-6B Jammers
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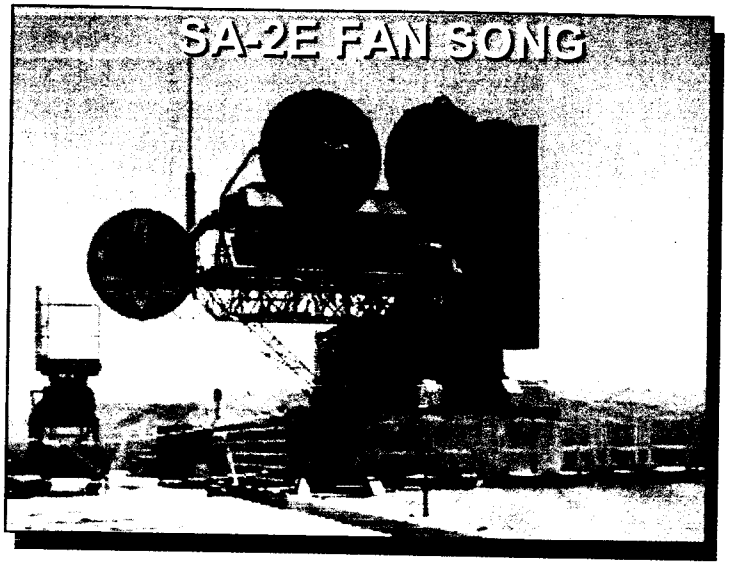
      - *Destruction* – HPM and Tactical Laser Research and Advanced Development
      - *Disruption* – Multi-mode RADAR
  - Core EW Facilities
  - **EW Systems Development and Operational Test and Evaluation**

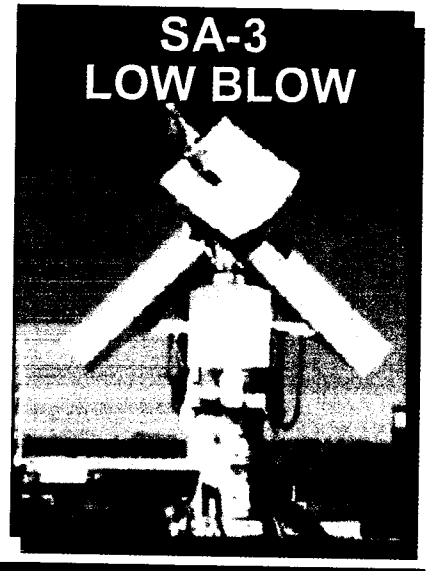
EW Systems Developmental / Operational Test And Evaluation Facility

- Provide decision-quality test data for development and/or modernization of aircraft EW suite systems
- Provide additional support services:
  - Combat tactics development and training (TOPGUN)
  - Hardware-in-the-loop testing
  - Missile flight testing
  - Special operations training
  - Satellite-based systems and UAV test and training
  - NASA JPL and Foreign Military tests
- Key functions:
  - Acquire / develop air defense threats, range instrumentation, and support facilities
  - Operate and maintain the range

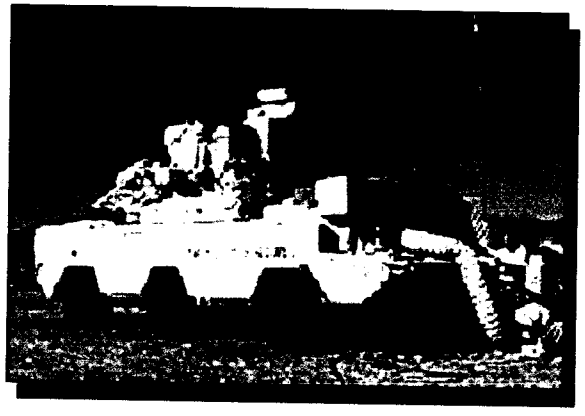
Draft Deliberative Document – For Discussion Purposes Only – Do Not Release Under FOIA

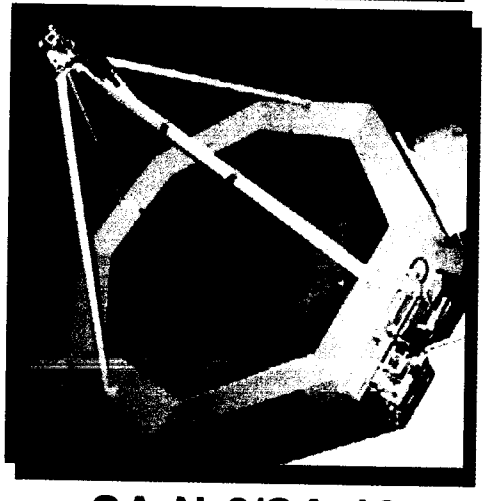
EW Systems Developmental / Operational Test And Evaluation Facility



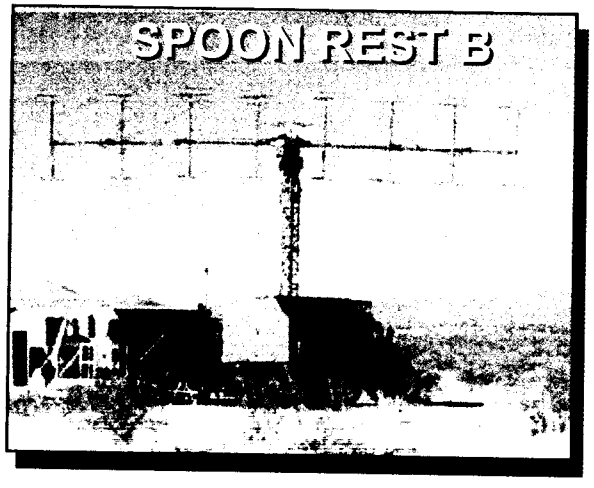


SA-8 LAND ROLL





SA-N-6/SA-10
TOP DOME / FLAP LID



Summary of NAVAIR WD China Lake 'non-core' EW Functionality

- F/A-18 ASL – EW sub-system <u>integration</u>
- Echleron Valley –
  - Anti-JAM GPS Evaluation/Development
  - High level (optical and RF) directed energy RDT&E
- Foreign Materials Evaluation
- ELINT / COMINT systems DT&E
- Counter-measure dispense systems DT&E
- EW Threat Analysis and Characterization
- Advanced Systems Development

Summary

- **NAVAIR WD Point Mugu and China Lake possess unique, complementary, and interdependent EW domain knowledge**
  - ***This is 'by design;' our organization is highly integrated***

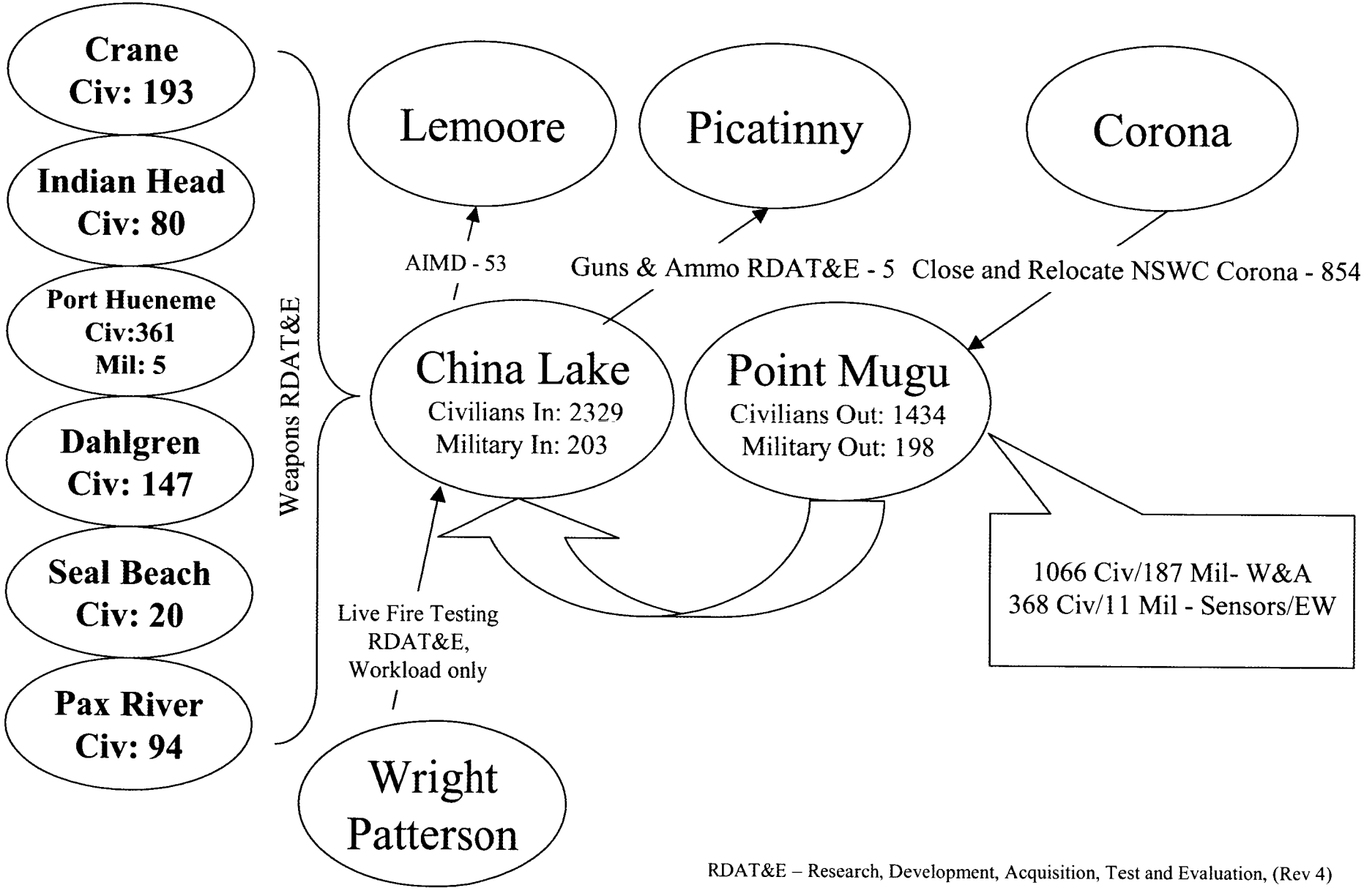
July 2005

NAWS China Lake Realignment

Facilities Planning

Captain Mark Storch
Commanding Officer

BRAC 2005 China Lake Site Impacts



RDAT&E – Research, Development, Acquisition, Test and Evaluation, (Rev 4)

BRAC Realignment at CL

Transfer in. Consolidate seven different sites at China Lake for "Weapons and Armament" RDAT&E

- Transfer in. Sensors, EW and Electronics RDAT&E
- Transfer in. USAF Fixed Wing Live Fire testing
- Transfer out "Guns and Ammunition" RDAT&E to Picatinny Arsenal
- Transfer out Aircraft Intermediate Maintenance Activity to Lemoore (consolidation)

Realignment Strategy

- Integrating three of seventeen scenarios

- Proposals must be
  - ✔ Consistent with the BRAC scenarios
  - ✔ Executable
  - ✔ Reduced to Form-1391 detail by end of July

(Facilities Planning)

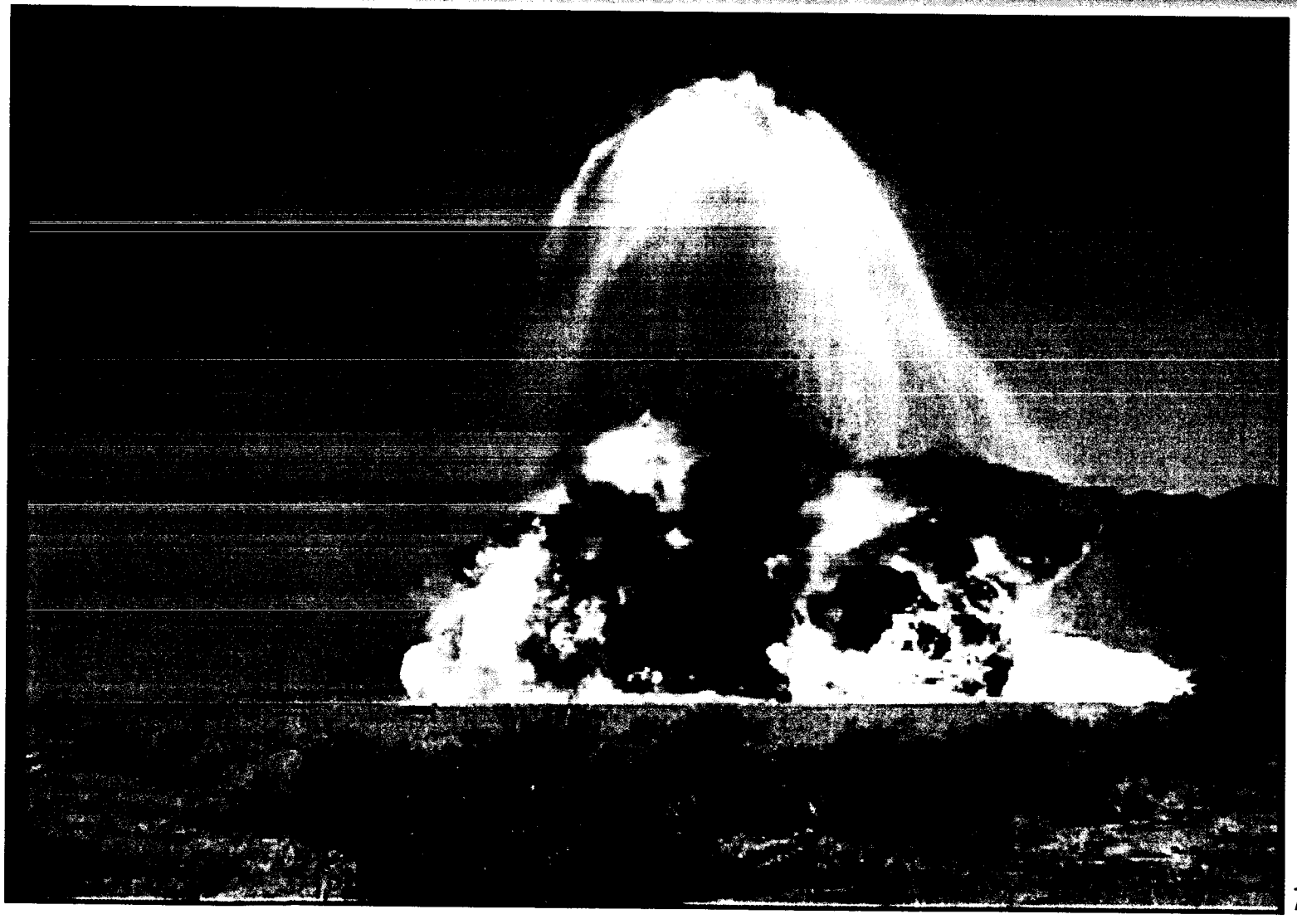
Data requested

- 1. Identify each building on the base, the building number, the current tenant, the type of building (classroom, laboratory, office, housing, etc.), and the square footage.
- 2. The same information as #1 above except instead of the current tenant, it should show the tenant if ALL incoming BRAC recommendations are approved, but none of the transfers out are approved.
- 3. The same information as #1 above except that instead of the current tenant, it should show the tenant if all incoming and outgoing BRAC recommendations are approved.

Data Requested (cont.)

- Question: How does this Realignment complement your existing mission?
- Question: Can the town of Ridgecrest assimilate the population growth?
- Question: Is the water supply capable of supporting the population growth?

Questions?



NAWS China Lake

Indian Wells Valley Groundwater Resources

Michael Stoner, Water Program Manager

July 11, 2005

- Navy and Community have long history of proactive groundwater management.

- IWV Cooperative Groundwater Management Plan signed Sept. 1995. Signatories include:
  - NAWS China Lake
  - IWV Water District
  - City of Ridgecrest
  - Searles Valley Minerals Corporation
  - Inyokern Community Services District
  - IWV Airport District
  - Bureau of Land Management
  - Kern County Water Agency
  - Kern County
  - Eastern Kern County RCD
  - Quist Farms

IWV Cooperative Groundwater Management Plan

Purpose

- Set guidelines/management principles for production, distribution and use of groundwater.
- Continue to develop technical and analytical capabilities to better understand the nature/characteristics of the watershed and aquifer system.
- Apply guidelines towards sound management practices to extend the useful life of the resource.
- Coordination between local agencies and water producers to share info and implement management practices to maintain the life of the reservoir.

IWV Cooperative Groundwater Management Plan

Objectives and Guidelines

- Limit large scale pumping in specific areas
- Distribute new groundwater extractions to minimize effects on existing conditions and maximize long-term water supply.
- Development and implementation of water conservation and education programs.
- Encourage use of treated, reclaimed, recycled, gray and lower quality water where appropriate and economically feasible.
- Explore potential for additional types of water management programs
- Continue cooperative efforts to develop info and data to further define and understand groundwater resources in the valley
- Develop interagency management framework to implement and enforce objectives of cooperative plan.

Water Supply Issues

Historic Groundwater Extractions

Decade High	Extraction Total
1979	27,034 AF
1985	27,214 AF
1996	30,220 AF
2004	25,000 AF

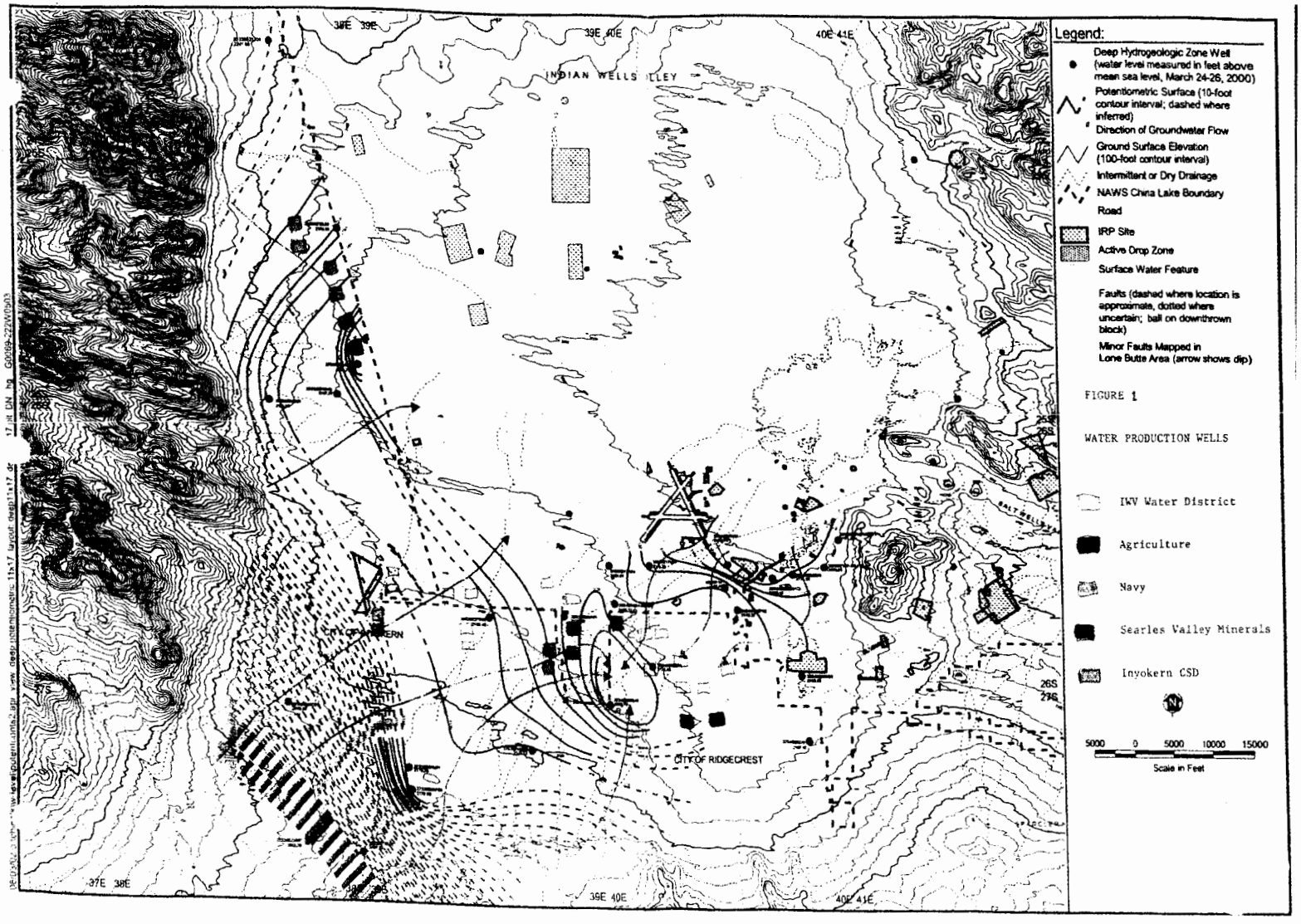
Water Supply Issues

Current Groundwater Extractions

- May 2005 – R/C Population: 26,493
- 2004 Groundwater Extraction: 25,000 AF/YR
- 2004 Groundwater Extraction Distribution:
  - IWVWD 9,000 AF
  - Agriculture 7,000 AF
  - NAWS CL 2,700 AF
  - SVMC 2,500 AF
  - Domestics 3,000 – 4,000 AF
  - Inyokern CSD 100 AF

Total 24,300 – 25,300 AF

Groundwater Extraction Locations



Water Supply Issues

Water Levels

Extraction Areas:

- Harvey Wellfield
  < 1.0 ft/YR decline
- Intermediate Wellfield
  < 1.0 ft/yr decline
- Ridgecrest Wellfield
  < 1.0 ft/yr decline
- Southwest Wellfield
  < 1.0 ft/yr decline
- Domestic Well Areas
  < 0.20 – 0.50 ft/yr decline
- East-Central/Northern Valley Areas
  0.00 – 0.20 ft/yr decline

Aquifer Conditions

Groundwater in Storage

- IWV Groundwater Basin Size: 385 sq mi
- Useable Groundwater-Basin Size: 110 sq mi
- 2,200,000 AF in storage within upper 200 feet of aquifer
- Recent deep wells indicate saturated sediments approx. 1500 feet thick (more than 5 times original estimate)
- Good aquifer characteristics throughout section

Aquifer Conditions

Water Quality in Extraction Areas

- Harvey Wellfield

  TDS decreases since 1970 (500+ppm – 400 ppm)
- Intermediate Wellfield

  TDS increases since 1970's (270 ppm – 290 ppm)
- Ridgecrest Wellfield

  TDS remains static since 1970's (350 ppm – 400 ppm)
- Southwest Wellfield

  TDS increases since 1970's (330 ppm – 340 ppm)

Aquifer Conditions

Water Recharge

- Recharge estimates range from 8,000 – 40,000 AF/YR
- Pleistocene water in basin (15,000 – 40,000 years old)
- High quality water in basin (TDS < 500 ppm)
- Recharge from:
  - Adjacent watersheds
  - Perennial streams in adjacent canyons
  - West to east groundwater movement

Groundwater Recharge

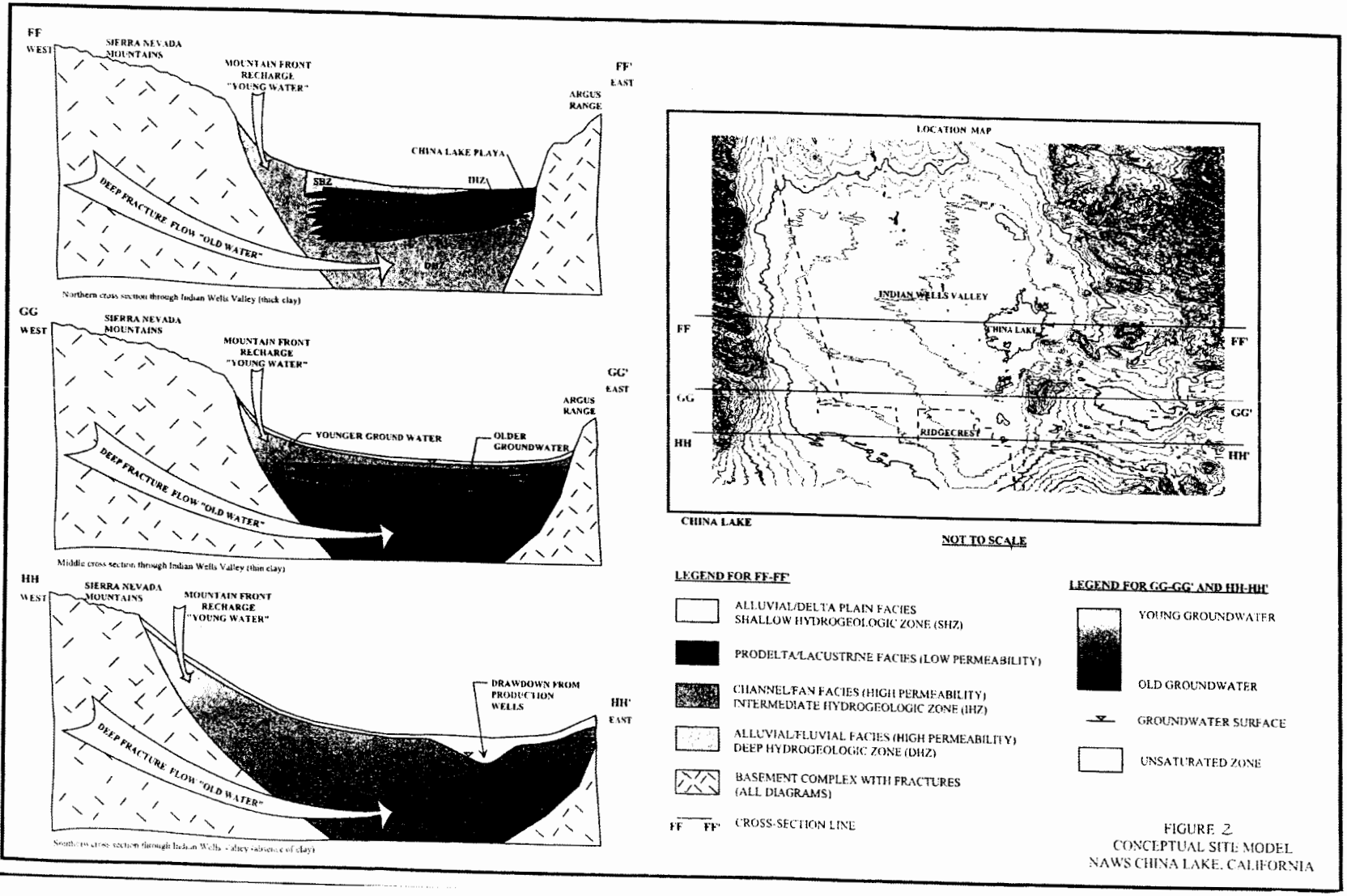


FIGURE 2
CONCEPTUAL SITE MODEL
NAWS CHINA LAKE, CALIFORNIA

Conclusions

1. Based on recent drilling – more groundwater in storage than estimated by USGS. Current estimate: 4M-8M AF.
2. Useable life of basin water resources is 100's of years at current extraction rate (USBR).
3. Water levels in major extraction areas declining up to 1.0 foot/yr. Slight increase in extraction to support population increase is not expected to result in dramatic water level declines.
4. Groundwater quality has improved in one wellfield, slightly degraded in two wellfields and remains constant in another. All wellfields show excellent water quality parameters and no technical reason to expect change with an increase in extraction.

NAVAIR China Lake Hiring and Retention

BRAC Commission Staff Visit
7/11/2005

China Lake Profile

- Civilian Population
  - 1983-1992 = **5160**
  - 1989 Peak # = **5468**
- Current civilian population
  - 2683 plus 384 Shore Station = **3067**
- College recruiting
  - **~100**/yr 1983–1991
  - **171** Peak intake 1985
  - *Goals met* since inception of "Demo" 1980
- Peak total hires 393 in 2002

Education	Total	S&E only
– PHD	118	110
– Master	410	332
– Bachelor	1055	839

- Average Length-of-Service – 18 years
- Average retention rate per year – 94%

Region and History

- Kern County is the Most Affordable Home Market in California (2004) according to a March 2004 survey conducted by the California Association of Realtors.
- Bakersfield Population – Metropolitan area ~ 400K
- Antelope Valley (Lancaster/Palmdale)
  ~430K Population
  'Antelope Valley is one of the fastest growing communities in California'

- BRAC moves to remote sites
- Warminster move to Patuxent River 1992-6
  - ~25% moved
    - Of those who moved
      - 75% Professional
      - & 10% Technician
- Corona move to China Lake 1969-71
  - ~25% moved
  - Retained many for rest of career

Realignment Strategy

1. Acknowledge technical excellence of realigned personnel & extend a rich welcome that includes the community along with the technical co-workforce
2. Use the 3-5 years of facility construction & coordination of workload transition period to phase hiring
3. Expand college recruitment program and journey level hiring
4. Survey to understand critical skills required and expand development program for technical areas required
5. Team with bases closing to offer employment
6. Partner with private industry
7. Work with sponsors to phase transition alignment with employee needs
8. Use Demo / NSPS flexible salary setting to offer competitive salaries and broad bands to move people to the funded work
9. Add 1 Temp HR Staffing team of 4 specialists

Les and David:

Welcome to Ventura County!

In anticipation of your arrival we've taken the opportunity to prepare the following:

1) A current version of the community's analysis and findings of the proposed recommendation s and associated data.

2) A list of questions that we understand will provide relevant insight to underlying issues when asked of base personnel.

In addition, we'd welcome the opportunity to meet with you sometime during your visit for informal conversation (or dining) to provide any insight or pass on any additional information that you might require. Feel free to contact Jack Dodd (805-216-8684) or myself to schedule a meeting.

With best regards,

Bill

Bill Simmons
Director, Ventura County BRAC Taskforce
805-901-5965

PS – You may want to refrigerate the strawberries.

Proposed Questions for
the BRAC Commission
to ask NBVC Personnel

- We understand there is some concern or some confusion between the numbers of inextricable personnel submitted in the data calls and the subsequent numbers that were published in DOD recommendations. Do you have any insight, or can you explain the discrepancies with the numbers?

- Have all of your costs been included in the TECH 18 scenario analysis?

- What would be the impacts of moving the Sea Range and Target operations to China Lake? Is there any cost savings for your customers?

- With the current plan to retain the NAS Point Mugu airfield facilities, does relocating Range Support Aircraft assets and personnel to China Lake make sense and create savings?

- What are the similarities and differences between the EW work you do at Point Mugu and the EW work being done at China Lake? What would be the impact if the Point Mugu EW work were moved to China Lake? What are the reasons for establishing a Center of Excellence at a location with very few existing resources, disrupting the already established and nationally recognized EW Center of Excellence at Point Mugu? Why not consolidate at Point Mugu?

- What is the value of moving the Sparrow Missile Hardware-In-the-Loop (HIL), the AMRAAM HIL and the Radar Reflectivity Laboratories to China Lake?

- It appears that the DOD recommendations would result in moving almost all NAVAIR activities out of Point Mugu to China Lake. What is the NAVAIR plan for Point Mugu?

- How many people do you expect to move, and have you conducted a poll?

- A large portion of the cost savings is based on elimination of positions. Is that a reasonable assumption?

- What have been your personnel recruiting and retention trends within the Command at Point Mugu and China Lake?

- Other than eliminating people, are there any efficiencies to be gained in any of these recommended actions?

- What is the personnel diversity mix at Point Mugu and what is the anticipated impact of the recommended realignment?

Ventura County, California
Community Report to the
BRAC Commission
Relevant to Naval Base Ventura County
July 14, 2005

I. Introduction

The Department of Defense (DoD) significantly deviated from Base Realignment and Closure (BRAC) law and from their own internal departmental guidance in performing their analysis and making certain realignment recommendations that affect Naval Base Ventura County (NBVC) and two of its primary tenant commands: Naval Air Warfare Center, Weapons Division, Pt. Mugu (NAWC WD) and Naval Surface Warfare Center, Port Hueneme Division (NSWC PHD).

The deviations in the DoD analysis processes deal with the following Selection Criteria:

- Military Value (Criteria #1 & #2)
- Costs and Savings (Criteria #5)
- Receiving Community Infrastructure (Criteria #7)

Additionally, deviations from Department guidance to enhance Jointness and Transformation, and specific areas of poor execution of basic data analysis and management have been identified.

Several of DoD's realignment recommendations, including those affecting NAWC WD Sea Range, Targets, Range Support Aircraft and Weapons functions and NSWC PHD Weapons and C^4ISR functions, deviate from BRAC law and DoD guidance <u>and</u> demonstrate poor DoD data analysis and management. Therefore, the discussions of these functions and the imperative to reject/modify the respective DoD recommendations are provided in two different sections of this paper.

This position paper will clearly identify and discuss DoD's deviations and will provide recommendations to the BRAC Commission on changes that should be made prior to the Commission forwarding its report to the President.

DoD's realignment recommendations which apply to NBVC were all originated, staffed and reported by the Technical Joint Cross Service Group (TJCSG). These recommendations, with their respective impacts on the Ventura County community are provided below:

Create a Naval Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation Center

DoD Recommendation: "Realign Naval Base Ventura County, Point Mugu, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation to Naval Air Weapons Station China Lake, CA."

DoD Recommendation: "Realign Naval Base Ventura County, Port Hueneme, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except weapon system integration, to Naval Air Weapons Station China Lake, CA."

Economic Impact on Communities: "Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 5012 jobs (2250 direct jobs and 2762 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA, Metropolitan Statistical Area."

Consolidate Maritime C^4ISR Research, Development & Acquisition, Test & Evaluation

DoD Recommendation: "Realign Naval Base Ventura County, CA, Naval Surface Warfare Center Division, Dahlgren, VA, and Naval Station Newport, RI, by relocating Maritime Information Systems Research, Development & Acquisition, and Test & Evaluation to Naval Submarine Base Point Loma, San Diego, CA, and consolidating with the Space Warfare Center to create the new Space Warfare Systems Command Pacific, Naval Submarine Base Point Loma, San Diego, CA."

Economic Impact on Communities: "Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 286 jobs (127 direct jobs and 159 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA, Metropolitan Statistical Area."

Navy Sensors, Electronic Warfare, and Electronics Research, Development & Acquisition, Test & Evaluation

DoD Recommendation: "Realign Naval Air Warfare Center, Weapons Division, Point Mugu, CA. Relocate the Sensors, Electronic Warfare (EW), and Electronics Research, Development, Acquisition, Test & Evaluation (RDAT&E) functions to Naval Air Warfare Center, Weapons Division, China Lake, CA."

Economic Impact on Communities: "Assuming no economic recovery, this recommendation could result in a maximum potential reduction of 1075 jobs (479 direct jobs and 596 indirect jobs) over the 2006-2011 period in the Oxnard-Thousand Oaks-Ventura, CA, Metropolitan Statistical Area economic area."

The total maximum potential impact to Ventura County would be a reduction of 6373 jobs (2856 direct and 3517 indirect), with 6087 of these jobs slated to move to China Lake.

II. Deviation from Selection Criteria

A. Military Value Criteria

The Department of Defense (DoD) significantly deviated from Base Realignment and Closure (BRAC) law by not adequately considering Military Value criteria. A discussion of these deviations is provided below.

1. Final Selection Criteria Number 1: "The current and future mission capabilities and the impact on operational readiness of the total force of the Department of Defense, including the impact on joint warfighting, training, and readiness."

Military Value Criteria Number 1 means that no BRAC recommendations should be forwarded that would degrade the operational readiness of our joint warfighters. In recommending that the Pt. Mugu Electronic Warfare Center of Excellence be realigned to China Lake, the TJCSG significantly deviated from BRAC law. A discussion of these deviations is provided below.

a. Electronic Warfare

The Electronic Warfare (EW) Center of Excellence (COE) at Point Mugu includes the Electronic Combat Simulation and Evaluation Laboratory (ECSEL), the EA-6B laboratory, the EA-18G laboratory, the Tactical Electronic Reconnaissance Planning and Exploitation System (TERPES) laboratory, the Threat Simulation group and the Electronic Warfare Software Support Activity (EWSSA). These EW labs provide a wide range of synergistic support to Navy, Marine Corps, Air Force and FMS tactical airborne electronic attack (AEA), threat simulation and electronic threat intelligence customers.

Pt. Mugu has been the Navy's EW COE for over 50 years. The 368 civilian and 11 military personnel located at Pt. Mugu possess over 4500 collective years of specialized EW experience, with an average of over 15 years per person of EA-6B, AEA and threat analysis engineering experience.

The Pt. Mugu EA-6B Weapons System Support Laboratory provides real-time operational support to the warfighter. This capability is maintained 24/7/365. When a crisis occurs in the world, the lab responds to the urgent needs of the warfighter. Examples of recent support include pushing reprogrammed user data files to all deployed EA-6B squadrons on 9/11/2001 and providing 100% responses to over 31,900 data requests in the June 2003 to June 2004 timeframe.

Based on its resident EW expertise, including its extensive EA-6B experience, Pt. Mugu was chosen by the Navy program manager as the optimum site for the EA-18G Software Support Activity laboratory. This laboratory is currently in development. When complete, Pt. Mugu EW specialists, working in a coordinated technical environment with the F/A-

18 mission systems software specialists at China Lake, will develop the EA-18G EW systems.

The TERPES was developed, tested and is maintained at Pt. Mugu. It depends on the utilization of electronic support measures instrumentation in the EA-6B to capture the electronic signals from a threat. These signals are processed by the TERPES to present the electronic order of battle of enemy forces. The TERPES lab provides operational support to Marine Corps combat operations on a 24 hour a day basis on order to capture, analyze and distribute signals information deployed operational forces.

The Threat Simulation group at Pt. Mugu uses electronic intelligence and research into foreign electronic capabilities to develop systems that stimulate U.S. weapons and sensors in the same manner as the threat. The systems developed in this program have proven invaluable in past conflicts when the enemy employed weapons and sensors that were not countered by our embedded countermeasures in tactical aircraft (TACAIR). These Threat Simulators can be rapidly deployed to our operating forces and have been used tactically in hostile environments.

The EWSSA provides direct new system software builds for U.S. jamming and receiving systems. When new enemy threat systems are introduced, the EWSSA is responsible for developing the new software for existing fleet receiving and jamming systems to counter this threat. This effort entails a highly trained engineering staff to analyze the threat, develop techniques to defeat the threat system and incorporate the new capability into the jamming system software. The EWSSA provides direct support to a wide variety of Navy, Marine Corps, Air Force and Army platforms and EW receiver and jammer systems.

The TJCSG deviated from the Military Value criteria by recommending that the Pt. Mugu Electronic Warfare capability be realigned to China Lake. This recommendation was made in spite of the following facts:

Pt. Mugu is the current EW Center of Excellence. The intellectual center of mass is at Pt. Mugu. Pt. Mugu employs approximately 400 Electronic Warfare personnel, while China Lake employs only about 30 personnel in the same EW disciplines.

Execution of the proposed EW realignment would cause significant disruption to the warfighting capabilities of our deployed forces. By forcing the tear-down, transition and reconstruction of the EW labs, services currently provided 24/7 would be interrupted for months, if not years. Combined with the loss of intellectual capital described below, the down-time would severely impact the nation's ability to counter enemy weapons and electronic warfare systems. As a result, our warfighters would be placed in harm's way.

The Naval Air Systems Command (NAVAIRSYSCOM) recognizes the value of the existing EW COE to the warfighter and the difficulty in reconstituting this capability at another location, and as a result, has recommended establishment of a Joint EW COE at

Pt. Mugu. NAVAIRSYSCOM leadership, service EW program managers and the operational EA-6B wing commander are all opposed to this proposed realignment.

Realignment of EW to China Lake would result in a significant loss in expert personnel and intellectual capital. This intellectual capital has evolved over decades at Point Mugu and cannot be moved without disruption to mission effectiveness. The time period required to train an Electronics Engineer to become a functional EW systems engineer is estimated to be 7-10 years.

As opposed to the DoD justification contained in their recommendations to the Commission, there is no redundant infrastructure between Pt. Mugu and China Lake. Movement of EW to China Lake would not make more efficient use of the Electronic Combat Range. The ECSEL and other Pt. Mugu indoor range facilities provide the preferred methodology for testing, at significantly lower cost and greater fidelity. If the Pt. Mugu EW labs were relocated to China Lake, they would not result in increased use of the ECR.

The proposed realignment decreases Military Value. It would negatively impact warfighter capabilities, it would unnecessarily cost the taxpayers millions of dollars and it would not result in any increased synergy with China Lake. Due to the fact that the TJCSG significantly deviated from the defined selection criteria, the DoD recommendation to realign the Electronic Warfare from Pt. Mugu to China Lake should be rejected.

2. Final Selection Criteria Number 2: "The availability and condition of land, facilities and associated airspace (including training areas suitable for maneuver by ground, naval, or air forces throughout a diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations."

In his September 3, 2004 Memorandum to DoD leadership, Deputy Secretary of Defense Wolfowitz providing further guidance on "BRAC 2005 Military Value Principles." His guidance included direction that the Military Departments and the Joint Cross-Service Groups should use a number of principles when applying military judgment in their deliberative processes. These principles included:

"The Department needs research, development, acquisition, test, and evaluation capabilities that efficiently and effectively place superior technology in the hands of the warfighter to meet current and future threats and facilitate knowledge-enabled and net-centric warfare."

The combination of Military Value Criteria Number 2 and Mr. Wolfowitz's implementing guidance should have sent a very clear message to the JCSG's. That message was, in order to enhance military value, no BRAC recommendations should be forwarded that would degrade the efficiency or effectiveness of DoD's test and training ranges or their supporting functions.

In recommending that Sea Range, Targets and Range Support Aircraft be realigned from Pt. Mugu to China Lake, the TJCSG significantly deviated from BRAC law and from the above DoD implementing guidance. A discussion of those deviations is provided below.

a. Sea Range

The Pt. Mugu Sea Range, encompassing 36,000 square miles of controlled airspace is DoD's largest and most heavily instrumented sea range. The Sea Range is national range and is designated as a Major Range and Test Facility Base (MRTFB). The Sea Range operates range instrumentation located on coastal mountains and on off-shore islands, including the Navy-owned San Nicolas Island, located 60 miles from the coastline. The Range supports open-ocean and littoral testing of tactical, strategic and missile defense weapons, weapons systems and aircraft systems; Fleet training and joint experimentation. The Pt. Mugu Sea Range provides services to a large number of test and training customers. For example, its FY-04 customer base was 33% Air Force, 26% Navy, 19% Missile Defense Agency, 9% Other DoD, 8% Foreign Military Sales, 3% Commercial and 2% NASA. The Sea Range is one of four open-air ranges operated under a single NAVAIRSYSCOM Ranges Department.

The TJCSG deviated from the Military Value criteria by recommending that the Pt. Mugu Sea Range be realigned to China Lake as part of the Weapons and Armaments RDAT&E Center. This recommendation was made in spite of the fact that:

(1) Over 10 years of internal reorganizations and restructuring have eliminated all duplicative capabilities and management layers between the Pt. Mugu and China Lake ranges
(2) Movement of Sea Range jobs from Pt. Mugu to China Lake would result in significant loss in intellectual capital
(3) The Sea Range provides support to a large number of non-Weapons and Armaments customers
(4) Operation of the Sea Range is inextricably linked to the geography
(5) No synergy would be gained by realigning the Sea Range to China Lake
(6) Significant unnecessary non-recurring and recurring costs would be incurred by both the Range and its customers
(7) The efficiency and effectiveness of the Sea Range would be decreased, and
(8) Safety risk to both participating and non-participating personnel would be increased by moving control of developmental weapons testing to a location more than 150 miles away from the test venue.

From senior DoD officials involved in both Technical and Education & Training JCSG's, we learned that, since Open Air Ranges and their supporting functions, were under the purview of the E&T JCSG, the TJCSG should not have made realignment recommendations regarding the Pt. Mugu Sea Range. TJCSG personnel exceeded their authority by recommending that Sea Range and associated Targets and Range Support Aircraft personnel be realigned to China Lake.

The proposed realignment decreases Military Value. It would not result in any increased synergy with China Lake W&A programs, but it would negatively impact cost, safety and operational efficiency of Sea Range operations. Due to the fact that the TJCSG significantly deviated from the defined selection criteria and exceeded its authority in making OAR recommendations, the DoD recommendation to realign the Sea Range from Pt. Mugu to China Lake should be rejected.

b. Targets

Pt. Mugu has served for over sixty years as the Navy's premiere aerial and seaborne targets engineering, operations and logistics site. It is the only site that operates all of the Navy's air and surface launched target systems and is the only Center of Excellence for target systems within the Navy. The Pt. Mugu target capability originated as, and remains a natural and necessary extension of the Sea Range.

Aerial targets, maintained, operated and refurbished at Pt. Mugu, are comprised of subscale subsonic targets and full-scale missile targets capable of remote operation by an air or ground-based controller. The seaborne targets, maintained, operated and refurbished at Port Hueneme, consist of a full array of small high speed attack boats, full-sized remotely operated ships and sea-going target launch platforms.

The TJCSG deviated from the Military Value criteria by recommending that Pt. Mugu's targets personnel be realigned to China Lake as part of the Weapons and Armaments RDAT&E Center. This recommendation was made in spite of the fact that an average of 92% of aerial target operations are conducted at the Pt. Mugu Sea Range, while an average of only 8% are conducted at China Lake. 100% of seaborne target operations are conducted at the Sea Range. Moving all target operations from the Sea Range to China Lake and then transporting the people and equipment back to Point Mugu on a daily basis to conduct operations on the Sea Range would result in significant increases in operating and maintenance costs.

The proposed realignment decreases Military Value. It would not result in any increased synergy with any China Lake W&A program, but it would negatively impact Sea Range operations. By degrading the efficiency and effectiveness of Sea Range operations and imposing unnecessary non-recurring and recurring costs, this recommendation significantly deviates from the defined selection criteria. The DoD recommendation to realign the targets organization from Pt. Mugu to China Lake should be rejected.

c. Range Support Aircraft

Air Test and Evaluation Squadron Three Zero (VX-30), a NAVAIRSYSCOM command based at NAS Pt. Mugu, operates P-3, C-130 and F/A-18 aircraft in support of both T&E and Fleet training activities. The P-3 and C-130 aircraft, known as Range Support Aircraft (RSA), perform an average of 86% of their sorties on the Pt. Mugu Sea Range, 13% of their sorties off-range (primarily in support of world-wide MDA and NASA

operations) and only 1% of their sorties on the China Lake land range. The VX-30 aircrew, Sea Range and targets personnel, flying in the RSA, perform range surveillance, clearance, telemetry, flight termination, optics, targets launch and logistics support functions for the Sea Range.

The TJCSG deviated from the Military Value criteria by recommending that VX-30 be realigned to China Lake as part of the Weapons and Armaments RDAT&E Center. This recommendation was made in spite of the fact that VX-30 does not test weapons and armaments, but does support a wide variety of non-weapons customers on the Sea Range. The TJCSG also made this recommendation in spite of the significant additional costs that would have to borne, by both BRAC appropriations and Sea Range customers, as a result. The non-recurring costs to build a new hangar and ramp space at China Lake are estimated at over $25M. The recurring costs of operations would increase by approximately $6.8M per year in order to pay for the additional flight time to/from China Lake and the costs of the required maintenance detachments from China Lake. Other unknown costs would accrue as a result of decreased on-station time, higher total flight time, decreased aircraft fatigue life, more frequent depot-level repairs, and loss of Sea Range operational efficiency due to the RSA being based over 150 miles away from the Sea Range.

The proposed realignment decreases Military Value. If VX-30 were realigned from Pt. Mugu to China Lake, the quality of support to the Sea Range would be significantly degraded while increasing the cost to the taxpayer by several millions of dollars per year. By degrading the efficiency and effectiveness of Sea Range operations and imposing unnecessary non-recurring and recurring costs, this recommendation significantly deviates from the defined selection criteria. The DoD recommendation to realign VX-30 from Pt. Mugu to China Lake should be rejected.

B. Other Criteria

DoD significantly deviated from Base Realignment and Closure (BRAC) law by not adequately considering other mandated Selection Criteria. A discussion of these deviations to Criteria #5 (Costs and Savings) and Criteria #7 (Receiving community infrastructure) is provided below.

1. Final Selection Criteria Number 5: "The extent and timing of potential costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for the savings to exceed the costs."

The TJCSG did not perform a proper analysis of the costs and savings associated with their recommended realignments. Specifically, extremely poor analyses were performed on the TECH 18 (Weapons and Armaments) and TECH 54 (Electronic Warfare) scenarios. A detailed discussion and a summary of more accurate costs and savings are provided below.

a. Basic TECH 18 Scenario as Submitted in the DoD Recommendations to the BRAC Commission

This scenario realigns all W&A RDAT&E billets from NBVC (and other locations) primarily to China Lake. It fails to include the costs of moving the Range and Targets Functions (facilities and equipment) to China Lake and does not include the additional recurring costs of conducting Range and Target Operations from China Lake vice NBVC. It also assumes an across the board (military, civilian, and contractor) reduction in required billets of 15%.

Summary Results:

Payback Year	:	2015 (7 years)
NPV in 2025 ($K)	:	-433,404 (negative number = savings, positive = loss)
1-Time Cost ($K)	:	358,142

b. Basic TECH 18 Scenario Modified to Include Anticipated Actual Costs

The true cost of TECH 18 must include the anticipated actual costs of moving the Range and Target functions from NBVC to China Lake. Additionally, due to over 12 years of consolidation of technical, administrative, and management functions across the single NAWC WD organization, the assumed 15% savings would not occur. The July 2005 GAO report found fault with this 15% savings number used by the TJCSG and stated that a 5.5% savings would be more accurate. Due to the complete lack of redundancy in technical, administrative and management personnel between the NAWC Pt. Mugu and China Lake sites, a more accurate estimate would be zero savings. Using the data taken from the certified responses of NBVC and China Lake to Scenario Data Call DON-0162, January 11, 2005, and making the above two changes to the TECH 18, COBRA analysis results in dramatic changes to the bottom line numbers.

Payback Year	:	100+ Years
NPV in 2025 ($K)	:	249,094 (loss)
1-Time Cost ($K)	:	440,497

c. Basic TECH 18 Scenario Modified to Exclude Sea Range, Targets and VX-30 Personnel and Facilities

As discussed in paragraph II.A.2 above, Sea Range, Targets and VX-30 Range Support Aircraft should not be moved to China Lake. By running the COBRA model without the associated MILCON and moving expenses associated with the Sea Range, Targets and VX-30, and eliminating the 15% savings, as discussed above, yields the following bottom line numbers:

Payback Year	:	2037 (29 Years)
NVP in 2025 ($K)	:	77,811 (loss)
1-Time Cost ($K)	:	269,727

In summary, the TJCSG can not have it both ways. It should have either included the range and targets costs and incurred a 20 year NPV of +$249,094,000 or left the Range, Targets and VX-30 activities at Pt. Mugu (the most sensible solution) and incurred a 20 year NPV of +$77,811,000.

d. Basic TECH 54 Scenario as Submitted in the DoD Recommendations to the BRAC Commission

This scenario relocates the entire Pt. Mugu Electronic Warfare (EW) Center of Excellence from NBVC to China Lake.

Summary Results:

Payback Year	:	2021 (12 Years)
NPV in 2025 ($K)	:	-16,888 (savings)
1-Time Cost ($K)	:	72,699

e. Basic TECH 54 Scenario with Unjustified Personnel Savings Removed

The Basic Scenario shows 11 military, 368 civilian, and 100 contractor positions being realigned from NBVC to China Lake with no reductions. However, the Receiving Activity (China Lake) claimed a Miscellaneous Recurring Savings of $3,010,000 per year. The data call footnote states "Identifies savings attributed to a calculated payroll savings for reduced Technical and Admin personnel. Justification is an un-itemized value. Details in Source file 1." A review of the source file, and the documentation preceding that source file, revealed that this $3M/year number was an un-itemized value with no justification. The results of the COBRA model run without this unjustified recurring savings are shown below:

Payback Year	:	2040 (31 Years)
NPV in 2025 ($K)	:	24,961 (loss)
1-Time Cost ($K)	:	72,699

f. In summary, both the Weapons and Armaments (TECH 18) and the Electronic Warfare (TECH 54) scenarios recommended by the TJCSG will result in high one-time costs and unacceptable long-term costs to the taxpayer. By not considering these costs in its analysis, DoD significantly deviated from BRAC law.

2. Final Selection Criteria Number 7: "The ability of the infrastructure of both the existing and potential receiving communities to support forces, missions, and personnel."

The TJCSG significantly deviated from this Selection Criteria by accepting the Bakersfield Metropolitan Statistical Area (MSA) as being an accurate representation of Ridgecrest's ability to support the potential realignment of personnel.

Bakersfield, located approximately 115 miles west of China Lake, is over two hours away, with almost nothing in between the two cities except mountains and desert. The

only city of any size within 60 miles of Ridgecrest is California City, 35 miles away with a population of 8400.

The relocation of nearly over 6300 positions to Ridgecrest (population approximately 25,000) from all activities would represent a total influx of about 22,000 people (at a 3.5 to 1 ratio) in the 2007-2008 timeframe. This would require essentially doubling the size of the city of Ridgecrest in the next two years.

The June 16, 2005, Multiple Listing Service for available homes, showed 12 houses for sale in the city of Ridgecrest. The MSA data shows 22,912 vacant housing units, but the majority of those are in Bakersfield, 115 miles from China Lake. Housing for an additional 22,000 people could ultimately be constructed in the Ridgecrest area, but it is not likely that this could be accomplished by 2008.

Doubling of the size of Ridgecrest by developing an additional 21 square miles of real estate, raises serous environmental concerns, also. This large influx of people would definitely affect the delicate environmental balance found in the Mojave Desert, including the habitat of the Mojave Ground Squirrel, the Desert Tortoise and the Kangaroo Rat.

The statistics for medical providers are misleading. The Bakersfield MSA shows 1,231 beds, and 937 physicians, but the Ridgecrest Regional hospital only has 80 beds and 65 physicians. When Ridgecrest residents are faced with any significant medical challenges, they invariably leave town to find solutions. This problem would only be exacerbated by the addition of another 22,000 residents.

The city of Ridgecrest could expand its utility services, including power, water, sewage and refuge, but it is doubtful that it could obtain the funding and establish the infrastructure in time for the 2007-2008 influx.

The availability of schools is another serious issue to be considered. With the known extended timeframes associated with passing school bond initiatives, the known state education funding problems and the normal lengths of time required to design, obtain approvals and build new schools, it is unlikely that adequate educational facilities could be available by 2007-2008.

The TJCSG scenario data calls asked China Lake if the Bakersfield MSA could accommodate a number of separate realignment actions. Taken in pieces, perhaps they could be done. But taken in total, especially with the short timeframe in which to accomplish all actions, it is unlikely that Ridgecrest could accommodate the recommended realignments.

DoD deviated from the Selection Criteria guidance by not adequately assessing the total impact of all realignment actions on the city of Ridgecrest and by accepting the Bakersfield MSA as being representative of Ridgecrest.

III. Deviation from Departmental Guidance to Enhance Jointness and Transformation

The TJCSG significantly deviated from Departmental guidance to enhance Jointness and Transformation. A discussion of these deviations is provided below.

In a November 15, 2002 memorandum to his DoD leadership, Secretary of Defense, Donald Rumsfeld provided the following guidance: "A primary objective of BRAC 2005, in addition to realigning our base structure to meet our post-Cold War force structure, is to examine and implement opportunities for greater joint activity...I am confident we can produce BRAC recommendations that will advance transformation, combat effectiveness, and the efficient use of the taxpayer's money."

In his September 8, 2004 memorandum for DoD leadership, including the Chairmen of the Joint Cross Service Groups, Under Secretary of Defense Michael Wynne recommended several "Transformational Options" for approval, including: "Establish regional Cross-Service and Cross-Functional ranges that will support Service collective, interoperability and joint training as well as test and evaluation of weapons systems."

In spite of Mr. Rumsfeld's and Mr. Wynne's guidance, it appears that very few DoD recommendations actually enhance jointness and transformation. Most of the recommendations, including those directly affecting NBVC, are service centric, vice joint. This lack of jointness and transformation has been noted by others, also.

In his April 6, 2005 weekly update to SECDEF, Under Secretary Wynne stated that the Navy's approach "can limit BRAC's transformational potential." He further noted that the Navy "Worked closely with joint cross-service groups, but leaned toward service centric rather than joint solutions."

During Dr. Ronald Sega's testimony before the BRAC Commission on May 19, 2005, Commissioner Coyle noted: "But from what I can see, you recommended very little in the way of cross servicing or jointness that would bring services together in a technical way. And my question is: Why didn't you?" Dr. Sega's response included: "It is our hope that in these areas that are largely co-locating, consolidating at the service level will evolve to more of a joint character."

In its July 2005 "Analysis of DOD's 2005 selection Process and Recommendations for Base Closures and Realignments," the Government Accountability Office (GAO) reported that "Some proposed actions represent some progress in emphasizing transformation and jointness, but progress in these efforts varied without clear agreement on transformational options to be considered, and many recommendations tended to foster jointness by consolidating functions within rather than across military services." In comments directly aimed at the TJCSG recommendations, GAO stated: "Limited progress was made to foster greater jointness and transformation."

The TJCSG's deviations from Departmental guidance resulted in recommendations which adversely affect Naval Base Ventura County. These deviations are discussed below.

As discussed above, the Pt. Mugu Sea Range is a national range providing joint services to a large number of test and training customers. For example, its FY-04 customer base was 33% Air Force, 26% Navy, 19% Missile Defense Agency, and 9% Other DoD. In spite of Under Secretary Wynne's recommendation to establish cross-service ranges and a clear opportunity to expand the Sea Range's joint mission, the TJCSG recommended moving all Pt. Mugu Range, Targets and Range Support Aircraft personnel to China Lake as part of a service-centric Naval Integrated Weapons and Armaments RDAT&E Center.

As described above, the EA-6B laboratory directly supports the joint airborne electronic attack missions of the Navy, Marine Corps and Air Force. This capability is an integral part of the larger EW Center of Excellence at Pt. Mugu. Instead of making recommendations that would enhance the value of the joint EA-6B laboratory at Pt. Mugu, the TJCSG recommended tearing it down and moving it to a service-centric Navy Sensors, Electronic Warfare, and Electronics RDAT&E center at China Lake.

The Advanced Medium Range Air-to-Air Missile (AMRAAM) hardware-in-the-loop (HIL) laboratory at Pt. Mugu provides direct support to the AMRAAM joint program office. This is the only AMRAAM HIL in operation and supports both Air Force and Navy RDAT&E and Raytheon, the system contractor. Rather than enhancing the value of this joint laboratory, the TJCSG recommended tearing it down and moving it to China Lake as part of a service-centric Naval Integrated Weapons and Armaments RDAT&E Center.

The Radar Reflectivity Laboratory (RRL) at Pt. Mugu is the only one of its kind in the world. The RRL provides monostatic and bistatic radar cross-section characterization services to a wide variety of joint customers, including Navy and Air Force aircraft programs, UAV and weapons programs, Navy ship and submarine programs, the Missile Defense Agency and DoD sponsored R&D programs. Rather than enhancing the value of this joint laboratory, the TJCSG recommended abandoning and moving the RRL to China Lake as part of a service-centric Naval Integrated Weapons and Armaments RDAT&E Center.

Co-Location $\neq$ Transformation. While the TJCSG made many recommendations which resulted in co-location of similar functions, co-location is not transformational. In fact it is just the opposite. In the business world, the transformation is to more distributed organizations. In this regard, Naval Air Systems Command leadership exhibited great foresight in 1992 by establishing the Naval Air Warfare Center, Weapons Division, with the two campuses at Pt. Mugu and China Lake. NAWC WD was established as, and remains an integrated command with a single management and financial structure. In the recent words of the first NAWC Commander, RADM George Strohsahl (ret): "The technical work at Pt. Mugu since the creation of the Naval Air Warfare Center (NAWC) and the introduction of a competency aligned organization within the Naval Air Systems

Command (NAVAIR) has been totally integrated with related work at other NAWC locations. Management layering and duplicative work has been eliminated. If the work is relocated (realigned in BRAC parlance) little savings will accrue through elimination of jobs. The move will simply attempt to pick up the people and place them in different buildings some 150 miles away."

RADM Strohsahl goes on to say: "Modern internet, video teleconferences, and other communications capability seamlessly link these physically separated elements to form effective teams. The NAWC and the current NAVAIR management concept were founded on this modern reality. It has worked well for them for over a decade. This proposed costly relocation is a giant step back in time without any tangible benefit. The BRAC recommendation in this instance is attempting to fix something that simply isn't broken" and summarizes his feelings about the proposed realignment actions by saying: "The BRAC commission must understand the terrible error that has been made and remove this realignment from the final BRAC list."

Practical examples of the transformational distributed connectivity referenced by RADM Strohsahl can be seen in both the EA-18G and AMRAAM laboratories at Pt. Mugu. The EA-18G airborne electronic attack systems ("EA-18G backseat"), being developed and tested at Pt. Mugu, are electronically linked to the EA-18G mission systems ("EA-18G frontseat") being developed and tested at China Lake. The AMRAAM systems being developed and tested at Pt. Mugu are electronically linked with the F/A-18 systems being developed and tested at China Lake. None of these labs have to be in the same room, or even on the same base to operate effectively. Both are examples of transformational ways of doing business. The DoD recommendations would result in a big transformational step backwards, while interrupting critical service to the warfighter, unnecessarily spending millions of tax dollars and disintegrating a skilled and motivated workforce.

The TJCSG significantly deviated from Department guidance to enhance jointness and transformation. Instead, it recommended two specific service-centric realignments (W&A and EW) that would significantly damage joint value and would set Weapons and EW transformation back 15 years. At the same time, these DoD recommendations would while result in loss of valuable intellectual capital, would adversely affect our warfighters and would impose significant unnecessary expenses on the taxpayer.

IV. Poor Execution of Basic Data Analysis and Management Functions

The Technical Joint Cross Service Group did an extremely poor job of analyzing and managing the data which was submitted by both NAWC WD and NSWC PHD. The most egregious example of this poor execution was in the TJCSG handling of what has become known as the "Question 47" data. A description of the Question 47 issue is provided below.

Both sites of Naval Base Ventura County responded to scenario data call TECH 2, but TECH 2 was not the implementing action. TECH 2 was translated into TECH 18, which

was used by the TJCSG in its analysis. The TJCSG analyzed TECH 18 without any input from the Point Mugu or Port Hueneme sites.

The COBRA data indicates that the TJCSG analysis used incorrect numbers. Apparently, the TJCSG made the same mistake across the board for all TECH 18 losing activities. This error is particularly significant for Naval Base Ventura County since it is by far the largest contributor to the TECH 18 scenario. The most significant results are that costs associated with this action were grossly understated, and that the savings associated with this action are extremely overstated

When TECH 2 was issued, guidance included "Report FTEs, equipment and facilities that are within this scenario category (W&A) but are an inextricable part of a specific effort performed by your activity that is not Weapons; however, identify and explain in #USN0047 those areas of conflict."

NBVC personnel argued that it would not be appropriate to include NAWC Sea Range, Targets and NSWC Weapons Systems Integration personnel in this data call response. In particular, the Sea Range personnel spread their work across all Defense Technical Areas, including Air Platforms and Space Systems. Additionally, these personnel do not work on weapons and armaments; they work on range and target systems. In prior scenarios this inseparable work was not included in the personnel and equipment movement, dynamic costing or military construction requirements as they were never intended to be moved by either the gaining or losing activities.

After much discussion between Navy principals, NAWC WD and NSWC PHD were directed to include the higher numbers of personnel, but to describe these "inextricable" personnel in Question 47. The NAWC WD Question 47 wording submitted was:

"The following areas would require a reduction in the number of personnel, equipment, and facilities to be relocated to the receiving site: (1) F-14 weapons system support has been terminated, a reduction of 132 civilians and 24 contractors; (2) An error of 33 civilians performing EW support; (3) personnel, mission equipment, and facilities performing outdoor air range operations. These are an integrated, fixed base capability that must remain at the Point Mugu site to continue sea range operations, net reduction of 505 civilians, 153 contractors, 2667 tons of mission equipment, and 1022.4 KSFT of facility space; (4) Retaining the 3 anechoic chambers whose primary customer is the targets range complex, a net reduction of 14 civilians, 3 contractors, 90 tons of support equipment, and 44.2 KSF; (5) Keeping logistical support for targets with the targets hardware, a net reduction of 24 civilians,; and (6) Not moving the general and administrative support that currently services both China Lake and Point Mugu, a net reduction of 143 civilians and 22 contractors."

This statement was inclusive of mission equipment and facilities performing outdoor air range operations include both range and target operations.

In the SECDEF recommendation coming from TECH 18 the impact on the community is shown as a total of 2250 direct jobs. It is clear none of the question 47 reductions were applied in the recommendation.

This impact of the ignoring the question 47 reduction in TECH 18 is significant. None of the cost of the mission equipment nor operational considerations to make a mission capable range where included but all of the personnel would be moved to China Lake. Neither the losing nor receiving sites included dynamic or facility costs to relocate the functions identified in question 47. Since the analysis used the full personnel movements without the accompanying costs, the return on investment calculation is incorrect.

A similar problem occurred with the NSWC Port Hueneme in TECH 2A. Mission critical inextricable functions with personnel counts were included in the certified question 47 response but were excluded from the TECH 18 analysis. The certified data indicated a total of approximately 432 direct jobs in the movement tables but indicated only 134 were movable due to the inextricable functions being performed at the Hueneme site. Subsequently, the recommendations stemming from TECH 18 included all the personnel in the move without regard to the input from the site experts.

Since the DoD recommendations were published on May 13th, both the Navy personnel at NBVC and personnel outside the base, including elected officials, have been trying to find out what the TJCSG did with the Question 47 inputs. Answers have included:

From the Lead of the W&A subgroup of the TJCSG: "I don't know."

From the GAO inquiry: "A Navy official said that most Navy activities asked to exclude large numbers of personnel from consideration in recommendations and the technical group was consistent in disregarding these exclusions." (In a telephone conversation with the GAO personnel who researched this subject, we were told that their DoD point of contact told them that the TJCSG analysts did not understand the Question 47 exclusions, so they ignored them.)

In a response to Congressman Gallegly's question on why the TJCSG ignored the Question 47 exclusions, Mr. Alan R. Shaffer, Executive Director of the TJCSG, responded: "Naval Base Ventura County information was reviewed but not included in the final analysis due to expert military judgment."

A summary of the timeline of what we think happened is provided below:

(1) NBVC personnel who prepared the data call responses identified the inconsistencies and confusion that would result if they lumped all personnel into "W&A" or "C^4ISR" categories.
(2) NBVC personnel were directed to include all of the W&A and C^4ISR personnel, but were told to identify areas of conflict for those personnel considered to be an inextricable part of their activity's mission in their Question 47 inputs.

(3) NBVC operated in good faith by identifying all positions in each category, and also specifically identified those positions considered inextricable in their Question 47 responses.
(4) TJCSG personnel did not understand the Question 47 exclusions, did not ask NBVC personnel for clarification and ignored the data.
(5) DoD rolled up all of the realignment numbers, including those from the TJCSG, and published a recommendation to realign 2250 NBVC personnel, when the correct number, subtracting the Question 47 exclusions, should have been 803.

Bottom line position: Improperly realigning the 1447 inextricable NBVC personnel, with the resulting loss of intellectual capital, adverse effects on the warfighter and unnecessary expense to the taxpayer, due to TJCSG staff incompetence / inattention to detail is an egregious error which should be corrected by the Commission.

VI. Conclusions

The Technical Joint Cross Service Group significantly deviated from BRAC law, specifically in not complying with the defined Selection Criteria.

These deviations resulted in faulty realignment recommendations regarding Electronic Warfare; Range, Targets and Range Support Aircraft; Weapons and Armaments; and C^4ISR functions at NBVC.

The Technical Joint Cross Service Group significantly deviated from internal DoD guidance to enhance Jointness and Transformation.

These deviations resulted in faulty realignment recommendations regarding Electronic Warfare and Weapons and Armaments functions at NBVC.

The Technical Joint Cross Service Group did a very poor job of basic data analysis and management.

These errors resulted in faulty realignment recommendations regarding Range and Targets, Weapons and Armaments, and C^4ISR functions at NBVC.

The bottom line is that the Technical Joint Cross Service Group did an extremely poor job of judging military value, considering Jointness and Transformation and analyzing and managing the data. A majority of their realignment recommendations simply do not make sense. Most of the affected positions are not synergistic with the Weapons and Armaments and Electronics Warfare work at China Lake, nor with the C^4ISR work at Pt. Loma. These jobs are integral to the existing NAWC WD Sea Range and EW Center of Excellence and to the NSWC PHD shipboard combat systems integration laboratory. Realigning these positions to China Lake would result in significant losses of intellectual capital, would adversely affect our warfighting capabilities and would waste hundreds of millions of dollars of taxpayers' money.

VII. Recommendations

Detailed recommendations for changes to be made to the DoD recommendations are provided below:

Modify the DoD Recommendation: "Realign Naval Base Ventura County, Point Mugu, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation to Naval Air Weapons Station China Lake, CA."

Reduce the number of Range, Targets, Anechoic Chamber, Logistics and G&A positions to be realigned from Naval Air Warfare Center, Point Mugu by the number defined as being inextricable to the command's core mission. Specifically, reduce the number of positions to be realigned by 851 civilian and 202 contractor positions.

Reject the recommendation to move the VX-30 test squadron from Pt. Mugu to China Lake. Retain the Test Squadron Range Support Aircraft base of operations at Pt. Mugu. Specifically, reduce the number of positions to be realigned by 32 civilian and 214 military positions.

Modify the DoD Recommendation: "Realign Naval Base Ventura County, Port Hueneme, CA, by relocating all Weapons and Armaments Research, Development & Acquisition, and Test & Evaluation, except weapon system integration, to Naval Air Weapons Station China Lake, CA."

Reduce the number of Weapons and Armament positions to be realigned from Naval Surface Warfare Center, Port Hueneme by the number defined as being inextricable to the command's core mission. Specifically, reduce the number of positions to by 291 civilian and 6 military positions.

Modify the DoD Recommendation: "Realign Naval Base Ventura County, CA, Naval Surface Warfare Center Division, Dahlgren, VA, and Naval Station Newport, RI, by relocating Maritime Information Systems Research, Development & Acquisition, and Test & Evaluation to Naval Submarine Base Point Loma, San Diego, CA, and consolidating with the Space Warfare Center to create the new Space Warfare Systems Command Pacific, Naval Submarine Base Point Loma, San Diego, CA."

Specifically reduce the number of C^4ISR jobs to be realigned from Naval Surface Warfare Center, Port Hueneme by the number defined as being inextricable to the command's core mission. Reduce the number of positions to be realigned by 96 civilian and 1 military positions.

Reject the DoD Recommendation: "Realign Naval Air Warfare Center, Weapons Division, Point Mugu, CA. Relocate the Sensors, Electronic Warfare (EW), and Electronics Research, Development, Acquisition, Test & Evaluation (RDAT&E) functions to Naval Air Warfare Center, Weapons Division, China Lake, CA." Retain

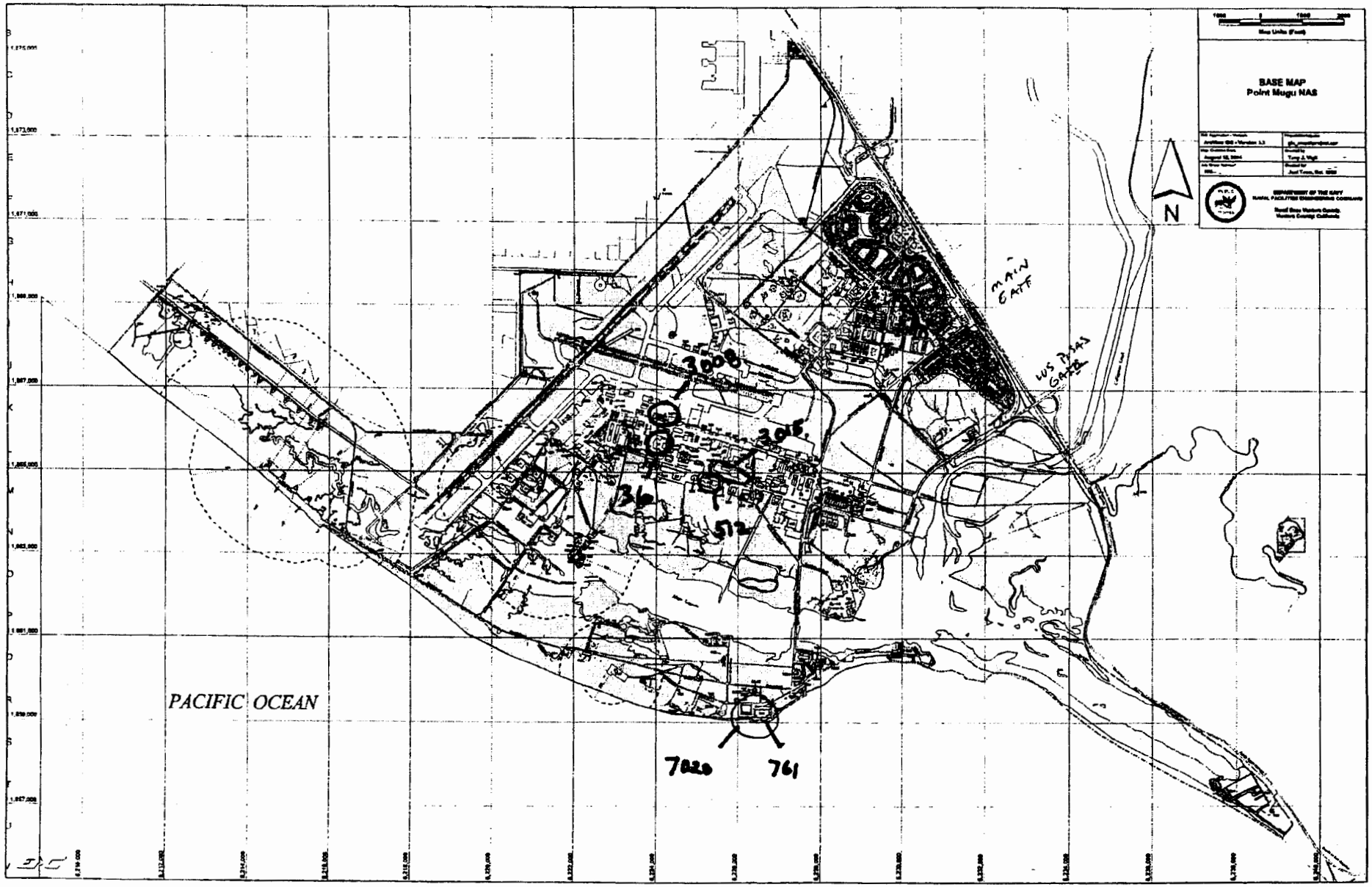
Electronic Warfare RDAT&E functions at Naval Air Warfare Center, Weapons Division, Pt. Mugu.

Naval Base Ventura County BRAC Faciities Summary

NAWC WD Point Mugu										
Title	**BRAC REALIGNMENT - CURRENT TENANTS POINT MUGU**									
Building	**Tenant**	**Facility Space**	**Building Area (SF)**	**BRAC #**	**BRAC #**					**Notes**
36	NAWC WD	General Administrative Building	141,292	TECH 18(2B)	TECH 54					NAWC Vacates a portion of building
356	NAWC WD	Missile Prep Building and Communication Maint Shop	27,386	TECH 18(2B)						
335	NAWC WD	Missile Preparation Building Guided Missile Lab	3,593	TECH 18(2B)						
3008	NAWC WD	Electronic Warfare Systems Laboratory	79,242		TECH 54					
3009	NAWC WD	Hangar/Missile Support Equipment Laboratory	29,041		TECH 54					
3015	NAWC WD	Missile Systems Evaluation Laboratory	122,986	TECH 18(2B)	TECH 54					
512	NAWC WD	Component Test Building/Optics Laboratory	79,769	TECH 18(2B)						
7020	NAWC WD	Weapons System Support Facility - Computation/Analysis Lab	40,416	TECH 18(2B)						
761	NAWC WD	Combined Research Lab - Missile Systems Integration	60,936	TECH 18(2B)						
372	NAWC WD	VX-30 Maintenance Hangar	55,292	TECH 18(2B)						
351	NAWC WD	Aircraft Systems Integration/Missile Laboratory	82,361	TECH 18(2B)						
520	NAWC WD	Missile Test Cell Control	920	TECH 18(2B)						
521	NAWC WD	Missile Assembley Building	2,932	TECH 18(2B)						
522	NAWC WD	Missile Test Cell	726	TECH 18(2B)						
523	NAWC WD	Control Building	925	TECH 18(2B)						
524	NAWC WD	Missile Test Cell	790	TECH 18(2B)						
525	NAWC WD	Equipment Building	960	TECH 18(2B)						
526	NAWC WD	Missile Test Cell	782	TECH 18(2B)						
527	NAWC WD	Missile Test Cell	726	TECH 18(2B)						
528	NAWC WD	Control Building	925	TECH 18(2B)						
240 (Camarillo)	NAWC WD	Navy Ranges Target Offices/Administrative Building	10,410	TECH 18(2B)						
244 (Camarillo)	NAWC WD	Fleet Weapons Engineering/Administrative Space	10,410	TECH 18(2B)						
246 (Camarillo)	NAWC WD	Fleet Weapons Engineering/Administrative Building	25,764	TECH 18(2B)						
248 (Camarillo)	NAWC WD	Fleet Weapons Engineering/Administrative Building	16,080	TECH 18(2B)						
Map A2										
Title	**BRAC REALIGNMENT - INCOMING RECOMMENDATIONS, WITH OVERLAP POINT MUGU**									
Building	**Tenant**	**Facility Space**	**Building Area**	**BRAC #**	**BRAC #**	**Incoming Tenant**	**In-coming Facility Space**	**In-coming Area**	**BRAC #**	**Notes**
36	NAWC WD	General Administrative Building	141,292	TECH 18(2B)	TECH 54	NSWC Corona	Administrative Building	33,252	DON 161B	
356	NAWC WD	Missile Prep Building and Communication Maint Shop	27,386	TECH 18(2B)						
335	NAWC WD	Missile Preparation Building Guided Missile Lab	3,593	TECH 18(2B)						
3008	NAWC WD	Electronic Warfare Systems Laboratory	79,242		TECH 54	NSWC Corona	RDT&E Lab Rehab	74,568	DON 161B	
3009	NAWC WD	Hangar/Missile Support Equipment Laboratory	29,041		TECH 54					
3015	NAWC WD	Missile Systems Evaluation Laboratory	122,986	TECH 18(2B)	TECH 54	NSWC Corona	RDT&E Lab Space, Rehab	111,530	DON 161B	
512	NAWC WD	Component Test Building/Optics Laboratory	79,769	TECH 18(2B)		NSWC Corona	SE Range Instr Lab Storage Reha	8,745	DON 161B	
7020	NAWC WD	Electronic Warfare Systems Laboratory	40,416	TECH 18(2B)		NSWC Corona	RDT&E Lab/MS Rehab	40,416	DON 161B	ISSUE: MS Lab Site Requirements: Away from Ocean Breakers due to vibration, humidity, salinity. Unable to retrofit due to environmental control requirements and certification. Unable to Retrofit for FAC 3151 (40,416 SF)
761	NAWC WD	Combined Research Lab - Missile Systems Integration	60,966	TECH 18(2B)		NSWC Corona	RDT&E Lab/Storage Rehab	49,249	DON 161B	ISSUE: MS Lab Site Requirements: Away from Ocean Breakers due to vibration, humidity, salinity. Unable to retrofit due to environmental control requirements and certification. Unable to Retrofit for FAC 3151 (11,829 SF) and FAC 3191 (37,420 SF).
372	NAWC WD	VX-30 Maintenance Hangar	55,292	TECH 18(2B)						
351	NAWC WD	Aircraft Systems Integration/Missile Laboratory	82,361	TECH 18(2B)						
520	NAWC WD	Missile Test Cell Control	920	TECH 18(2B)						
521	NAWC WD	Missile Assembley Building	2,932	TECH 18(2B)						
522	NAWC WD	Missile Test Cell	726	TECH 18(2B)						
523	NAWC WD	Control Building	925	TECH 18(2B)						
524	NAWC WD	Missile Test Cell	790	TECH 18(2B)						
525	NAWC WD	Equipment Building	960	TECH 18(2B)						
526	NAWC WD	Missile Test Cell	782	TECH 18(2B)						
527	NAWC WD	Missile Test Cell	726	TECH 18(2B)						
528	NAWC WD	Control Building	925	TECH 18(2B)						
240 (Camarillo)	NAWC WD	Navy Ranges Target Offices/Administrative Building	10,410	TECH 18(2B)						
244 (Camarillo)	NAWC WD	Fleet Weapons Engineering/Administrative Space	10,410	TECH 18(2B)						
246 (Camarillo)	NAWC WD	Fleet Weapons Engineering/Administrative Building	25,764	TECH 18(2B)						
248 (Camarillo)	NAWC WD	Fleet Weapons Engineering/Administrative Building	16,080	TECH 18(2B)						

Naval Base Ventura County BRAC Facilities Summary

Map A3										
Title	**BRAC REALIGNMENT - ALL RECOMMENDATIONS POINT MUGU**									
Building	**Tenant**	**NAWC WD/Out-going Name**	**Building Area**	**BRAC #**	**BRAC #**	**Incoming Tenant**	**In-coming Facility Space**	**Corona Area**	**BRAC #**	
Building 36	NAWC WD	General Administrative Building to CL	141,292 SF	TECH 18(2B)	TECH 54	NSWC Corona	Administrative Building	33,252	DON 161B	
Building 356	NAWC WD	Missile Prep Building and Communication Maint Shop to CL	27,386 SF	TECH 18(2B)						
Building 335	NAWC WD	Missile Preparation Building Guided Missile Lab to CL	3,593 SF	TECH 18(2B)						
Building 3008	NAWC WD	Electronic Warfare Systems Laboratory to CL	79,242		TECH 54	NSWC Corona	RDT&E Lab Rehab	74,568	DON 161B	
Building 3009	NAWC WD	Hangar/Missile Support Equipment Laboratory to CL	29,041 SF		TECH 54					
Building 3015	NAWC WD	Missile Systems Evaluation Laboratory to CL	122,986 SF	TECH 18(2B)	TECH 54	NSWC Corona	RDT&E Lab Space, Rehab	111,530	DON 161B	
Building 512	NAWC WD	Component Test Building/Optics Laboratory to CL	79,769 SF	TECH 18(2B)		NSWC Corona	SE Range Instr Lab Storage Reha	8,745	DON 161B	
Building 7020	NAWC WD	Electronic Warfare Systems Laboratory to CL	40,416 SF	TECH 18(2B)		NSWC Corona	RDT&E Lab/MS Rehab	40,416	DON 161B	ISSUE: MS Lab Site Requirements: Away from Ocean Breakers due to vibration, humidity, salinity. Unable to retrofit due to environmental control requirements and certification. Unable to Retrofit for FAC 3151 (40,416 SF)
Building 761	NAWC WD	Administrative Building to CL	60,966 SF	TECH 18(2B)		NSWC Corona	RDT&E Lab/Storage Rehab	49,249	DON 161B	ISSUE: MS Lab Site Requirements: Away from Ocean Breakers due to vibration, humidity, salinity. Unable to retrofit due to environmental control requirements and certification. Unable to Retrofit for FAC 3151 (11,829 SF) and FAC 3191 (37,420 SF).
Building 372	NAWC WD	VX-30 Maintenance Hangar to CL	55,292 SF	TECH 18(2B)						
Building 351	NAWC WD	Aircraft Systems Integration/Missile Laboratory to CL	82,361	TECH 18(2B)						
520	NAWC WD	Missile Test Cell Control to CL	920	TECH 18(2B)						
521	NAWC WD	Missile Assembley Building to CL	2,932	TECH 18(2B)						
522	NAWC WD	Missile Test Cell to CL	726	TECH 18(2B)						
523	NAWC WD	Control Building to CL	925	TECH 18(2B)						
524	NAWC WD	Missile Test Cell to CL	790	TECH 18(2B)						
525	NAWC WD	Equipment Building to CL	960	TECH 18(2B)						
526	NAWC WD	Missile Test Cell to CL	782	TECH 18(2B)						
527	NAWC WD	Missile Test Cell to CL	726	TECH 18(2B)						
528	NAWC WD	Control Building to CL	925	TECH 18(2B)						
240 (Camarillo)	NAWC WD	Navy Ranges Target Offices/Administrative Building to CL	10,410	TECH 18(2B)						
244 (Camarillo)	NAWC WD	Fleet Weapons Engineering/Administrative Space to CL	10,410	TECH 18(2B)						
246 (Camarillo)	NAWC WD	Fleet Weapons Engineering/Administrative Building to CL	25,764	TECH 18(2B)						
248 (Camarillo)	NAWC WD	Fleet Weapons Engineering/Administrative Building to CL	16,080	TECH 18(2B)						
Map A4										
Title	**BRAC REALIGNMENT - ALL RECOMMENDATIONS WITH SITING CONSIDERATIONS POINT MUGU - End State**									
Building			**Building Area (SF)**	**BRAC #**	**BRAC #**	**User Corona**	**In-coming Facility Space**	**Corona Area**	**BRAC #**	**Notes**
36	NAWC WD	NAWC Administrative Building	141,292	TECH 18(2B)	TECH 2B	NSWC Corona	Administrative Building	33,252	DON 161B	
3008			74,568			NSWC Corona	RDT&E Lab Rehab	74,568	DON 161B	
3015			122,986			NSWC Corona	RDT&E Lab Space, Rehab	111,530	DON 161B	
512			79,769			NSWC Corona	SE Range Instr Lab Storage Reha	8,745	DON 161B	
7020								0		
761								0		
New Construction			89,665			NSWC Corona	RDT&E MS Lab/Storage Rehab	89,665	DON 161B	MS Lab Siting Requirements: Away from Ocean Breakers due to vibration, humidity, salinity. Unable to retrofit B761 and B7020 due to environmental controls.
Map B1										
Title	**BRAC REALIGNMENT PORT HUENEME**									
Building (Port Hueneme)	**Tenant**	**Out-going Facility Space**	**Building Area**	**BRAC #**						**Notes**
5	NSWC PHD	Engineering/Administrative Building	8,760	TECH 18(2A)						2nd Deck would be vacated (8,760 SF)
1380	NSWC PHD	Engineering/Administrative Building	15,749	TECH 18(2A)						Small area vacated
1387	NSWC PHD	Weapons Integration Laboratory	112,184	TECH 18(2A)						Small area vacated
1388	NSWC PHD	Engineering Center	107,368	TECH 18(2A)						Small area vacated


BASE MAP
Point Mugu NAS
N
MAIN GATE
LOS PASAS GATE
PACIFIC OCEAN
3008
3015
36
512
7020
761

ITINERARY
BASE REALIGNMENT AND CLOSURE COMMISSION STAFF
VISIT TO
NAVAL BASE VENTURA COUNTY

7-8 July 2005

Party Includes:
Lester Farrington, BRAC Commission Staff
David Epstein, BRAC Commission Staff
LCDR Mike Tasker, NRSW BRAC Officer

Principal POCS:
CAPT Paul Grossgold, Commanding Officer, Naval Base Ventura County (NBVC), (805) 989-7903
CAPT (Sel) Chris Kiwus, NBVC Chief Staff Officer, (805) 989-7903, (805) 207-6889
Ms. Diane Conrad, NBVC Protocol Officer, (805) 989-8742 (office), (805) 797-0524 (cell)
Mr. Thomas Carr, NBVC BRAC Realignment Officer, (805) 982-4004 (office), (805) 207-8975 (cell)
Mr. Ron Brattin, NBVC Administrator, (805) 989-1723

Thursday, 7 July	**Working Uniform**
0745	BRAC Commission Staff arrives, Bldg. 1, Point Mugu
0800	NBVC Brief, Bldg. 1, Command Conference Room
0900	BRAC Scenario Facilities Tour at Point Mugu (Congressman Elton Gallegly arrives), Bldg 1, Point Mugu
0930	Congressman Elton Gallegly departs
1030	Depart Point Mugu for Port Hueneme
1100	NSWC PHD Brief and Working Lunch, Bldg. 1384
1245	BRAC Scenario Facilities Tour at Port Hueneme, Bldg. 1384
1300	NSWC PHD Tour (Congresswoman Lois Capps arrives)
1400	Depart for Point Mugu (Congresswoman Lois Capps departs)
1430	NAWCWD Command Brief, Management Information Center (MIC), Bldg. 36, Point Mugu
1500	EW Mission briefs and tours of Bldg. 3008
1645	EW Wrap Up, Bldg. 3008
	Return to Bldg. 1

7/6/2005, 4:32 PM

Friday, 8 July

0745	Meet BRAC Commission Staff at Bldg. 1, Point Mugu
0750	Meet NAWCWD Participants, Bldg. 36
0800	T&E Overview, Bldg. 55
0830	Range mission brief and tour of Range Control, Bldg. 53
0930	Ready Missile Test Facility, Bldg. 520
1000	Weapons Test Squadron, Hangar 372
1100	Aerial and Surface Targets, Bldg. 333
1200	Lunch at Point Mugu Galley (Mugu Room)
1300	Airborne Threat Simulation, Bldg. 351
1345	Radar Reflectivity Chambers, Bldg. 3015
1415	Weapons including HILs, Bldg. 3015
1500	Weapons wrap up, Bldg. 3015
1600	Out Brief and Staff Review, Bldg. 1, Point Mugu
1700	Visit Completed

Post-it® Fax Note 7671	Date 7/12/05	# of pages ▸ 2
To H.R. FARRINGTON	From DIANE CONRAD	
Co./Dept.	Co. NBVC PROTOCOL	
Phone #	Phone # 805-989-8742	
Fax #	Fax #	

DRAFT #1 at 1130

BRAC COMMISSION
VISIT TO
NAVAL BASE VENTURA COUNTY

July 13, 2005

PARTY INCLUDES:
Mr. Philip Coyle, BRAC Commissioner
Mr. James Bilbray, BRAC Commissioner
Mr. Lester Farrington, BRAC Commission Staff
Mr. David Epstein, BRAC Commission Staff
Mr. LCDR Mike Tasker, NRSW BRAC Officer

PRINCIPAL POCS:
CAPT Paul Grossgold, Commanding Officer, Naval Base Ventura County (NBVC), (805) 989-7903
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Mr. Thomas Carr, NBVC BRAC Realignment Officer, (805) 982-4004 (office), (805) 207-8975 (cell)
Mr. Ron Brattin, NBVC Administrator, (805) 989-1723

ALL DAY ATTENDEES:
RDML Mike Bachmann, Vice Commander, Naval Air Systems Command
RDML Mark Skinner, Commander, Naval Air Warfare Center Weapons Division (NAWCWD)
CAPT Mark Swaney, Vice Commander, NAWCWD
Mr. Paul McQuaide, Head, Threat/Target Systems Department, NAWCWD

WEDNESDAY, 13 JULY		**WORKING UNIFORM**
0900 – 0915	GREET PARTY AT BLDG. 1, POINT MUGU	15 Min
0915 – 0930	TRANSIT TO RANGE OPERATIONS, BLDG. 53	15 Min
0930 – 0945	NBVC COMMAND OVERVIEW, BLDG. 53	15 Min
0945 – 1005	NAWCWD COMMAND OVERVIEW & FILM, BLDG. 53	20 Min
1005 – 1020	TEST WING PACIFIC OVERVIEW, BLDG. 53	15 Min
1020 – 1040	RANGE & CONTROL ROOM TOUR, BLDG. 53	20 Min
1040 – 1050	TRANSIT TO LAUNCH PAD, BLDG. 55	10 Min

1050 – 1105	SEA RANGE OVERVIEW, BLDG. 55	15 Min
1105 – 1110	TRANSIT TO READY MISSILE TEST FACILITY (RMTF), BLDG. 520	5 Min
1110 – 1125	RMTF OVERVIEW	15 Min
1125 – 1135	TRANSIT TO TARGETS DEPARTMENT, BLDG. 333	10 Min
1135 – 1155	THREAT/TARGET OVERVIEW, BLDG. 333	20 Min
1155 – 1205	TRANSIT TO MISSILE SYSTEMS EVALUATION LABORATORY (MSEL), BLDG. 3015	10 Min
1205 – 1235	RCS/WEAPONS /HIL, BLDG. 3015	30 Min
1235 – 1245	TRANSIT TO ELECTRONIC WARFARE (EW), BLDG. 3008	10 Min
1245 – 1320	BUFFET LUNCH, 3RD FLOOR, BLDG. 3008	35 Min
1320 – 1350	EW OVERVIEW, BLDG. 3008	35 Min
1350 – 1425	NUMBERS PHD/NAWC, BLDG. 3008	30 Min
1425 – 1445	TRANSIT TO PHD NSWC, SURFACE WARFARE ENGINEERING FACILITY (SWEF), BLDG. 1384	20 Min
1445 – 1530	SWEF OVERVIEW, BLDG. 1384	45 Min
1530	TOUR COMPLETE	
1530 – 1600	RETURN TO POINT MUGU, BLDG. 1 (?) OR DEPART FROM SWEF	