

**DATA CALL 63
FAMILY HOUSING DATA**

168

Information on Family Housing is required for use in BRAC-95 return on investment calculations.

Installation Name:	NAWC PT MUGU
Unit Identification Code (UIC):	N63126
Major Claimant:	NAVAIR

Percentage of Military Families Living On-Base:	56 55.9% CW
Number of Vacant Officer Housing Units:	0
Number of Vacant Enlisted Housing Units:	0
FY 1996 Family Housing Budget (\$000):	748.2 828.3 CW
Total Number of Officer Housing Units:	27.1 27 CW
Total Number of Enlisted Housing Units:	43.6 44 CW

Line 4, Percentage of Military Families Living on Base, is taken from DD Form 1377. Lines 7-9, represents the activities' "fair share" of the complex total of the family housing budget and inventory of officer and enlisted units. This data was provided by COMNAVFACENGCOM. This UIC contains 169 personnel entitled to BAQ W/Dependents out of a complex total of 1456 personnel entitled to BAQ W/Dependents.

There are 45 activities identified within this complex.

Note: All data should reflect figures as of the beginning of FY 1996. If major DON installations share a family housing complex, figures should reflect an estimate of the installation's prorated share of the family housing complex.

CW 7/13 Enclosure (1)
Chris Ward
7/13/94
NAVFAC SQ JCU

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

J. E. BUFFINGTON, RADM, CEC, USN
NAME (Please type or print)

Jack Buffington
Signature

COMMANDER
Title

7/20/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER
NAME (Please type or print)

W. A. Earner
Signature

Title

7/25/94
Date

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 of 8 Dec 93

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

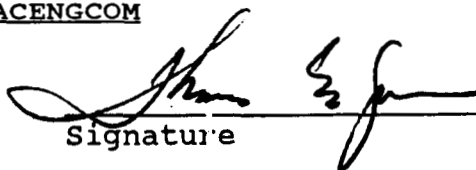
The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the chain of command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the chain of command. Copies must be retained by each level in the chain of command for audit purposes.

I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

SOUTHWESTNAVFACENGCOM

THOMAS E. GUNN
Name (Please type or print)


Signature

COMMANDING OFFICER
Title

7/13/94
Date

MILITARY VALUE DATA CALL

TECHNICAL CENTERS

Category	TECHNICAL CENTER
Technical Center Site	NAWCWPNS POINT MUGU
Location/Address	POINT MUGU, CA

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TAB A Technical Operations: Functional Support Area - Life Cycle Work Area Form

TAB B Special Facilities and Equipment: Facilities/Equipment Capability Form

TAB C Range Resources: Range Capability Form

Appendix A Functional Support Areas - Life Cycle Work Areas List

Appendix B Definitions for Functional Support Areas - Life Cycle Work Areas

MILITARY VALUE MEASURES**MISSION**

1. Mission Statement. *State the officially assigned mission of this activity and cite the reference document(s) that assigns the mission.*

The Naval Air Warfare Center Weapons Division (NAWCWPNS) stood up on 1 January 1992 in accordance with OPNAVNOTE 5450 of 23 December 1991. NAWCWPNS was formed by integrating the following activities into a single organization:

Naval Ordnance Missile Test Station (NOMTS), White Sands, New Mex.
Naval Weapons Center (NWC), China Lake, Calif.
Naval Weapons Evaluation Facility (NWEF), Albuquerque, New Mex.
Pacific Missile Test Center (PMTTC), Point Mugu, Calif.

By consolidating the resources of four activities under a single management and retaining facilities at the four geographical sites, optimizing the use of the unique resources invested there, NAWCWPNS has provided continuous improvement in products and services for customers while preserving essential capabilities and achieving cost efficiencies. The following figure shows the geographical location and land/airspace areas of the NAWCWPNS sites. The proximity of other key military bases enhances the potential for Joint Service use of the NAWCWPNS ranges and unique facilities.

OPNAVNOTE 5450 of 23 December 1991 assigned the following mission to NAWCWPNS:

"To conduct research, design, development, test, and evaluation of air weapons and associated aircraft systems into strike, anti-surface warfare (ASUW), and anti-air warfare (AAW) aircraft.

To conduct research, design, development, test, and evaluation of tactical missiles for any naval platform.

To operate, maintain, and improve the Naval Western Test Range Complex (NWTRC) air, land, and sea test ranges for weapons and weapons systems testing and evaluation.

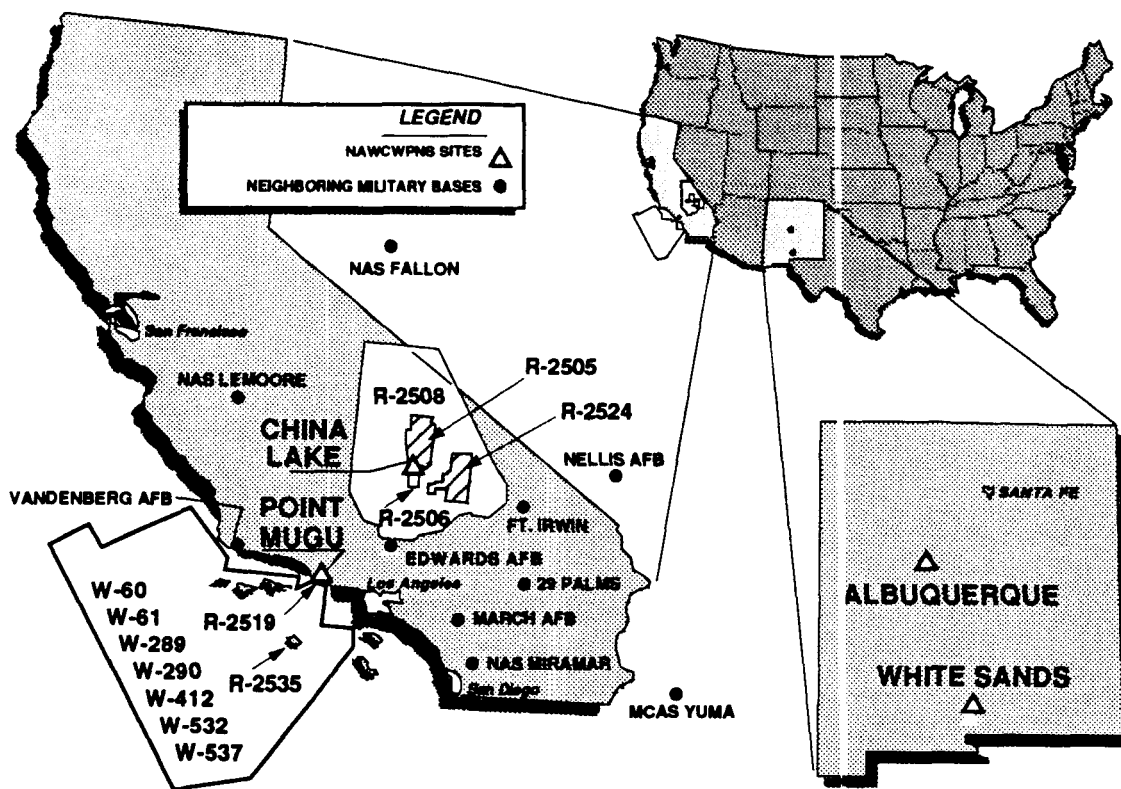
To provide production support, in-service engineering support, and production improvement for air weapons systems and tactical missiles.

To provide development and test, and continuing support of electronic combat systems and electronic devices for airborne electronic warfare.

To complete studies of naval warfare systems for strike, ASUW, AAW, and other warfare areas.

To insure continued promotion and maintenance of fundamental research and the technology base to support the above mission areas."

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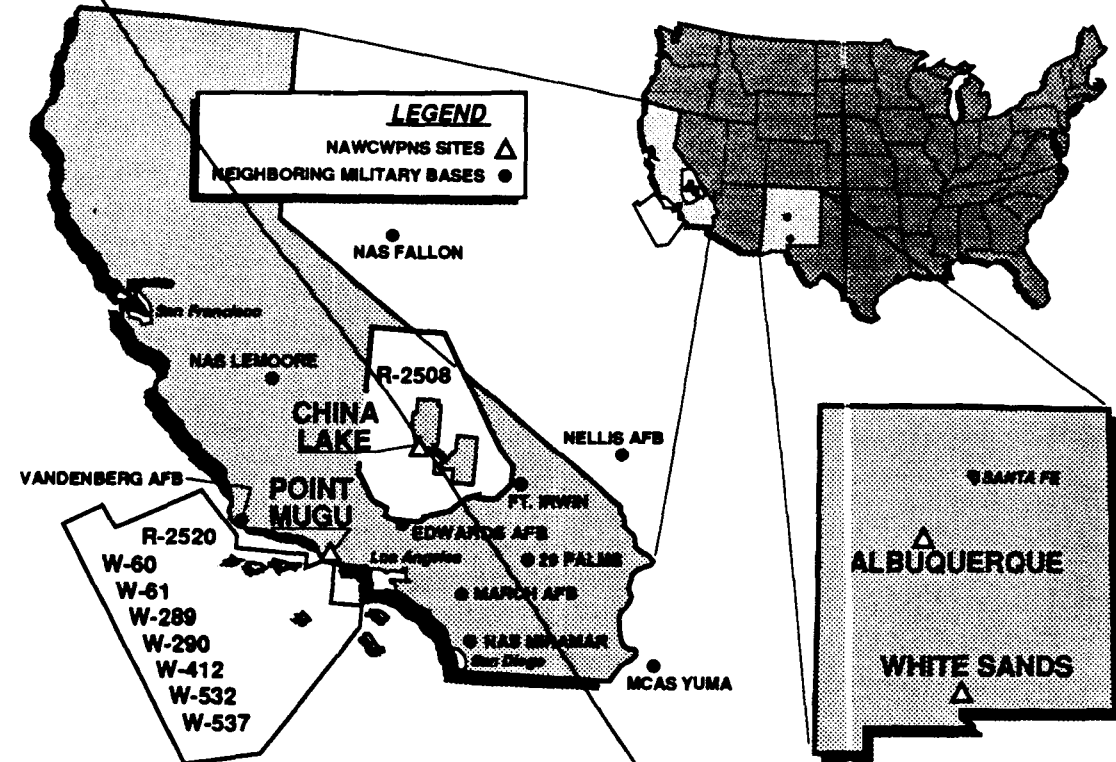


NAWCWPNS Site Locations.

The officially assigned mission for the Naval Air Weapons Stations (NAWS) Point Mugu and China Lake was provided by the same reference document as follows:

"To operate and maintain base facilities and provide base support services, including airfields, for the Naval Air Warfare Center Weapons Division organizations at Point Mugu and China Lake, assigned tenants and activities, and transient units."

NAWCWPNS is a truly integrated structure. Many organizational entities are spread across multiple sites. For example, the aircraft weapon systems programs at China Lake and Point Mugu have been consolidated into one organization. Additionally, this integration has resulted in the Naval Western Test Range Complex, which is composed of the Point Mugu Sea Test Range, along with land ranges and test facilities at China Lake and White Sands. The complex provides complementary, full-spectrum test capability for weapon systems and aircraft. Organizational benefits and manpower and cost savings of the NAWCWPNS integration will continue to evolve for years to come.



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MISSION. As one of two primary sites of NAWCWPNS, Point Mugu performs research, development, test and evaluation (RDT&E) and in-service engineering, including:

- Weapon systems acquisition and development, support, test, and evaluation
- Weapon systems in-service engineering and logistics support
- Aircraft systems/weapons integration and software support
- Range operations, including air-to-air, air-to-surface, surface-to-air, underwater, ballistic/strategic, mines/bombs/gunnery, and electronic warfare
- Test and evaluation and Fleet training operations
- Independent developmental test and evaluation
- Support for operational test and evaluation
- Range systems development and support
- Threat simulator (targets and EW simulators) test and evaluation, development, systems/design engineering, logistics support, and operations
- Airfield operations/base support for RDT&E efforts and tenant commands
- Common tactical air mission planning system
- Quick reaction to Fleet requirements (engineering technical services located throughout the world)
- Support for full scale carrier battle group and Joint Service integrated training operations

The Point Mugu site has a 47-year historical mission of providing space, facilities, instrumentation, and technological expertise for conducting weapon system test and evaluation and training operations. Its uniqueness is derived from the ideal combination of geographical features, i.e., the coastal site in a relatively undeveloped area, contiguous mountain peak, offshore islands for extended-range instrumentation, and virtually unlimited ocean area. While the principal thrust of the mission is dedicated to test and evaluation, the nature and combination of specialized laboratories, airfield, and the threat simulation facilities with the Sea Test Range lend themselves to a variety of life cycle support functions for Naval aviation and Fleet training. Many of the facilities are unique because of specialized technological features or dedication to specific platforms and weapons.

EMERGING MISSION. Developing missions for the Point Mugu site of the Weapons Division include:

- Additional joint weapons systems development testing
- Joint weapons systems interoperability testing
- Real time interaction of simulation/full-scale testing
- Range internetting
- Western Test Range Complex
- Joint target systems development
- Advanced Cruise Missile testing
- Synthetic Theater of War (STOW) and maritime STOW test and training exercises
- Advanced C4I interoperability testing and training
- Life cycle logistics support for Tri-Service weapons, weapons systems, and support equipment

2. **Joint Service Missions.** *State any officially assigned joint/lead service assignments missions and cite the document(s) that assigned them.*

T&E EXECUTIVE AGENT ASSIGNMENTS. On 1 October 1993, the Undersecretary of Defense (Acquisition), by way of his memorandum to the Vice Chief of Staff, U.S. Air Force, authorized the Services to establish the T&E Executive Agent structure. This authorization included an interim charter for the T&E Board of Directors signed by the three Service Secretaries. Subsequently, the principals of the JCG(T&E) were chartered as a Board of Operating Directors (BoOD) designated to implement the BoOD's T&E policy. The BoOD has three support arms: the Range Commanders, the T&E Reliance and Investment Board, and the Joint Project Office. NAWCWPNS Point Mugu site has been intimately involved with *formal assignment roles* within the BoOD's support arms as follows:

1. **T&E Reliance and Investment Board (TERIB) Mission Assignments.**

- Chairman of the TERIB
 - Lead (voting) member of the TERIB for Targets
 - Member of the TERIB for Space Combat
 - Documented TERIB charter was issued by the JCG(T&E) by memorandum, 17 November 1992
 - Documented appointment of TERIB members by memorandum of the JCG(T&E), 20 January 1993

2. **Joint Project Office (JPO) for Test and Evaluation.**

- Navy Lead Service representative
- Documented by Tri-Service charter signed by BoOD principals, 16 February 1994

3. **Air-to-Air Weapons Test Lead Service Assignment.**

- Lead Service assignment
- Documented by Tri-Service Air-to-Air Memorandum of Agreement (MOA) signed by each Service's SAE and DT&E, OUSD(A) October 1992

4. **Targets Lead Service & Targets Reliance Office (TRO).**

- Lead Service assignment for targets
- Director of the Tri-Service TRO
- Directs the efforts of 12 sub-lead Service assignments
- Sublead Service target systems assignments for 7 out of 12
 - Lead Service for Subscale Targets
 - Lead Service for Towed Targets
 - Lead Service for Missile Targets
 - Lead Service for Scoring Systems
 - Lead Service for Radar Frequency (RF) Emitters
 - Lead Service for Sea Targets
 - Lead Service for Antiradiation Missile Targets
- Documented by Tri-Service Targets MOA signed by each Service's SAE and by DT&E, OUSD(A), 24 September 1993

VARIOUS JOINT SERVICE LEADS AND DEPUTY LEADS.

1. Range Commanders Council (RCC) Tri-Service Mission Assignments.
 - Chairman of the RCC and
 - Chairman of the Executive Committee
 - Technical Lead for Telemetry Systems
 - Documented by agreement among range commanders, 29 August 1951
2. Joint Targets Oversight Council (JTOC).
 - Direct JTOC Conferences and meetings in support of Procurement Executive Office (PEO(CU))
 - Secretariat for JTOC activity
 - Documented by Charter signed by two Services and BMDO, 19 April 1994
3. The Technical Coordination Program (TTCP).
 - United States National Leader for Targets Subpanel
 - Documented TTCP by agreement between the President of the United States and the Prime Minister of Great Britain, 25 October 1957
 - Documented national leader assignment by memorandum, January 1994
4. Defense Modeling and Simulation Office (DMSO).
 - Lead for Integrated Radar and Infrared Analysis and Modeling (IRIAM) System Joint Service Project
 - Documented by MOA signed by the three Services' T&E Executives and DDDR&E, 22 June 1993
5. DoD Lead Activity for Aircraft Climatic Testing
 - Documented by MOA signed by the three Service's T&E Executives and DDDR&E, 29 September 1992

VARIOUS MEMORANDUM OF AGREEMENTS/UNDERSTANDINGS/ISSA.

1. Air Traffic Control, Radar Approach Control - Los Angeles, Calif.
2. Maintain Integrated Landing System (ILS) located at Point Mugu - Los Angeles, Calif.
3. High-Resolution Interferometer Sounder (HIS) Participation - Space Science and Engineering Center/University of Wisconsin dated August 1993
4. Radiometer Operations at Point Mugu - Jet Propulsion Laboratory dated July 1993
5. Aircraft Defense Identification Zone (ADIZ) procedures and airspace scheduling/utilization for air defense operations (Warning and Control areas) - Southwest Air Defense Sector, March AFB dated October 1990
6. Coordination of air traffic transiting Controlled Area Extension 177 and entering/exiting W-289/W-290/W-60/W-61 and W-291 - Fleet Area Control and Surveillance Facility San Diego dated June 1992
7. Third Fleet (FLEETEX) missile exercises - Commander Third Fleet dated April 1994

8. Access to Weather Information from the Alert System at Point Mugu - Channel Islands National Marine Sanctuary dated December 1993
9. Operation and Utilization of the Lidar Atmospheric Measurement Program (LAMP) system - Applied Research Laboratory/Penn State University dated June 1993
10. Joint Policies for Inter-Range Coordination - U.S. Army Strategic Defense Command, Army Kwajalein Atoll, Republic of the Marshall Islands dated October 1990
11. Joint Range Operating Procedure for the Coordination of Operational Procedures and the Separation of Safety Responsibilities Western Space and Missile Center, Vandenberg AFB dated January 1991
12. RDT&E of Environmental Support for Weapon Systems - Naval Oceanography Command, Stennis Space Center, Miss. dated May 1991
13. Cooperative Program to Operate and Maintain a Calleguas Creek/Revlon Slough Flood Warning System - National Weather Service (California-Nevada River Forecast Center), Public Works Agency, County of Ventura dated June 1987
14. Mutual Air Firefighting Agreements - County of Ventura, City of Oxnard, City of Ventura, and Naval Construction Battalion Center
15. Protection of Wildlife at Mugu Lagoon and San Nicolas Island - California Department of Fish and Game, U.S. Fish and Wildlife Service
16. Defense Simulation Internet Secret NORFORN System - Defense Information Systems Agency
17. Assist in Management of the Natural, Historic, and Scientific Values of San Miguel Island - Department of Interior Channel Island National Park
18. Small Bore Range (from Santa Barbara County south to San Diego County and east to include all of Los Angeles County - Federal and Municipal Law Enforcement Agencies
19. Access to Synchronous Satellite Imagery Signals - National Oceanic and Atmospheric Administration
20. Intelligence Data-Fusion Systems Support and Technology Sharing of Open Systems Architecture Systems Products - Non-DoD Agencies
21. Cryptographic Keying Support - Vandenberg AFB, Calif.
22. Joint Inter-Range Microwave System - Vandenberg AFB, Calif.
23. Development, Installation, and Test of a Modernized Command Control Transmitter at Laguna Peak - Vandenberg AFB, Calif.
24. Operation and Maintenance of Command Control Transmitter at Laguna Peak - Vandenberg AFB, Calif.

25. Installation and Operation of CR-100 AN/URQ-38 Transponder - Air Force Flight Test, Holloman AFB, New Mex.
26. Provide and Support Sparrow Golden Birds for Training and Engineering Investigations - Edwards AFB, Calif.
27. Airfield Operations, Fire Protection, Fuels and Various Backup Services - 146th Tactical Airlift Wing
28. Logistics Management for Conventional Bombs - Naval Air Systems Command
29. Logistics Management for In-Service Gun Systems - Naval Air Systems Command
30. Instructional Television Fixed Station on Laguna Peak - University of California, Santa Barbara
31. Joint Environment for Testing, Training, and Analysis (JETTA) - Director, Defense Research and Engineering (Science and Technology) Defense Modeling and Simulation Office, and Naval Command, Control, and Ocean Surveillance Center Research, Development, Test and Evaluation Division and Other Joint Environment for Testing, Training, and Analysis (JETTA) Participants January 1994
32. QF-4 ALQ-188B Countermeasures Set MOU of 10 March 1993
33. MOA between U.S. Navy and U.S. Air Force of 15 May 1985
34. MOU between U.S. Army Research Laboratory Survivability/Lethality Analysis Directorate Electronic Warfare Division and Naval Air Warfare Center Weapons Division of 25 February 1993

A significant number of Point Mugu programs are joint service in nature, either formally designated as such or through weapon system usage by other services. There are also a number of programs involved with Foreign Material Sales (FMS). Point Mugu is the Navy's lead field activity for the Air Force-led Advanced Medium-Range Air-to Air Missile (AMRAAM) program. Examples of other Joint Service programs include Sparrow, Sidewinder, QF-4 targets, Electronic Warfare threat simulation equipment, and JSOW.

TECHNICAL FUNCTIONS

3. Technical Functions Resource Allocations. *Appendix A provides a list of numbered functional support areas that cover the spectrum of naval warfare and support operations. Additionally, Appendix A provides a list of numbered life cycle work areas that cover the "cradle to grave" spectrum of Navy systems acquisition. Utilizing the two lists in Appendix A, each activity will break out its entire FY 1993 technical program within any applicable intersections of these two defining schemes (for example, functional support area #5.2 - life cycle work area #3 will identify the activity's level of resources allocated to sensors and surveillance systems, radar systems in advanced development). Definitions for each functional support area and life cycle work area are provided in Appendix B for reference.*

a. Use the form at Tab A of this data call to provide data on work years and expenditures for FY 1993 to support each applicable intersection of functional support areas and life cycle work areas. When necessary, estimate data to the best of your ability

The following table is provided to assist the reader. The dark areas in the matrix indicate the applicable intersections as discussed above for the Point Mugu site. A form at Tab A is provided for each of these intersections.

RE: BRAC DATA CALL 5 TAB A

PT MUGU SITE AREAS IDENTIFIED IN TECHNICAL FUNCTION WORKLOAD

	RDT&E						ACQUISITION				LIFE-TIME SUPPORT						GENERAL	
	BASIC RES 1	EXPL DEV 2	ADV DEV 3	ENG & MFG DEV 4	MGMT SPT 5	OP SYS DEV 6	PRCD 7	ACCEPT TEST 8	MODERNIZATION 9	PRG SPT 10	MAINT 11	REPAIR 12	TESTING 13	IN-SVC ENG 14	PROG SPT 15	RETIRE-MENT 16	TRNG OP SPT 17	SIMMOD ANALY 18
1 PLATFORMS																		
1.1 Undersea																		
1.2 Aircraft																		
1.3 Surface Ship																		
1.4 Space Satellites																		
1.5 Ground Vehicles																		
2 WEAPONS SYSTEMS																		
2.1 Gun Systems																		
2.2 Guided Missiles																		
2.3 Free Fall Weapons and Rockets																		
2.4 Torpedoes																		
2.5 Mines																		
2.6 Directed Energy Systems																		
2.7 Explosives																		
2.8 Launchers																		
2.9 Fire Control																		
2.10 Weapons Data Links																		
2.11 Weapons Fuzing																		
2.12 Weapons Propulsion																		
2.13 Other Ordnance																		
2.14 Explosive Ordnance Disposal																		
3 COMBAT SYSTEM INTEGRATION																		
3.1 Subsurface																		
3.2 Air																		
3.3 Surface																		
3.4 Multiplatform																		
4 SPECIAL OPERATIONS SUPPORT																		
4.1 Landing Force Equipment and Systems																		
4.2 Coastal/Special Warfare Support																		
5 SENSORS & SURVEILLANCE SYSTEMS																		
5.1 Sonar Systems																		
5.2 Radar Systems																		
5.3 Special Sensors																		
5.4 Space Sensor/Surveillance Systems																		
5.5 Ocean Surveillance																		
6 NAVIGATION																		
6.1 Submarine Navigation Systems																		
6.2 Aircraft Navigation Systems																		
6.3 Surface Ship Navigation Systems																		
6.4 Weapons Navigation Systems																		
6.5 Satellite Navigation Systems																		

BRAC 95 DATA CALL #5

FOR OFFICIAL USE ONLY
MILITARY VALUE

ACTIVITY UIC: 63126

FOR OFFICIAL USE ONLY

b. Similarly, use the Tab A forms to report separately on your detachments or sites that have not received this data call directly. This data may be consolidated when the detachments or sites perform work in the same area. When necessary, estimate data to the best of your ability.

All Technical Functions Resource Allocation data for the Point Mugu Detachments and other remote site employees have been included in the data sheets of paragraph 3.a. These data are consolidated because the detachments and other remote site employees perform work in the same functional areas.

The Point Mugu Detachments and other remote site employees are located as follows:

Name	UIC	Location
Fallbrook Detachment	480567	Fallbrook, Calif.
Guam Detachment	48059	Guam
NAVREPLA	42597	Los Angeles, Calif.
Yorktown Detachment	48056	Yorktown, Va.

Beaufort, South Carolina
 Brunswick, Maine
 Camp Pendleton, California
 Cecil Field, Florida
 Cherry Point, North Carolina
 China Lake, California
 Dallas, Texas
 Eglin AFB, Florida
 El Toro, California
 Fort Huachuca, Arizona
 Futenma, Japan
 Iwakuni, Japan
 Jacksonville, Florida
 Jacksonville, North Carolina

Kaneohe Bay, Hawaii
 Kauai Island, Hawaii
 Lemoore, California
 Miramar Naval Air Station, California
 Naval Air Station (Oceana), California
 Norfolk, Virginia
 Okinawa Island, Japan
 Sigonella, Sicily, Italy
 Spokane, Washington
 Virginia Beach, Virginia
 Whidbey Island NAS, Washington
 White Sands, New Mexico
 Yuma, Arizona

MANPOWER**4. Work Breakdown Structure.**

a. Use Table 4.1 (below) to provide data on the general support functions at your activity. Report data as of 31 March 1994. If you are collocated with one of your subordinate base keeper commands (i.e., a NAWC or NAS collocated with a NAWC Division), describe the differences in the functions of each and provide a separate Table 4.1 for the subordinate command. Include this command in the Table 4.1 submission for your Activity.

b. Similarly, use Table 4.2 (below) to provide general support function data for all your detachments or sites that did not receive this data call directly. Consolidate data from all of these detachments into one table (4.2). Provide a list of the detachments whose data are included in Table 4.2. For each identified detachment in this list, include its name, location, UIC, and number of civilian and military personnel onboard.

In addition, if any of your detachments or separate sites not receiving an individual data call have over 50 civilian personnel or own technical facilities, provide separately a description of the site, the functions performed there, photographs showing the facilities, and state the reason for that site's existence and the necessity for it to be at that location.

c. Use Table 4.3 (below) to provide estimated data, for your activity only, to reflect the anticipated impact of previous BRAC decisions that have not yet been implemented. This data should provide the deltas from Table 4.1.

NOTES:

[1] Use the following definitions when providing data for the tables below:

Workyears: Consistent with those used in the preparation of inputs to the President's budget.

Contract Workyears: Actual or estimated workyears performed by support contractors with workyears defined consistent with the definition used in the President's budget.

Civilian Personnel Onboard: Full Time Permanent (FTP) employees.

[2] Any categories of personnel that are employed to support other Activities should be noted with the name of the additional Activity supported.

**Table 4.1, General Support Resources for
(Activity: Combined NAWCWPNS and NAWS Point Mugu) (UIC: 63126 and 0492A)**

	Space allocated (Gross SQFT)	Work Years	Civilian Personnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/TD/etc.)	3,802	40.3	35	0	6	0
Comptroller	26,821	119.3	103	35.0		
Admin	94,538	58.8	48	18.0	7	22
Human Resources	44,095	84.3	74	2.0		
OPERATIONS SUPPORT						
Supply Management	629,000	282.7	205	50.6	5	40
Consolidated Computational Computer Support						
Information Systems and Communications	58,285	94.6	75	36.0		
Safety/OSH/Environmental	22,565	14.0	11	26.0		
INFRASTRUCTURE						
Physical Security	1,179	64.8	3	5.0		
Public Works/Staff Civil Engr	254,108	282.4	255	283.0	4	
Fire Protection	33,520	78.0	78			
Medical/Dental						
Military Support	531,602	65.5	51	43.8	1	4
Air/Waterfront Operations	35,650	40.2	18	3.0	5	77
Other	21,694	34.0	60			10
TECHNICAL STAFF						
Technical Operations			2533	1534	82	503
Totals	5,639,000*	4,788.5*	3549	2036	110	656

*Totals include space and work years for Technical Operations.

**Table 4.1R, General Support Resources for
(Activity: NAWS Point Mugu) (UIC: 0492A)**

Function	Space allocated (Gross SQFT)	Work Years	Civilian Personnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/TD/etc.)	1,154	12.0	3		2	
Comptroller						
Admin	87,334	34.0	32	18.0	7	12
Human Resources						
OPERATIONS SUPPORT						
Supply Management	616,260	222.2	145	50.6	5	40
Consolidated Computational Computer Support						
Information Systems and Communications				1.0		
Safety/OSH/Environmental	22,565	14.0	11	26.0		
INFRASTRUCTURE						
Physical Security	1,179	64.8	3	5.0		
Public Works/Staff Civil Engr	254,108	282.4	255	283.0	4	
Fire Protection	33,520	78.0	78			
Medical/Dental						
Military Support	531,602	65.5	51	43.8	1	4
Air/Waterfront Operations	35,650	40.2	18	3.0	5	77
Other	21,694	34.0	56			10
TECHNICAL STAFF						
Technical Operations			178	72.0	19	391
Totals	2,198,456	1,643.0	830	502.4	43	534

The mission of the Point Mugu NAWS is to operate and maintain base facilities and provide base support services, including airfields for NAWCWPNS organizations, tenants, and transient units sited on a temporary and/or permanent basis at Point Mugu. NAWS Point Mugu is a subordinate command to NAWCWPNS. The mission of NAWCWPNS Point Mugu is stated in the introduction to this document.

Table 4.2, General Support Resources for all Detachments
(see Table 4.2 Supplement)
(Activity: NAWCWPNS Point Mugu) (UIC: 63126)

Function	Space allocated (Gross SQFT)	Work Years	Civilian Personnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/ XO/ TD/etc.)						
Comptroller						
Admin						
Human Resources						
OPERATIONS SUPPORT						
Supply Management						
Consolidated Computational Computer Support						
Information Systems and Communications						
Safety/OSH/Environmental						
INFRASTRUCTURE						
Physical Security						
Public Works/Staff Civil Engr						
Fire Protection						
Medical/Dental						
Military Support						
Air/Waterfront Operations						
Other						
TECHNICAL STAFF						
Technical Operations						
Tools						

Table 4.2 Supplement.

Detailed data requested for Table 4.2 are not available at this time. Because of the detachments' relative small size and for reporting consistency, these Point Mugu employees located at remote detachments are included in the data of Table 4.1. The following format is substituted.

Name	UIC	Location	Civilian Personnel Onboard	Military Personnel Onboard
Fallbrook Detachment	48057	Fallbrook, Calif.	*	0
Guam Detachment	48059	Guam	*	0
NAVREPLA	42597	Los Angeles, Calif.	*	0
Yorktown Detachment	48056	Yorktown, Va.	*	0

* Included in Table 4.1.

The above "Detachments" are listed as those formally established in accordance with OPNAV INST 5450.169D. In addition, the Point Mugu site of the Weapons Division has employees whose permanent duty stations are other than Point Mugu, but are not officially identified to "Detachments." Numbers of employees and assignments are as follows:

Beaufort, South Carolina	2
Brunswick, Maine	1
Camp Pendleton, California	1
Cecil Field, Florida	5
Cherry Point, North Carolina	1
China Lake, California	1
Dallas, Texas	1
Eglin AFB, Florida	1
El Toro, California	2
Fort Huachuca, Arizona	7
Futemma, Japan	1
Iwakuni, Japan	2
Jacksonville, Florida	1
Jacksonville, North Carolina	1
Kaneohe, Hawaii	1
Kauai Island, Hawaii	1
Lemoore, California	3
Miramar Naval Air Station, California	3
Naval Air Station, California	4
Norfolk, Virginia	1
Okinawa Island, Japan	1
Sigonella, Sicily, Italy	1
Spokane, Washington	1
Virginia Beach, Virginia	6
Whidbey Island NAS, Washington	3
White Sands, New Mexico	1
Yuma, Arizona	2
TOTAL	55

Data for these employees are also included in Table 4.1.

**Table 4.3, Previous BRAC Impact to General Support Resources for
(Activity: NAWCWPNS Point Mugu) (UIC: 63126)**

NOTE: None are identified for the Point Mugu site. Billets for the five Point Mugu employees stationed at Cecil Field, Fla., will be eliminated when that facility closes under previous BRAC action.

Function	Space allocated (Gross SQFT)	Work Years	Civilian Personnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/ TD/etc.)						
Comptroller						
Admin						
Human Resources						
OPERATIONS SUPPORT						
Supply Management						
Consolidated Computational Computer Support						
Information Systems and Communications						
Safety/OSH/Environmental						
INFRASTRUCTURE						
Physical Security						
Public Works/Staff Civil Engr						
Fire Protection						
Medical/Dental						
Military Support						
Air/Waterfront Operations						
Other						
TECHNICAL STAFF						
Technical Operations						
Totals						

5. Technical Staff Qualifications.

a. Use Table 5.1 (below) to provide data on the civilian personnel allocated to Technical Operations having the educational and experience levels indicated in the table for your activity. Report data as of 31 March 1994. Similarly, use Table 5.2 (below) to provide data for all your separate detachments or sites that did not receive this data call directly. Consolidate data from all of these detachments into one table (5.2). Provide a list of the detachments whose data are included in Table 5.2.

**Table 5.1, Technical Staff Education Level for
(Activity: NAWCWPNS Point Mugu) (UIC: 63126)**

Highest Degree Attained	Years of Government and/or Military Service					Total
	Less than 3 Years	3-10 Years	11-15 Years	16-20 Years	More than 20 Years	
Grade School	0	12	5	1	10	28
High School	5	293	253	165	459	1175
B.A./B.S	7	421	240	172	247	1087
M.A./M.S	0	57	28	27	119	231
Ph.D./ M.D.	0	2	2	3	5	12
Total	12	785	528	368	840	2533

All data for the small Point Mugu detachments and other remote site employees are included in Table 5.1.

**Table 5.2, Technical Staff Education Level for all Detachments
(Parent Activity: NAWCWPNS Point Mugu) (UIC: 63126)**

Highest Degree Attained	Years of Government and/or Military Service					Total
	Less than 3 Years	3-10 Years	11-15 Years	16-20 Years	More than 20 Years	
Grade School						
High School						
B.A./B.S						
M.A./M.S						
Ph.D./ M.D.						
Total						

All data for the small Point Mugu detachments and other remote site employees are included in Table 5.1.

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b. Use Table 5.3 (below) to provide data on the number of civilian personnel allocated to Technical Operations with graduate degrees and at least three years of applicable experience that have their highest degree in the fields indicated. Report data as of 31 March 1994. Similarly, use Table 5.4 (below) to provide data for all your separate detachments or sites that did not receive this data call directly. Consolidate data from all of these detachments into one table (5.4). Provide a list of the detachments whose data are included in Table 5.4

**Table 5.3, Technical Staff Academic Fields for
(Activity: NAWCWPNS Point Mugu) (UIC: 63126)**

Academic field	Number
Physics	16
Chemistry	0
Biology	0
Mathematics/Statistics/ Operations Research	14
Engineering	131
Medical	0
Dental	0
Computer Science	4
Social Science	5
Other Science	8
Non-Science	65
Total	243

All data for the small Point Mugu detachments and other remote site employees are included in Table 5.3.

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b. Use Table 5.3 (below) to provide data on the number of civilian personnel allocated to Technical Operations with graduate degrees and at least three years of applicable experience that have their highest degree in the fields indicated. Report data as of 31 March 1994. Similarly, use Table 5.4 (below) to provide data for all your separate detachments or sites that did not receive this data call directly. Consolidate data from all of these detachments into one table (5.4). Provide a list of the detachments whose data are included in Table 5.4

**Table 5.3, Technical Staff Academic Fields for
(Activity: NAWCWPNS Point Mugu) (UIC: 63126)**

Academic field	Number
Physics	16
Chemistry	0
Biology	0
Mathematics/Statistics/ Operations Research	14
Engineering	131
Medical	0
Dental	0
Computer Science	4
Social Science	5
Other Science	8
Non-Science	65
Total	243

All data for the small Point Mugu detachments and other remote site employees are included in Table 5.3.

**Table 5.4, Technical Staff Academic Fields for all Detachments
(Parent Activity: NAWCWPNS Point Mugu) (UIC: 63126)**

Academic field	Number
Physics	
Chemistry	
Biology	
Mathematics/Statistics/ Operations Research	
Engineering	
Medical	
Dental	
Computer Science	
Social Science	
Other Science	
Non-Science	

All data for the small Point Mugu detachments and other remote site employees are included in Table 5.3.

c. Are there unique aspects of the activity's location that help or hinder in the hiring of qualified personnel?

The Point Mugu site is located an hour's drive from either Los Angeles County to the southeast or Santa Barbara County to the northwest. Major city attractions, country style living, or ocean-side activities are readily available. The cities of Oxnard, Ventura, and Camarillo form a triangle of suburbs that are home to over 300,000 residents. Interspersed are light industrial complexes featuring clean industry. Dozens of colleges and universities with degree programs in business, engineering, engineering technology, and management programs are located within 70 miles of the Point Mugu site. The local area provides excellent living conditions, which promote the existence of a highly skilled labor pool to meet the activity's manpower needs.

Nearly every technical discipline related to missiles and weapons is actively pursued at the Point Mugu site. In recent years, new disciplines, such as those dealing with airborne computers, software, lasers, and electro-optical devices, have been added to the field of weaponry. The excellent living conditions and technical opportunities provided by working with state of the art technology make working at Point Mugu very attractive.

d. List all articles written by the in-house technical staff that were published or accepted for publication in refereed journals since 1 January 1990.

Published in Journals (Refereed).

Radar Imaging, *International Journal of Imaging Systems and Technology*, 1993
Signal Transmission from Remote Telemetry Antennas Using Wideband Analog Fiber Optic Links, *ITEA Journal*, June 1991
RF Spectral Characteristics of Random PCM/FM and PSK Signals, *ITEA Journal*, June 1991
Frequency Domain Effects of Low Resolution Quantization, *ITEA Journal*, June 1991
LIDAR and Radiosonde Measurements of Coastal Atmospheric Refraction, *SPIE Conference on Remote Sensing*, March 1994
The Point Mugu technical staff also served as a referee for 12 papers published in professional journals (*IEEE* and *International Journal of Imaging Systems and Technology*)
Modeling of Resistive Sheets in Finite Element Solutions, *IEEE Trans on Antennas and Propagation*, 1993
Electromagnetic Oblique Scattering by a Cylinder Coated with Chiral Layers and Anisotropic Jump-Immittance Sheets, *Journal of Electromagnetic Wave Applications*, 1992
Reflection and Transmission for planar layered Chiral Media, *Electromagnetics*, 1992
High Frequency Scattering from Trihedral Corner Reflectors and Other Benchmark Targets: SBR versus Experiment, *IEEE Antennas and Propagation Society Transactions*, 1991

Published in Technical Proceedings (Peer Reviewed).

Global and Local Feature of Wideband RCS Signatures, *Proceedings of Antenna Measurement Techniques Association Symposium*, October 1990
Aspects of Image Editing, *Proceedings of Antenna Measurement Association Symposium*, October 1991
Photonic Electromagnetic Field Sensor with a Luneburg Lens Antenna, *Proceedings of Photonic Systems for Antenna Applications Symposium*, 1992
Applicability of Max Entropy Methods to RCS Analysis, *Proceedings of Antenna Measurement Techniques Association Meeting*
Scattering Characteristics of Photonic Sensor Systems, *Proceedings of 1992 Symposium on Photonic Systems for Antenna Applications*
Minimum time for RCS Measurements, *Proceedings on Antenna Measurement Techniques Association*, 1993
Surface Wave Scattering on a Drone Air Vehicle, *Proceedings of IEEE Symposium on Antennas and Propagation*, 1993

e. List all technical books and/or chapters written by the in-house technical staff that were published or accepted for publication since 1 January 1990.

High Resolution Radar Cross-Section Imaging. Artech House, Inc., 1991. Library of Congress No. 90-1140.

f. Identify any Nobel laureates employed at this activity.

There are no Nobel laureates employed at this activity.

g. List all non-governmental awards for research or technical excellence given to members of your technical staff since 1 January 1990.

Point Mugu 1993: The Ventura County Waste Watch presented this award for outstanding achievements: Ventura County Waste Watch 1992 Gold Award for Outstanding Achievements

Point Mugu 1992: Ventura County presented this award for excellence in environmental leadership: Ventura County Economic Development Association Excellence in Environmental Leadership Program Award

Point Mugu 1991: The International Test and Evaluation Association presented this award for textbook editing on a book entitled "Tactical Missiles": International Test and Evaluation Association National Awards - (2 awarded)

h. List all governmental awards for research or technical excellence given to members of your technical staff since 1 January 1990.

Point Mugu 1994.

This award is the second highest Navy honorary award and recognizes superior employee contributions that rate exceptionally high in value:

Navy Superior Civilian Service (1 awarded)

This award is the third highest Navy honorary award and recognizes meritorious civilian service or contributions that have resulted in high value and/or benefits to the Navy:

Navy Meritorious Civilian Service (2 awarded)

This honorary award recognizes group efforts (suggestions or special achievements) that have high value and/or benefits:

Award of Merit for Group Achievement: Airborne Weapons Analysis Team
IRSTS Flight Test Team
Red Reef IV Team
Telemetry Processing Systems Team

This memorial award recognizes civilian or military employees who have made significant strides in personal development, career advancement, or contribution to mission accomplishment in the Center's technical and operational goals:

Memorial Award for Capt. Walden (1 awarded)

This memorial award recognizes individuals for technical excellence based on outstanding performance of individual duties:

Memorial Award for Michelson Laboratory (1 awarded)

Point Mugu 1993.

This award is the second highest Navy honorary award and recognizes superior employee contributions that rate exceptionally high in value:

Navy Superior Civilian Service (1 awarded)

This award is the third highest Navy honorary award and recognizes meritorious civilian service or contributions that have resulted in high value and/or benefits to the Navy:

Navy Meritorious Civilian Service (2 awarded)

This honorary award recognizes group efforts (suggestions or special achievements) that have high value and/or benefits:

Award of Merit for Group Achievement: First Battle Group BITE/JEZ Team
Drone TV Video Coverage Team
Fleet Eval Test and Unit Team
Ops Control RM Modern Team

Meritorious Unit Commendation presented to NAWS from SECNAV for Resources Recovery and Recycling

NAVAIR Golden Anchor Award

Flight Safety Golden Anchor Award

Point Mugu 1992.

This award is the second highest Navy honorary award and recognizes superior employee contributions that rate exceptionally high in value:

Navy Superior Civilian Service Award (2 awarded)

This honorary award recognizes group efforts (suggestions or special achievements) that have high value and/or benefits:

Award of Merit for Group Achievement Airborne Telemetry Team
Aircraft Gun Systems Team
Aircraft Targets Line Team
EA-6B Engineering Team
EX-CLOVER Team
Harpoon Block ID I&E Team
SLAM Flight Test & Eval Team
Subsystems Software Team
Tomahawk Land Attack
UDF Data File Flight Team

This award is for outstanding individual technical support:

Executive Director's Award (15 awarded)

This award was presented for excellence in resources recovery and recycling:

SECNAV Program Excellence Award for Resources Recovery and Recycling
Program Team

The Golden Anchor Award was presented for the Command Retention Team

NAVAIR awarded the Presidential Rank Award for Senior Executive Service:

Presidential Rank Award for Meritorious Executive (1 awarded)

Point Mugu 1991.

This award is the second highest Navy honorary award and recognizes superior employee contributions that rate exceptionally high in value:
Navy superior civilian service (2 awarded)

This award is the third highest Navy honorary award and recognizes meritorious civilian service or contributions that have resulted in high value and/or benefits to the Navy:
Navy Meritorious Civilian Service Award (10 awarded)

This honorary award recognizes group efforts (suggestions or special achievements) that have high value and/or benefits:

Award of Merit for Group Achievement: AN/AIR-89 Team
EA-6B/TERPES Team
F-14D Team
FAE II Desert Storm Team
FMU-139 Bomb Fuse Team
Machine Gun Ammo Group Team
Maverick CNU-399 3 Con Team
Naval Airborne Weapons Team
Penguin Team
Persian Gulf War WST Team
Pioneer SR-RPV Training Team
Rocket Launcher Team
Sea Petrel NATO Comp Team
Tact Cont Counter Team

This award is for outstanding individual technical support:
Executive Director's Award (13 awarded)

A NAVAIR Special Achievement was presented:
NAVAIR Special Achievement (2 awarded)

CNO Aviation Safety Award

Commander 6th Weather Squadron Military Airlift Command at Eglin AFB to Graphics Division Range

Point Mugu 1990.

This award is the second highest Navy honorary award and recognizes superior employee contributions that rate exceptionally high in value:
Navy Superior Civilian Service Award (2 awarded)

This award is the third highest Navy honorary award and recognizes meritorious civilian service or contributions that have resulted in high value and/or benefits to the Navy:
Navy Meritorious Civilian Service Award (16 awarded)

This honorary award recognizes group efforts (suggestions or special achievements) that have high value and/or benefits:

Award of Merit for Group Achievement: AIWS Team
AMRAAM Flight Test Team
CADMSS Transition Team
CASS Program Office Team
Close-In-Weapons Systems Team
DECM Investigator Team
F-14/A (Plus) Software Team
F-14A/A (Plus) Software Team
HARM Team
Harpoon MSTs Team
Jet Assisted Take-Off Team
LAU-7 Sidewinder Team
Mobile Sea Range Test Team
Phoenix Supportability Team
Project 59 team
SLAM Flight Test & Eval Team
Telemetry Processing Team
Tri-Missile Test & Eval Team

This award is for outstanding individual technical support:
Executive Director's Award - (15 awarded)

This memorial award recognizes an individual's dedication to personal improvement through self-initiated academic activity as well as creativity as evidenced by innovative and unique approaches to developing engineering solutions and evidence of a valuable contribution to mission accomplishment through engineering expertise:
Memorial Award - (2 awarded)

The Golden Anchor Award was presented to the Naval Air Station:
Golden Anchor Award NAVAIRSYSCOM - NAS

This award was presented for significant contribution to education in T&E, administration, or research:
Cross Award for T&E (1 awarded)

This award was presented for Ecology:
Outstanding Environmental Manager of the Year Award (1 awarded)

i. List all patents awarded to the in-house technical staff members of this activity since 1 January 1990.

Twenty-four patents appear in the following list covering 1 January 1990 to present.

The patent process is initiated by one or more scientist inventors by describing the invention in a special disclosure format. All details of the invention function and appearance are provided along with any security restrictions. An application, including drawings, that must conform to the latest administrative procedures of the United States Patent and Trademark Office (PTO) and case law from the courts is prepared by a Navy attorney. The application and fees are submitted and a 2-year-plus-adversarial-review process begins in the PTO. If the application passes all the

challenges and tests of the process, a patent or equivalent issues to the Navy unless the subject matter is classified. If the case is classified, a D-10 or D-11 designation applies and no patent issues to the public. The D-10/D-11 designations are reviewed annually for declassification. On declassification a patent issues. The Navy gets the same protection in any case. D-10 and D-11 entries in the table below are, thus, equivalent to issued patents for BFAC purposes.

PATENTS AWARDED SINCE 1 JANUARY 1990

<u>Patent</u>	<u>Issue Date</u>	<u>Invention Title</u>
71215	D-10	Red/Black Tempest Separation Circuit (U)
4893655	01/16/90	Double Valve Mechanism for an Acoustic Modulator
4953295	09/04/90	Multi-Function Tool System Band Saw
4958970	09/25/90	Graduated-Loaded Spring Washer System for Screws and Threaded Fasteners
5000164	03/19/91	Circulation Enhancing Apparatus
5058481	10/22/91	Dual-Modular Launcher
5061199	10/29/91	Wall Outlet Lock Apparatus
5083128	01/21/92	Low Observability Aperture Design for Expendable Countermeasures Device
5085998	02/04/92	Biodegradation of 2,4,6-Trinitrotoluene by White Rot Fungus
5097265	03/17/92	Triangular Target Boat Reflector (TTBR)
5117731	06/02/92	Tactical Overboard Acoustic Decoy (TOAD)
5133663	07/28/92	Portable Automatic Radar Simulator (PARS II)
5150127	09/22/92	Portable Radar Simulator (PRS)
5166643	11/24/92	Remotely Controlled C-Band Signal Generator
5185945	02/16/93	Universal Protective Shield for the Foot
5198609	03/30/93	An Auxiliary Target Area Chaff Container (ATACC)
5225668	07/06/93	Photonic Electromagnetic Field Sensor Apparatus
5243186	09/07/93	Photonic Electromagnetic Field Sensor
5243530	09/07/93	Stand Alone Multiple Unit Tracking System
5251848	10/12/93	Space Shuttle Wheel Acceleration System (SSWAS)
5274775	12/28/93	Binary Decision Apparatus
5283586	02/01/94	Method of Phased Magnitude Correlation Using Binary Sequences
5307505	04/26/94	Rapid Reprogramming Terminal

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ACTIVITY UIC: 63126

74900	12/17/92	07/993777	Protocol Converter
74901	09/29/92	07/958404	Photonic Electromagnetic Field Sensor
75124	01/12/93	08/004004	Digital Circuit for the Introduction and Later Removal of Dither From an Analog Signal
75204	05/11/93	08/070133	Digital Interface Circuit
75352	08/18/93	08/112814	Doubling Valve Mechanism for an Acoustic Modulator
75378	06/30/93	08/086991	Gray Code Counter

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j. List all patents applied for by the in-house technical staff members of this activity since 1 January 1990.

Thirty-eight patent applications (patents applied for) appear in the following list covering the period 1 January 1990 to present.

PATENTS APPLIED FOR SINCE 1 JANUARY 1990

<u>Case No.</u>	<u>Filing Date</u>	<u>Serial No.</u>	<u>Invention Title</u>
69327	11/04/91	07/787339	Tactical Overboard Acoustic Decoy (TOAD)
72119	05/08/91	07/700854	Biodegradation of 2,4,6-Trinitrotoluene By White Rot Fungus
72157	02/02/90	07/479490	Multi-Function Tool System Band Saw
72458	03/29/90	07/503555	Laser Protection System
72472	02/12/91	07/654452	Design of a Nonvolatile Memory System
72564	07/26/91	07/736560	Stand Alone Multiple Unit Tracking System
72640	04/27/92	07/874155	An Auxiliary Target Area Chaff Container (ATACC)
72848	10/15/90	07/597134	Dual-Modular Launcher
73225	06/24/91	07/724085	Triangular Target Boat Reflector (TTBR)
73336	01/22/91	07/644809	Binary Decision Apparatus
73358	01/23/92	07/824959	Portable Automatic Radar Simulator (PARS II)
73378	02/25/92	07/843796	Remotely Controlled C-Band Signal Generator
73380	03/14/91	07/670136	Wall Outlet Lock Apparatus
73481	06/26/91	07/710854	Photonic Electromagnet Field Sensor
73554	04/18/91	07/690257	Optical Clutter Rejection Technique Using Anti-Coincidence Detection of Reflected Optically Augmented Laser Pulses (U)
73574	07/08/91	07/726956	Foot Cast Toe Shield - Adjustable and Removable
73821	05/14/92	07/885720	Space Shuttle Wheel Acceleration System (SSWAS)
73822	05/05/92	07/878704	Rapid Reprogramming Terminal
73958	02/23/93	08/023440	Method of Phased Magnitude Correlation Using Binary Sequences
74033	05/08/92	07/878593	Portable Radar Simulator (PRS)
74095	05/28/93	08/069819	Photonic Radar Receiver
74235	05/05/92	07/878713	MS-1553 BUS Interface Utilizing a TMS320C30 Digital Signal Processor
74319	03/25/92	07/860743	Rebound Hammer
74535	06/29/92	07/907759	VME Slave Controller
74699	08/24/92	07/935932	Diver Navigation System
74737	07/07/92	07/911801	Universal Protective Shield for the Foot
74738	08/25/92	07/937624	Slave Controller With Block Transfer Capability
74837	08/17/92	07/932271	Photonic Electromagnetic Field Sensor Apparatus
74900	12/17/92	07/993777	Protocol Converter
74901	09/29/92	07/958404	Photonic Electromagnetic Field Sensor
75124	01/12/93	08/004004	Digital Circuit for the Introduction and Later Removal of Dither From an Analog Signal
75204	05/11/93	08/070133	Digital Interface Circuit
75352	08/18/93	08/112814	Doubling Valve Mechanism for an Acoustic Modulator
75378	06/30/93	08/086991	Gray Code Counter

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ACTIVITY UIC: 63126

<u>Case No.</u>	<u>Filing Date</u>	<u>Serial No.</u>	<u>Invention Title</u>
75381	11/15/93	08/153864	Method of Phased Magnitude Correlation With Binary Sequences
75493	03/08/94	08/209508	Digital Circuit for the Introduction of Dither into an Analog Signal
75648	08/12/93	08/108132	Global Positioning Satellite Antenna Mounting Bracket
75848	01/01/94	08/182958	Rapid Reprogramming Terminal

k. Identify any in-house staff that are members of the National Academy of Engineering.

There are no members of the National Academy of Engineering employed at this activity.

l. Identify any in-house staff that are members of the National Academy of Sciences.

There are no in-house staff that are members of the National Academy of Sciences.

m. How many Cooperative Research and Development Agreements (CRDAs) have been signed by the activity since 1 January 1990?

Two CRDA has been signed by this installation (Radar Signature Branch).

n. What has been the activity's annual royalty income from CRDAs and patent licenses for each year since 1 January 1990?

\$10,000 per year

o. List and describe any major end item prototypes, either product or process technology, developed in-house by the activity that are currently in production and/or are currently in use by the U.S. Armed Forces or by industry. Cite a published reference that documents the work.

TELEMETRY SYSTEMS.

AN/DKT-53 Telemeter is an analog telemeter used for T&E and Fleet training. It is the first telemeter developed at Point Mugu for the SM-2 Missile. Requirements are defined and documented by WS-19500 (documented by nomenclature assignment).

AN/DKT-61 Telemeter is the primary telemeter used for Fleet training of the AIM-7M (Sparrow) missile. Sixty-one units were developed and produced at Point Mugu at a cost of \$3.5 million. Three thousand are now in operation at a cost of \$4,000 each, saving the Navy nearly \$90 million over the previous telemeter cost of \$34,000 each. Documentation of this requirement is found in PMTC Specification 7139A (documented by nomenclature assignment).

AN/DKT-71 Telemeter is the first Standard Missile encrypted telemeter. It is fully digital, designed for Block 1, 2, 3, and 4 versions of the missile. Requirements are specified in WS-6536 (documented by nomenclature assignment).

AN/DKT-78 is designed to accommodate the AIM-9M, AIM-9R, and AIM-9P versions of the Sparrow missile. This a fully digital system with encryption. Requirements are documented in NAVAIR 588AS1980 (documented by nomenclature assignment).

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<u>Case No.</u>	<u>Filing Date</u>	<u>Serial No.</u>	<u>Invention Title</u>
75381	11/15/93	08/153864	Method of Phased Magnitude Correlation With Binary Sequences
75493	03/08/94	08/209508	Digital Circuit for the Introduction of Dither into an Analog Signal
75648	08/12/93	08/108132	Global Positioning Satellite Antenna Mounting Bracket
75848	01/01/94	08/182958	Rapid Reprogramming Terminal

k. Identify any in-house staff that are members of the National Academy of Engineering.

There are no members of the National Academy of Engineering employed at this activity.

l. Identify any in-house staff that are members of the National Academy of Sciences.

There are no in-house staff that are members of the National Academy of Sciences.

m. How many Cooperative Research and Development Agreements (CRDAs) have been signed by the activity since 1 January 1990?

One CRDA has been signed by this installation (Radar Signature Branch).

n. What has been the activity's annual royalty income from CRDAs and patent licenses for each year since 1 January 1990?

\$4,000 per year

o. List and describe any major end item prototypes, either product or process technology, developed in-house by the activity that are currently in production and/or are currently in use by the U.S. Armed Forces or by industry. Cite a published reference that documents the work.

TELEMETRY SYSTEMS.

AN/DKT-53 Telemeter is an analog telemeter used for T&E and Fleet training. It is the first telemeter developed at Point Mugu for the SM-2 Missile. Requirements are defined and documented by WS-19500 (documented by nomenclature assignment).

AN/DKT-61 Telemeter is the primary telemeter used for Fleet training of the AIM-7M (Sparrow) missile. Sixty-one units were developed and produced at Point Mugu at a cost of \$3.5 million. Three thousand are now in operation at a cost of \$4,000 each, saving the Navy nearly \$90 million over the previous telemeter cost of \$34,000 each. Documentation of this requirement is found in PMTC Specification 7139A (documented by nomenclature assignment).

AN/DKT-71 Telemeter is the first Standard Missile encrypted telemeter. It is fully digital, designed for Block 1, 2, 3, and 4 versions of the missile. Requirements are specified in WS-6536 (documented by nomenclature assignment).

AN/DKT-78 is designed to accommodate the AIM-9M, AIM-9R, and AIM-9P versions of the Sparrow missile. This a fully digital system with encryption. Requirements are documented in NAVAIR 588AS1980 (documented by nomenclature assignment).

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ACTIVITY UIC: 63126

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AN/MX-11528U Rapid Reprogramming Terminal is a hand-held device used to upload tactical data via a 1553 bus to electronic warfare equipment. It replaces an older piece of equipment that is about the size of a standard refrigerator. Requirements are specified by NAVAIR SOW of 6 August 1992 (documented by nomenclature assignment).

THREAT SIMULATION.

Threat simulation systems are used to provide a realistic threat ECM and radar signal environment for the development, test, and evaluation of DoD weapons systems and for training of weapons systems operators. The Threat Simulation Facility (TSF) is the developer and integrator of all ECM and radar signal threat simulators, including:

- AN/ALQ-167 ECM Simulator
- AN/ULQ-21 ECM Simulator
- AN/ULQ-24 ECM Simulator
- AN/ULQ-26 ECM Simulator
- AN/AST-6 Radar Signal Simulator
- AN/UPT-2A Radar Signal Simulator
- AN/UPQ-8 Radar Signal Simulator

The above electronic countermeasures and radar signal threat simulators have been developed to meet the requirements in threat documents such as the ECCM Requirements and Assessment Manual, the UK/US Joint Operating Environment and Threat Document for

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F-14 SOFTWARE PROTOTYPE/DEVELOPMENT.

Spanning three decades, Point Mugu has developed and the Fleet has deployed the 21 Operational Flight Programs (OFPs) for the F-14 avionics and weapons systems. Presented below are those releases:

<u>Platform</u>	<u>OFP</u>	<u>Date</u>
F-14A	111A	Aug 75
F-14A	111A1	Apr 76
F-14A	111B	Oct 76
F-14A	111B1	Feb 77
F-14A	111B2	Jun 78
F-14A	111C	Jul 79
F-14A	111C1	Nov 79
F-14A	111C3	Mar 80
F-14A	111D	Oct 80
F-14A	111E	Apr 83
F-14A	111E1	Sep 83
F-14A	113A	Nov 84
F-14A	114A	Nov 86
F-14A	114B	Jun 87
F-14A/B	114C	May 88
F-14A/B	114C1	Aug 88
F-14A/B	114C2	Dec 88

<u>Platform</u>	<u>OFF</u>	<u>Date</u>
F-14A/B	115A	Jan 90
F-14A/B	115B	Dec 90
F-14D	G6.57	Dec 91
F-14D	D01	Jan 93

Tactical Airborne Reconnaissance Pod Systems (TARPS) and Air-to-Ground Delivery of General Purpose Bombs to expand the role/mission of the F-14.

Expanded Chaff Adapter (ECA), Development and Incorporation of Passive and Near Passive Sensors and Modes, and Integrated ALO-126B, ALO-165, and AI R-67 DECM Equipment on the F-14A and F-14B to improve aircraft survivability.

Development and integration of additional sensors to provide extended visual range identification and passive detection, tracking, and attack capability such as:

- Television Camera Sets (TCS)
- Infrared Search and Track System (IRSTS)
- Passive Maneuvering Ranging
- Multi-Sensor Multi-Mode Gunsight (MMGS)
- Medium PRF Radar
- Non-Cooperative Target Recognition (NCTR)
- Fighter-to-Fighter Data Link (FF/DL)
- Joint Tactical Information Distribution System (JTIDS)

Enhanced air crew proficiency through development and integration of such training tools as:

- In-Flight Training (IFT) Weapon Simulation
- Tactical Air Combat Training System (TACTS)
- Real Time Gunnery Assessment

Extended life span and vitality of the F-14 through the development and integration of the following:

- Computer Expanded Memory (CEM) and Memory Improvement Program (MIP)
- Upgrade Computer Signal Data Converter Replacement (CSDC/R)
- Fatigue/Engine Monitoring System (FEMS)
- F-14B Expanded Stores Management System
- Programmable Tactical Information Display (PTID)
- Mission Data Loader (MDL)
- Global Positioning System (GPS)

F-14 Hardware Prototype/Development.

- Modified Aircraft for TARPS, and TARPS Viewfinder
- Cockpit Micro Video Mission Recording System
- No-Drop Bomb Scoring Cables
- Interface Cables for Mk 76 Practice Bombs With Improved Triple Ejector Tracks

EA-6B SSA/WSSA PROTOTYPE/DEVELOPMENT.

Operational Flight Program (OFP) SSA-4 is a combination of two separate OFPs into a single load. Two block versions of the avionics suites (Blocks 82 and 86), which require different software loads for mission execution, were conceived, designed, and implemented as a method of combining the two separate systems. This will serve to reduce the resource requirements for future support to the EA-6B and, more importantly, to reduce significantly the training requirements for Fleet users.

Time Sharing Algorithm allows for the use of multiple signal sources to drive a single jamming transmitter in a time share fashion. This allows multiple threats within the beamwidth and frequency of the antenna to be jammed simultaneously, which results in effectively multiplying the number of jammers available on any particular mission.

TACTICAL ELECTRONIC RECONNAISSANCE PROCESSING AND EVALUATION SYSTEM (TERPES).

TERPES provides a quantum leap in TERPES capabilities to Fleet Marine Force users via the broad scale utilization of the commercial off-the-shelf, non-developmental item approach to systems acquisition. The system contains over one million lines of code. The core portions of this open architecture system have been deployed to other field activities for use, and are the genesis for the next generation Tactical Aircraft Mission Planning System (TAMPS), currently under development at Point Mugu.

TARGET SYSTEMS/TELEMETRY/THREAT SIMULATION FULL SCALE AERIAL TARGETS.

QF-4N TA/AS Baseline Wiring Cable Installation Modification is the wiring conversion for the F-4N aircraft to convert it to a QF-4 Full Scale Aerial Target (FSAT). This wiring provides the baseline interfaces for the equipment necessary for remotely controlled flight.

QF-4N TA/AS Equipment Development and Installation required to support project operations, manned and remotely controlled.

Remote Control Video System provides reliable color cameras, remote control functions and an additional source to indicate the status of the Integrated Target Control System (ITCS). The cameras assist the ground controller with FSAT launch and recovery evolutions, increase flexibility with multi-target presentations, and provide additional information on the ITCS status.

ALQ-167 ECM Pod Remote Control System provides the capability to control the ALQ-167 pod during missile live fire exercises. The jamming method can be remotely controlled from the ground, allowing full flexibility for making real time decisions.

DRO/DSO Scoring Systems provide miss distance indication (score) for NOLO operations where data furnishing the closest point of approach from missile to target are critical to the program.

AFH-IVB Camera Pod Power System supplies 28 VDC to the outboard stations for the AFH-IVB Camera Pod. This pod can hold three cameras (two for QF-4N requirements) and is used primarily to gather store release data.

EATS/SAIP Pod Power System supplies 28 VDC to the Extended Area Test System (EATS) Pod and the Service Aircraft Instrumentation Package (SAIP) Pod. The EATS Pod is an airborne relay station capable of limited over-the-horizon control of certain targets. The SAIP Pod is used on the QF-4N to provide Time, Space, and Position Information (TSPI).

AN/ALE-29 Remote Control Chaff/Flare Dispensing System provides the capability to eject flares and or chaff at variable rates remotely controlled from the ground, allowing full flexibility for making real time decisions.

Advanced Radar Missile Scoring (ARMS) system is a non cooperative vector scoring system that consists of an omnidirectional impulse radar installed in the target that provides range data via a high speed telemetry link to a ground station where the scoring data are derived and plotted. In 1991 an ARMS technology demonstration system was installed and tested in a QF-4N at China Lake under the Foreign Weapons Evaluation program

Generic Electronic Warfare Platform (GEWP) is a conversion of the QF-4 drone into an Air Electronic Warfare Test Platform that will provide realistic live fire testing of several EW suits against IR and semi-active RF homing missiles. Documentation is provided in the FY 1994 Central Test and Evaluation Investment Program (CTEIP) via the Resource Enhancement Project (REP).

TARGET AUXILIARY/AUGMENTATION SYSTEMS (TA/AS).

AN/DKW-4 Target Control Transponder is the airborne portion of the VEGA 6157 Portable Radar Tracking and Control System and is used to remotely control target vehicles at a range up to 100 nm (documented by nomenclature assignment).

AN/DRW-29 Radio Receiver Set is used in a remote controlled target to receive and decode signals transmitted from a control transmitter to maneuver and control functions on the target (documented by nomenclature assignment).

R-2449(V)/DRW Flight Termination Receiver is designed to respond to coded audio IRIG tones initiating flight termination in order to meet missile range safety requirements on programs with stringent environmental and reliability requirements (documented by nomenclature assignment).

AN/DKT-59(V) Telemetric Data Transmitting Set is used specifically with aerial targets for Mobile Sea Range (MSR), when the standard range operational telemetry is not included in the command control link or aerial targets when an additional telemetry link is required (documented by nomenclature assignment).

AN/DPN-88 Identification Friend or Foe (IFF) Transponder is a radar enhancement device used to positively identify the target (documented by nomenclature assignment).

AN/DPN-90(V1) Beacon is a radar transponder used to enhance radar tracking in the 5.4- to 5.6-GHz range (documented by nomenclature assignment).

AN/DPN-90(V2) Beacon is a radar transponder used to enhance radar tracking in the 9.1- to 9.5-GHz range (documented by nomenclature assignment).

T-1438/D Locator Beacon is an RF transmitter used to locate aerea targets during the recovery phase of an operation (documented by nomenclature assignment).

HF Beacon is used to facilitate target tracking and location during over-the-horizon operations (documented by nomenclature assignment).

RT-1378Z Radar Altimeter is a high resolution receiver/transmitter that measures altitude from 0 to 5,000 feet. The output of this device is fed into the autopilot of the target to control the altitude of low flying targets.

AN/DRN-13 TACAN Navigation Set is a polar coordinated navigation system that provides slant range, range rate time to station data, and relative bearing. With the set the flight crew can deviate its course to and from an airborne or ground TACAN beacon. When installed in a drone target, the set provides steering information to the target control system (documented by nomenclature assignment).

AN/DSO-50 Miss-Distance Indicator is a non-cooperative scoring device. It is used to measure the distance that a missile or projectile misses the target (documented by nomenclature assignment).

AN/DSO-40A is a radar Doppler scorer that detects projectiles passing by the target and telemeters the Doppler data to a receiving station (documented by nomenclature assignment). (IOC in FY 1992.)

Firing Error Indicator (FEI) Pod is a non-cooperative photographic system used to determine miss distance, missile attitude, and trajectory of a missile being fired at a target.

Corner Radar Reflector Cluster is a passive radar augmentation device used to increase the radar reflectivity of a target without use of additional energy.

Traveling Wave Tube (TWT) is used to increase radar reflectivity of a target. The augmented target provides a more realistic target for the missile system.

Solid State Amplifier is used to increase radar reflectivity of a target and provide a more realistic target for missile systems. Amplifier is used in E, F, G, I, and J radar bands.

AN/DLO-3C(V) Electronic Countermeasures Set is used as a noise and deception jamming system. It simulates a realistic environment for T&E of a weapon system and for training (documented by nomenclature assignment).

AN/DLO-21(V) is used as a noise and deception jamming system. It simulates a realistic environment for T&E of weapon systems and for training. It is the digital, programmable follow-on to the AN/DLQ-3C(V) (documented by nomenclature assignment).

AN/DLO-8 is a small pod designed to carry selected components from either the AN/DLQ-3C(V) or the AN-ULQ-21(V) Countermeasures Sets. ECM components are selected as needed to support weapon systems T&E or personnel training. The pod is suspended on the full scale target aircraft bomb rack (documented by nomenclature assignment).

AN/ALE-29 Countermeasures Dispenser Set is used on full scale aircraft targets to dispense radar reflective chaff or infrared flares to create false targets.

AN/ALE-44 Countermeasures Dispenser Set is used on full scale and/or subscale aerial targets to dispense radar reflective chaff or infrared flares to create false targets that confuse radar detection.

AN/LAU-10 Airborne Rocket Launcher enables the target aircraft to fire radar reflective chaff material forward of the target to confuse radar detection and tracking.

AN/DPT-1, AN/DPT-2, and AN/DPT-2A Radar Transmitting Sets commonly known as the radar simulators, are RF emitters used to simulate threat signals, each within different bands and frequencies (documented by nomenclature assignment).

Improved Surface Threat Emitter is a rotating antenna and transmitter that simulates a surface radar.

STEK is a completely self-contained radar emitter utilizing either the AN/DPT-1 or the AN/UPT-2 transmitter to be used for Fleet training exercises. The system is designed to be installed on QST-35 Surface Target Boats (IOC in FY 1992).

HARM Missile Threat Emitter consists of a fixed antenna, transmitter, portable generator, and fuel system. Its parameters are specifically set for Fleet HARM Missile firings and is the only threat emitter currently certified for Fleet HARM Missile Exercises.

ARME is an emitter used on surface target boats to provide the RF signal required by an anti-radiation missile in a training firing exercise. The RF signal provided by the emitter is used as a target for the missile guidance system.

MK28, Mod 3 Target Flare is used to provide an infrared source on the BQM-74E and QF-4N aerial targets (documented by nomenclature assignment).

SMU-114/A is used to simulate the infrared signature of a combat aircraft (documented by nomenclature assignment). (IOC in FY 1992.)

Target Smoke System is used in a drone target to provide a continuous or interrupted trail of smoke. The trail of smoke is positive identification for aircraft interception and for location and observation of targets in flight.

TDU-38/B is a fabric sleeve towed behind the TDU-34/A Tow Target to increase its visual signature (IOC in FY 1992.)

SUBSCALE AERIAL TARGETS.

Modified Radar Cross Section Kit is an application of special paints to the nose radome and fiberglass nose area of the BQM-34S target that reduces radar reflections from internal hardware in the nose area. These changes are required to meet unique user requirements. Documented user requirements are implemented as an engineering change.

Metal Nose Cone over the nose cone of the BQM-74E target reduces the RCS signature of the target and masks the Luneberg Lens and the forward bulkhead of the target through the fiberglass radome, which keeps the skin return to a minimum. Documented user requirements are implemented as an engineering change.

Active Augmentation Kit (AFC-14) enables the battle group to exercise air-to-air and surface-to-air live firings simultaneously during an MSR exercise. COMTHIRDFLT request is implemented as an engineering change.

BQM-74E Dual IR Crucible provides a specific forward hemisphere heat source that is unavailable to fleet users utilizing the BQM-74E. Documented Fleet requirements are implemented as an engineering change.

AN/ALE-44 Countermeasures Dispensing System Kit is installed into the BQM-34S aerial target to enhance the target's capabilities. Documented through AIRTASK #A540A/054-6/3000000002 and implemented as Engineering Change Proposal (ECP) #93-054.

Dual Two Launching System for BQM-74E Target improves the accuracy of Fleet air defense systems. Documented through AIRTASK A540-A540A/054-6/0000000002 and implemented as ECP #92-035.

FACILITIES AND EQUIPMENT

6. **Special Facilities/Equipment Resources.** *Include a copy of the form provided at Tab B of this data call for each facility and "major" piece of equipment located at this activity. Include information on separate detachments. The following definitions will apply:*

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plant equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some Class 2 Installed Equipment, such as Main-frame computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other Class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

The comprehensive and complete suite of facilities at Point Mugu supports the full spectrum of weapon system acquisition and life cycle support. The total estimated replacement cost for these facility resources identified in Tab B for the Point Mugu site is \$1,202 million.

POINT MUGU MODELING, SIMULATION, HARDWARE-IN-THE-LOOP, ANALYSIS, AND WARGAMING CAPABILITIES.

Point Mugu has a 47-year history of providing weapons system acquisition support through the use of its facilities, laboratories, instrumentation, and technological expertise. This site's uniqueness is derived from its ideal combination of specialized weapons analysis laboratories located in close proximity to an air and sea range with realistic Naval warfare littoral and open ocean geographical features, i.e., the coastal site in a relatively undeveloped area, contiguous mountain, offshore islands, and virtually unlimited ocean area. While the principal thrust of the mission is dedicated to test and evaluation, the nature and combination of Point Mugu's specialized laboratories, airfield, and threat simulation facilities with the Sea Test Range lend themselves to supporting the full spectrum of life cycle support functions for Navy aviation, surface warfare, and Fleet training.

Models and simulations have played an important role in the design and evaluation of weapon systems at NAWCWPNS Point Mugu for over 35 years. NAWCWPNS Point Mugu's value to the United States military forces is enhanced by the modeling and simulation work being carried out here. The advent of internetted, interactive, and interoperable simulation as tools for Research, Development, Test, and Evaluation (RDT&E), and acquisition processes and training, mission, and rehearsal exercises has led to a rethinking of current T&E practices. NAWCWPNS Point Mugu has taken a leadership role in this integration of live and simulated test entities.

One of Point Mugu's guiding principles is the performance of objective test and evaluation throughout the weapons full life cycle acquisition, including Advance Technology Demonstrations. Toward that end, the Point Mugu site performs evaluation of weapon systems through all phases of concept definition, acquisition, production, and post-production support. This effort requires the capability to model, simulate, analyze, and test weapons systems. In addition to live and captive flight testing, pre- and post-flight evaluation of both missile and aircraft systems is conducted within the various test, evaluation, and analysis facilities resident at the Point Mugu site. These facilities include the F-14 Weapon System Integration Center (WSIC), Missile Hardware-in-the-Loop Laboratories (HWIL), Strike Weapons Evaluation Capability, Radar Reflectivity Laboratories, Lethality Laboratory, Electronic Combat Simulation and Evaluation Laboratory (ECSEL), and software evaluation facilities.

Point Mugu has unique capabilities to conduct test, evaluation, and analysis of tactical missile designs in singular, stand alone environments or interconnected with various other test activities. Engineering level and engagement level testing and analysis are accomplished through the use of simulations that include models of the missile, targets, countermeasures, and clutter backgrounds in a variety of scenarios and performance parameters. Wargaming simulation is accomplished at Point Mugu through the use of the Sea Test Range's Battle Management Interoperability Center and via the Distributed Simulation Internet. Point Mugu has over 15 years of demonstrated capability in the development and use of models and simulations of air and surface launched tactical missiles and target systems. The site is establishing itself as a leader in the Navy's model and simulation Verification, Validation, and Accreditation. Point Mugu currently uses models and simulations for Infrared (IR) signature injection; HWIL target and missile aerodynamic, kinematics, and geometry simulations; digital n-point scattering RF radar reflectivity; F-14 and tactical missile IV&V; and warhead effectiveness, vulnerability, and end game lethality analyses. Complex six degree-of-freedom (6-DOF) simulations are employed for missile guidance testing, launch acceptability region (LAR) data, radar/IR/electro-optical sensor detection and tracking, and airborne weapon control system functions. These simulations are validated through in-house laboratory testing, captive flights, and live missile firings, thus reducing inherent risks associated with T&E. In addition to using models and simulations in weapon system evaluations, the Point Mugu site developed the prototype Integrated Radar Infrared Analysis and Modeling System (IRIAM) for the real time interactive comparison of RF and IR modeling and measurement data.

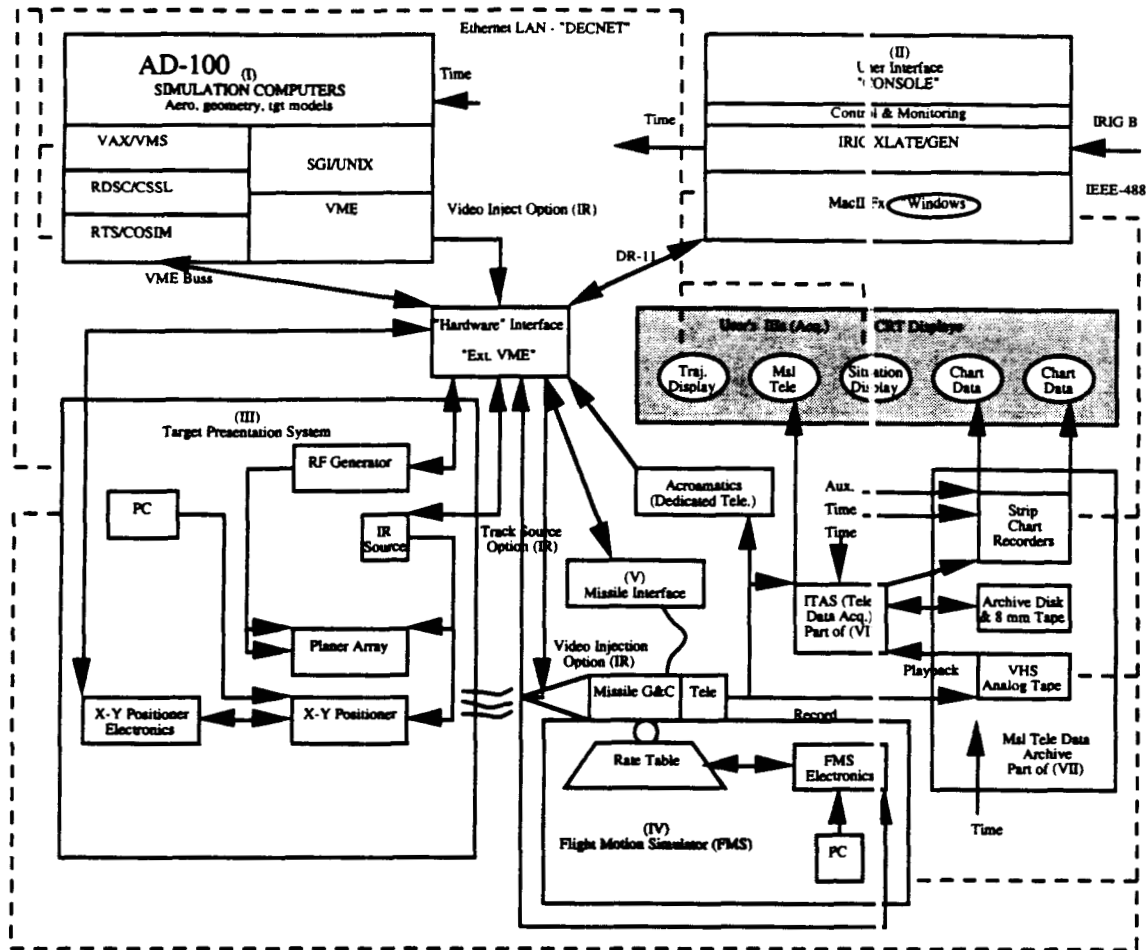
Missile Systems Evaluation Laboratory (MSEL). Four Missile HWIL Facilities are collocated with the Radar Reflectivity Laboratory's bistatic anechoic chamber and the Intercept Weapons Evaluation Facility in the Missile Systems Evaluation Laboratory. The MSEL offices and laboratories are connected via a state of the art communications network consisting of secure fiber optics cable and 10Base-T cable, which facilitates the sharing of data and information transfer. The MSEL has both a dedicated secure and a non-secure T1 line to the Sea Test Range and is in the process of installing a Wide Area Network (WAN) link. The WAN allows a dedicated, secure on-line link to the other facilities at Point Mugu and the "outside world". The communication network coupled with the physical proximity of test personnel and resources facilitate interaction of both live test and simulation operations between the evaluation planners, testers, and analysts necessary to achieve a total evaluation environment.

Missile Hardware-in-the-Loop. The Missile HWIL facility consists of four laboratories that provide missile system performance evaluation from launch to intercept. Test scenarios include single or multiple targets in clear or Electronic Countermeasures (ECM) environment in open and closed loop test configurations. The missile performance is assessed against maneuvering or non-maneuvering targets with glint and scintillation RF signatures. Dual spectrum (e.g., RF and

infrared) testing is performed in one of the facility's test laboratories. The facility provides a means for the rapid generation of data necessary to predict missile performance under realistically simulated flight conditions. The facility supports weapon system acquisition milestone decisions and is used to conduct technical baseline performance evaluations of tactical missile software. Pre- and post-flight simulations are conducted for air-to-air and surface-to-air missile development and operational tests. Aircraft to missile interfaces are also tested for various air-to-air missile systems. An approved MILCON (P-199) will provide enhanced millimeter wave (W-Band) and dual mode HWIL capability for the most advanced missile systems.

The HWIL laboratory incorporates 6-DOF digital trajectory simulations with missile guidance and control hardware to realistically represent the overall missile system performance. This is accomplished by integrating the missile guidance section with the trajectory simulation and missile aerodynamic models, and incorporating hardware that represents both IR and RF targets. The RF targets are either statistical radar cross section models or n-point discrete models developed in the Radar Reflectivity Laboratory. The RF environment includes clutter and a target model that simulates jet engine modulation, glint, and scintillation. The HWIL simulation provides a real time closed loop representation of missile flight from launch to intercept.

The Laboratory equipment consists of four major items. The first includes the simulation computers that have sufficient speed and memory capacity to solve the necessary equations of motion and flight of the missile. The second is a three-axis flight table that imparts dynamic yaw, pitch, and roll motion to the missile. This is necessary to investigate any tracking sensor-to-body coupling issues that may cause flight instability. The third item is in the form of a target presentation system. This system simulates target motion to provide true geometrical target to missile representation and emits IR and/or RF radiation in the proper spectral bands. The target presentation also provides a threat representative ECM environment. The last item is an enclosure/facility that houses the flight table and the target presentation system, and limits spurious radiation from entering or leaving the laboratory environment. See the figure below.



NAWCWPNS MSEL HWIL Laboratory.

Strike Weapons Evaluation Capability. The Strike Weapons Evaluation Capability at NAWCWPNS Point Mugu consists of the fully integrated resources of several unique laboratories focused on hardware subsystem test and evaluation of radar seekers, weapon data link pods, and missile flight computers, combined with specialized modeling, simulation, and computational capabilities and a civilian and military workforce with product and mission unique knowledge.

The Seeker Evaluation Laboratory is in Building 761 and directly overlooking the Pacific Ocean and the inner Sea Test Range. The laboratory has 2,400 square feet of floor space and allows for seeker operation at an altitude 27 feet above sea level. This location permits a seeker under test to be presented with real targets and countermeasures in the presence of a sea environment. This laboratory provides a unique facility to the NAVY that is not duplicated at any other activity.

An adjunct to this facility is a mobile seeker evaluation laboratory that is completely self contained within a 2.5-ton truck. This mobile capability permits a seeker under test to be exposed to a variety of targets, backgrounds, and environmental conditions that are unavailable at a fixed site location.

Additionally, a remote facility on SNI has 320 square feet of floor area and is located 150 feet above sea level overlooking the inner Sea Test Range and the Santa Cruz Acoustic Range. The proximity of this site to the Santa Cruz Radar Imaging Facility (SCRIF) provides cost effective access to targets being tested at the SCRIF.

The Weapon Data Link Laboratory provides for the laboratory evaluation and pre-flight check out of weapon data links and pods used with strike weapons.

Evaluation of missile flight computers takes place in a limited HWIL facility. This facility primarily evaluates the hardware associated with Anti-ship Tomahawk and the Harpoon/SLAM family of missiles.

The computational capability includes multiprocessing services for up to 48 interactive terminal users simultaneously. Interactive users may be running any mix of simulation, flight test analysis, database management, or program development applications. Each user may also have as many as 8 simultaneous interactive terminal sessions in progress at one time and an unlimited number of batch jobs running concurrently in the background (i.e., one Harpoon engineer on one terminal can interactively examine and compare the data from 4 different flight tests while interactively using the simulation to generate scenario plans for 4 future flight tests while another engineer could be engaged in exactly the same process on a system other than Harpoon (such as SLAM).

Collocation of project computational resources provides an analyst with nearly every tool required to support test and evaluation. This can include a TAMPS, GPS receiver hardware, and a Zenith-based MIU to plan and generate missions; a high-fidelity 6-DOF SLAM simulation to carry out planned missions; all the interactive graphics and analysis software necessary to immediately examine the results of a simulation run or flight test; and for comparison purposes, immediate on-line access to all the data from every previous SLAM flight test as well as data from previously archived simulation runs.

Similar capabilities exist to support a lesser number of users in a completely TEMPEST shielded secure environment for projects requiring up to TOP SECRET Special Access levels of security.

The workforce consists of a balanced mix of civil service, military, and contractor personnel with varying educational disciplines who perform the engineering management, planning, test, and analysis for the projects supported. Included in this resource are those support personnel required to execute the administrative needs of the technical workforce. Experience level ranges from a low of 5 years to a high of 25 years associated with Strike Weapons Systems. The average experience is about 12 years.

Major skills of this group are technical management of T&E projects, product specific engineering knowledge, simulation development, software evaluation including IV&V, performance analysis and evaluation, test planning and execution, currency in tactical Navy aircraft, data reduction, and analysis.

F-14 Weapons System Integration Center (WSIC). The WSIC provides a complete simulation and testing center for the F-14 aircraft weapon system; secondary functions include supporting projects from the Defense Modeling and Simulation Organization (DMSO) and the Advanced Research Projects Agency (ARPA). The center provides test beds to develop new F-14 tactical software, integrate new weapon systems into the aircraft, and perform IV&V of the F-14 tactical software. These functions are performed during full software simulations, stand-alone environments (single-subsystem, simulated system), partial integration environment where groups of subsystems are

tested with the remainder of the system simulated, and during full integration events. Each laboratory uses real time simulations to stimulate weapon system inputs in a controlled laboratory environment. Dynamic real time mathematical models are used as Weapon Replacement Assemblies. The WSIC supports off-site DT&E projects using dedicated T1 lines on the Defense Simulations Internet to provide interactive communications during Joint T&E operations.

Integrated Radar and Infrared Analysis and Modeling System (IRIAM). The purpose of the Integrated Radar and Infrared Analysis and Modeling System laboratory is to develop a prototype DoD standard testbed for the integrated real time interactive display of multi-spectral sensor measurement and simulation data for comparison of modeling and weapon systems test data. IRIAM provides near real time data analysis comparing M&S data with actual test data. The laboratory serves as a test-bed for Electro-Optical and Infrared (EOIR) signature databases and models. IRIAM supports the development of a Virtual Reality Presentation Engine (VRPE) and will interface with various weapon systems T&E support databases and demonstrate the interoperability of these databases to support modeling and simulation.

Electronic Combat Simulation and Evaluation Laboratory (ECSEL). The ECSEL is the Department of the Navy's principal laboratory complex for research and development and in-service engineering support of naval airborne electronic warfare equipment. The ECSEL is a multi-purpose threat simulation facility combining versatile open-loop RF signal environments and closed-loop Naval anti-aircraft terminal threat systems in a secure enclosure. A modern secure laboratory facility, the ECSEL develops, operates, and maintains simulations that replicate the functional characteristics and performance of threat weapon systems. The ECSEL's Advanced Multiple Environment Simulator family of open-loop simulations provides a dense electromagnetic environment of land-based, naval, and airborne threat weapon systems. Specific closed-loop simulators include a modern threat surface-to-air missile system, Radar Equipment Simulator, Semi-Active Test System, and an Early Warning/Acquisition System. Research and development testing of developmental, EW equipment, software support for systems currently in the Fleet, integration support, and techniques development and optimization are routinely performed in the ECSEL. Although real time data links do not presently exist, data sharing is possible between the HWIL at Point Mugu and the Open Air Range at China Lake. The ECSEL facility includes support stations for U.S. Navy TACAIR and ESM suites. This provides short turnaround test times needed for In-Service Engineering during crisis situations. Support stations also exist for some U.S. Army EW suites and the CARAPACE RWR for F-16 aircraft sold to foreign countries.

Sea Test Range. The Sea Test Range at NAWCWPNS Point Mugu features the most tightly integrated suite of large-area test instrumentation in the world. Most of the TSPI and telemetry data gathered or processed can and are fused and distributed in real time. This real time fusion and distribution capability makes the Point Mugu Range Data System a natural gateway between the synthetic and live test domains. The Defense Modeling and Simulation Office has funded two multi-million dollar projects (Internetted Range Interactive Simulations [IRIS] and Joint Evaluation, Test, and Training Approach [JETTA]) to realize its goal of seamless integration of live and simulated entities. This integration of live and simulated entities will improve weapon systems test and evaluation through the elimination of current test limitations such as those associated with testing multi-threat weapons management systems. Weapons systems today are being designed to simultaneously handle multiple threats. In order to test these advanced systems Point Mugu is developing, through the IRIS and JETTA projects, the ability to present large numbers of simultaneous computerized, synthetic, and live threats to the weapon system while measuring system performance. NAWCWPNS, primarily in the Sea Test Range's Battle Management Interoperability Center (BMIC), has demonstrated the capability to achieve an integration of simulated and live-threat scenarios.

TARGET SYSTEMS MODELING AND SIMULATION.

Target Systems Modeling and Simulation efforts that currently exist or are now under development fall under two categories.

The first category are the Models and Simulations used within the Targets community for the acquisition, manufacturing, and in-service engineering support of assigned target systems.

This product line includes:

SAT	BQM-74	SSST	QST-3
AQM-37	MQM-8 (Vandal) series	QF-4	QST-35
BQM-34	QF-86	TDU-34A/A	MST

Modeling and simulation efforts in this category include:

- Kinematics and target trajectory models
- Command and control models
- Structural models
- Propulsion system models
- Software development tools and SSA models
- Technical risk assessment models
- COEA alternative development modeling

The second category are Models and Simulations that support the Weapon Systems T&E and Fleet target planning and execution requirements. The target systems being modeled are as shown above, however in this category the interaction of these targets with the specific Weapon System under test is generally of overriding importance.

Modeling and simulation efforts in this category include:

Digital kinematics models of target systems trajectories, including the target command and control systems interactions. These simulations are used for target mission planning and to develop range safety requirements for specific proposed operations.

Models to characterize the target signature in all spectra.

Structural models of the targets for vulnerability assessment.

We are currently developing a Joint Service process for target/ threat validation. This effort is sponsored by DoD, with approval of the Joint Target Oversight Council, and is being coordinated with both the Weapons and Intelligence communities. Although not specifically a Modeling and Simulation effort, this tasking will use modeling and simulations developed by all three communities to demonstrate the validity of our current targets in threat roles.

Summary. Clearly Point Mugu is a recognized leader in Defense Modeling and Simulation and has taken a leadership role in the internetting and interoperability of models and simulations with live test operations. This work directly enhances DoD's ability to put useful weaponry into the hands of our military.

7. General Facilities/Equipment Resources.

a. Is there any cash revenue generated by this activity? Example: Electricity generated at this activity and sold to the local community. If yes, describe.

None

b. What MILCON projects are currently programmed to be completed by the end of FY 1995? For each project provide:

(1) A description of the proposed facility with title and project number. Be sure to include the trailing alpha designator for BRACs-88, 91 and 93 realignment projects, i.e., P-xxxR, P-xxxS, P-xxxT.

(2) The functional support area(s) that the new facility will support. Refer to Appendix A.

(3) Identify installed equipment to be provided based on the threshold guidance of paragraph 6, page 12, of this data call.

(4) The additional square footage that this project will provide to the functional support area(s).

(5) The current working estimate (CWE) & planned beneficial occupancy date (BOD) of the project.

There are no MILCONs that will be completed by the end of FY 1995.

c. What MILCON projects are currently programmed to be executed/completed after FY 1995? For each project provide:

(1) A description of the proposed facility with title and project number.

(2) The functional support area(s) the new facility will support.

(3) The identified installed equipment to be provided based on the threshold guidance of paragraph 6, page 12, of this data call.

(4) The additional square footage this project will provide to the functional support area(s).

(5) CWE & planned BOD.

PROGRAMMED MILCON PROJECTS.

MILCON Project P-014, "Child Development Center", Sponsor: N1, programmed for FY 1996. Design status: PEP completed. This project will provide 8,000 square feet of classrooms, office, kitchen, and mechanical rooms to provide space for 120 children over the age of two years. It will be located on the site of an existing inadequate quonset hut type building that is programmed to be demolished in FY 1995. An addition to the existing playground and an addition and relocation of a portion of the existing fencing are included.

The new facility will replace an inadequate existing facility and will function in the community support area.

The identified installed equipment will be as follows: HVAC; child and adult toilet facilities and hand washing sinks; built-in storage and case work; fire control panel, annunciator, detectors, automatic sprinkler system, and extinguisher cabinets; electrical panels, communication, and closed circuit television conduit system; kitchen equipment for a warming kitchen.

This project will provide 8,000 square feet of building space and 8,339 square feet of additional playground.

The project cost is \$1,300,000 plus \$100,000 in collateral equipment. BOD is anticipated to be summer 1996.

MILCON Project P-904. "Storage Tank for Fuel Farm, SNI". Programmed for FY 1996. Funded through DLA/DFSC. Design status: A/E selection completed by COMWESTNAVFACENGCOM, awaiting funds to award design contract. This project will provide one 10,000-barrel (420,000-gallon) fuel tank at the receipt facility at San Nicolas Island. One of the three existing 1,000-barrel (42,000-gallon) tanks will be demolished upon completion of this project. Fuel is delivered to San Nicolas Island by barge. This project will enable deliveries to be reduced from eight to ten per year to one or two per year.

This project supports the supply function to ensure that adequate supplies of aircraft fuel are available for weapons systems test and evaluation programs assigned to this activity that are staged from San Nicolas Island.

These existing pumps and receipt piping are adequate to support this project. Identified installed equipment will be fire hydrant and fire suppression foam conduit from the tank to the street. Controls, high level alarms, false bottom, and leak monitoring equipment will be provided integral with the fuel tank.

This project will increase the capacity of the receipt facility from under 3,000 barrels usable to over 11,000 barrels usable.

The cost of the proposed project is \$750,000. It is anticipated to be in service by summer of 1996.

MILCON Project P-031. "Range Operations Center". Sponsor: N091. Programmed for FY 1998. No design started. This project will provide a 32,920-square-foot addition to the existing Range Operations Center building, upgrade 19,820 square feet of the operations centers, and upgrade heads, roof, and facilities of the remaining 91,366 square feet of the building. An overhead secure cable way will connect the new addition to the range communications building.

The facility will be an addition to provide adequate space to meet range operating and data analysis requirements. The upgrading of the existing building (which was built in 1953 and designed to accommodate functions and equipment of that period) is required to provide real time information to customers, including Foreign Military Sales customers using the Sea Test Range for test and evaluation of weapons systems.

Much of the installed equipment will be relocated or reinstalled. Equipment is constantly upgraded and replaced. A passenger elevator will be included in the addition. The existing three-story building has only a freight elevator not suitable for handicap access.

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Four personnel now occupy a like amount of space in several buildings remote from the site. It will also provide post-operation briefing facilities that are not available in the existing buildings. The addition will also provide properly configured space for modern computer equipment. This space in the existing building, which is inadequate for this use, will be converted to operations functions.

The estimated cost of this project is \$9,800,000. The occupancy date has not been determined.

MILCON Project P-061, "Surface Targets Development Lab, CBC Site". Sponsor: N091. Programmed for FY 1997. No design started. This project will provide 24,000 square feet of development laboratory; 7,945 square feet of engineering laboratory; 7,355 square feet of electronics shop space; and 9,000 square feet of RDT&E storage laboratory.

The new facility will replace leased and inadequate facilities and will support the Sea Range mission of weapons systems test and evaluation and Fleet training worldwide.

The identified installed equipment will be as follows: HVAC, fire control and sprinkler systems, vault/storage room, work benches, and cabinets.

This project will add 48,000 square feet of additional space to support the test and evaluation mission of the activity.

The estimated cost of the project is \$3,500,000. The occupancy date has not been determined.

MILCON Project P-773, "Ready Missile Magazine". Sponsor: N091. Programmed for FY 1999. Will use definitive design requiring only adaptation to site. Site is located between two existing high explosive magazines with minimum adaptation required. This project will provide one modified standard Type A reinforced concrete Ready-for-Issue (RFI) magazine complete with retaining walls, earth cover, loading area, security lighting, and alarms. This magazine will have over-size steel doors for ready ingress and egress of all-up missiles.

This facility will support the Weapons Department, which has cognizance over explosive storage and assembly buildings. The facility will provide storage for fully assembled weapons and targets awaiting launch in test and evaluation programs assigned to this activity.

The built-in equipment alarms and lighting are specified in item 1.

This project will add 5,044 square feet to the high explosive storage magazine capability existing at this activity.

The estimated cost is \$1,300,000. The occupancy date has not been determined.

MILCON Project P-085, "Jet Engine Test Cell". Sponsor: N88. Programmed for FY-1999. This project will provide a jet engine test cell of adequate size to test jet engines from modern jet aircraft.

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MILITARY VALUE

ACTIVITY UIC: 63126

It will include acoustical-treated air intake and exhaust system, instrumentation, fire suppression system, and utilities in addition to fuel and water storage tanks.

This project will add 6,900 square feet of building space plus open area for fuel tanks and cooling water storage tank.

The estimated cost is \$7,300,000. The occupancy date is 2000.

MILCON Project P-183, "Power Check Pad Without Sound Suppression. Sponsor: N88. Programmed for FY-1999. This project will provide one high power run-up test pad for jet aircraft with capability to provide required engine tests for F-14A+ aircraft. This facility will reduce queuing delays encountered by having only one check-out facility and will permit the pads to be temporarily taken out of service for repair without cessation of test support for aircraft maintenance.

The estimated cost is \$600,000. The occupancy date is 2000.

d. What is the distance (in miles) to the nearest military airfield and/or pier not located at your site? Describe. Assume all previous BRAC closures have been executed.

The nearest military port is the Port of Hueneme approximately 8 miles northwest of the main base. The Port at CBC Port Hueneme supports the training, staging, deployment, and support for Seabees. The port is also a Port of Entry for the city of Port Hueneme.

Located 60 miles north of Los Angeles/Long Beach Harbor, Port Hueneme Harbor provides direct, adjacent access to the NAWCWPNS Sea Test Range. While handling a moderate amount of commercial cargo traffic, a significant amount of the harbor is dedicated to Navy and Military Sealift Command use as it provides the only available deep-water harbor for military use between San Diego and Puget Sound. Port Hueneme, by virtue of its location, provides for efficient and cost-effective deployment of a variety of surface targets in support of weapon system T&E as well as for Fleet training. The harbor geography allows for utilization of all surface threats from small, remote-controlled fiberglass vessels, tow targets, and DD-class target ships, as well as the next-generation Mobile Ship Target. Adjacent docks, piers, and buildings allow for all major target conversion, modifications, and repairs, apart from scheduled large ship dry-docking, to be completed on the Navy's facilities. Direct land access to NAWCWPNS Point Mugu allows for efficient utilization of organic technical expertise required in the multi-disciplinary nature of test and evaluation.

Point Mugu is centrally located between two military airfields at Edwards AFB and Vandenberg AFB. Both airfields are approximately 120 highway miles from Point Mugu. The Edwards airfield is northeast in the Mojave desert, while Vandenberg is northwest along the Pacific Coast.

e. How many certified magazines, used for the storage of explosives, does this activity own or control? What is the total explosive weight storage capacity?

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There are 26 certified magazines used for the storage of explosives. The total explosive weight storage capacity is 1,461,200 pounds NEW of Class 1 Division 1. All other class and division is limited only by the physical capacity of the individual storage facilities. Point Mugu also has authorized storage for Group I and Group III explosives as follows: Group I, 10,000 pounds NEW; Group III, 3,000 pounds NEW.

LOCATION**8. Geographic Location.**

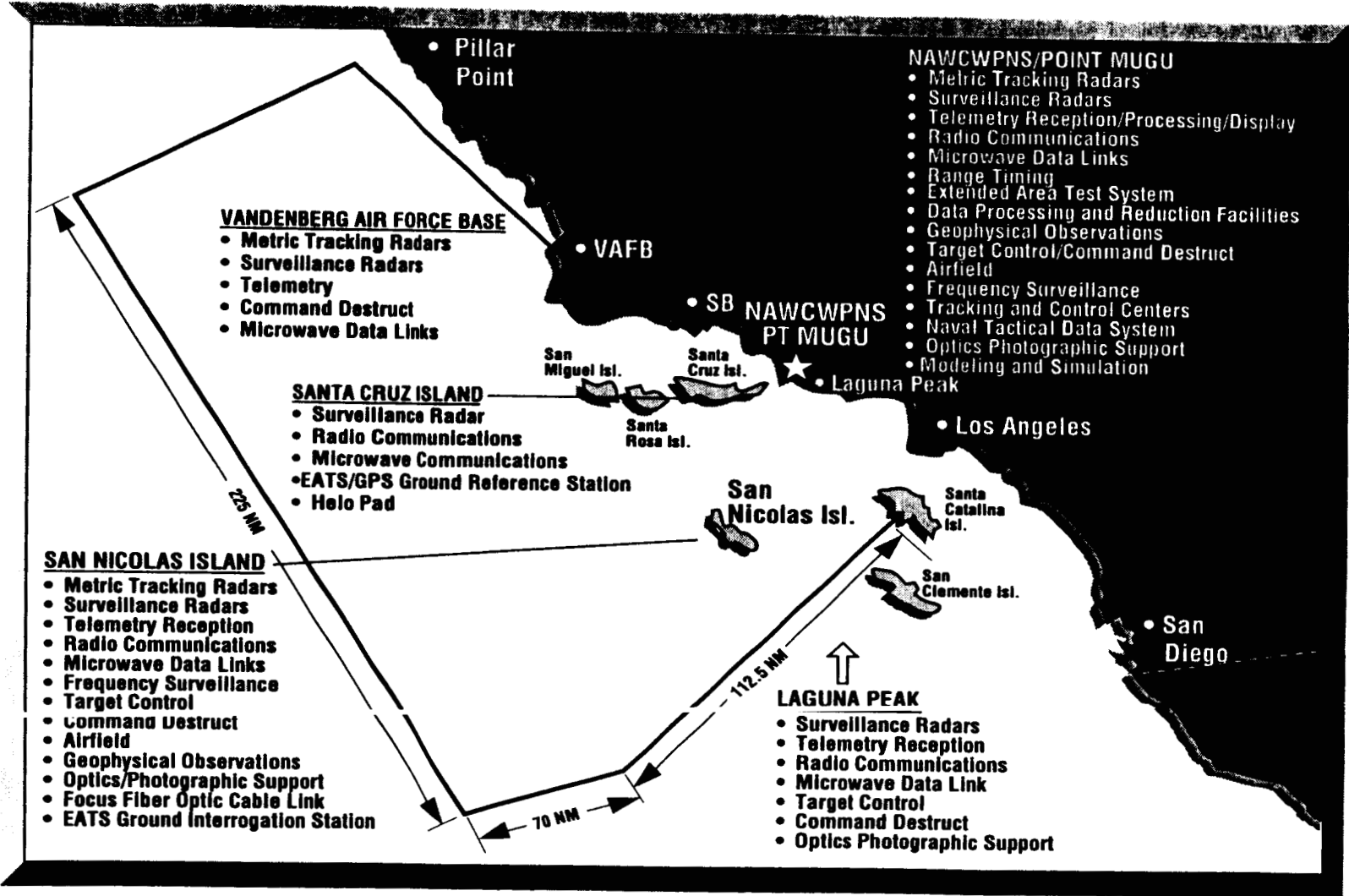
a. *Is there an imperative in facility, function or synergy that requires the installation/base/facility to be in its present location? If yes, describe.*

Yes. In 1945 the Chief of Naval Operations established a site survey to determine where to locate a special missile test center. This team visited 26 potential sites for such a range throughout the United States, including Wallops Island, Virginia, Puerto Rico, and a site in the northern portion of the Gulf of California in Mexico. Point Mugu was selected as the recommended site "far above the possibilities of any other site" because it has the following:

- Open waterfront to a large ocean test range area
- Offshore islands including San Nicolas Island (which the Navy controls) for siting extended-range instrumentation
- Adjacent Laguna Peak at 1,500-foot altitude for additional siting of instrumentation on the mainland and extended line of site coverage over the Sea Test Range

For the past 47 years the Navy has developed this Sea Test Range into the principal test facility for both Navy and Air Force airborne weapons and Navy surface weapons. In addition, the Fleet utilizes the Sea Test Range for its weapons firing exercises, including air-to-air, air-to-surface, surface-to-air, and surface-to-surface weapons, and air-launched sub-surface weapons as well as bombs, mines, and guns. Due to its extensive instrumentation and range safety capabilities, the Sea Test Range is the only area in Southern California in which live fire Fleet training operations are conducted. The range regularly supports major Fleet training exercises with fully integrated carrier battle groups and Joint Service participants. The range location offers a short steaming time from the major Fleet location in San Diego (see the following figures).

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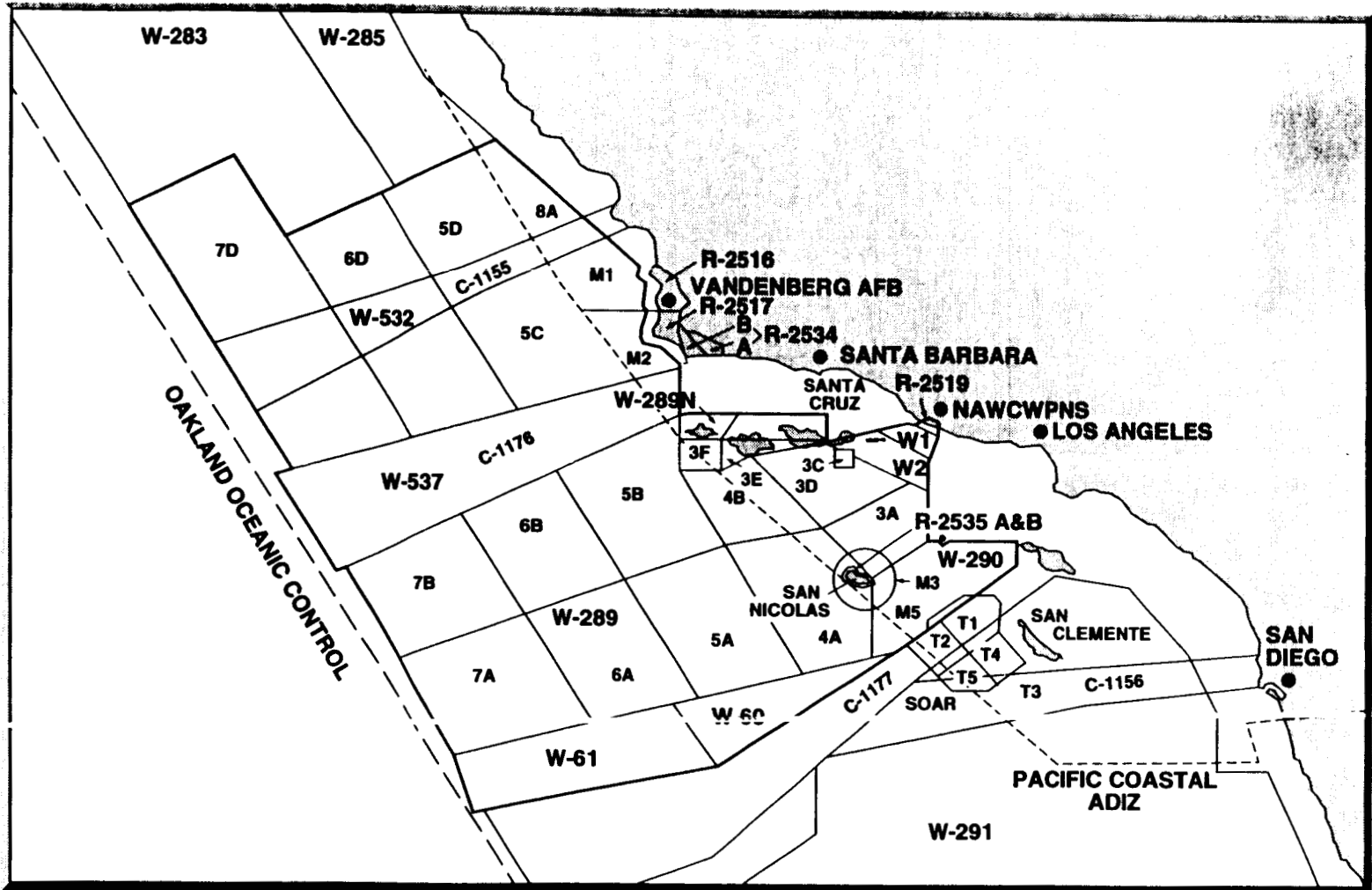


Range Instrumentation Sites

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Sea Test Range

Sea Test Range. The Sea Test Range at Point Mugu is DoD's largest and most heavily instrumented sea/air range encompassing 125,000 square miles of instrumented open-ocean test space and 36,500 square miles of controlled airspace. This range has the unique feature of geographic location combined with a highly instrumented coastal region and offshore islands. The Point Mugu Sea Test Range has the capability of providing and supporting true at-sea and littoral scenarios. Facilities located at Point Mugu, at Laguna Peak, and on the outlying islands of San Nicolas, Santa Cruz, Santa Rosa, and San Clemente, as well as up the coast to Tassajera Peak and as far south as San Diego, provide capability for precision metric track of up to 35 objects, target control for up to 10 airborne and surface targets, and telemetry for up to 20 sources. The Point Mugu site offers the advantage of laboratories collocated with operational air and sea test range capabilities. The combination of location, extensive instrumentation capacity, over-the-horizon command and control, unique test capabilities, and a highly skilled, experienced technical workforce provides a realistic sea/air environment for conducting large, integrated, joint test and evaluation and training exercises with integrated subsurface, surface, and air coverage. Finally, Laguna Peak is a primary range safety flight termination site for ICBM and Polar satellite launches from Vandenberg AFB. The sea surface area has relatively low commercial shipping activity in the coastal shipping lanes. The far western location of the Sea Test Range allows the air space to be unencumbered (relative to other locations) by commercial airline routes. The following figure is from "An Analysis of Naval Air Space Utilization and Requirements (Project Blue Air Update)", prepared for Chief of Naval Operations by Booz-Allen Hamilton, 2 November 1987.



Scheduled Airline Traffic Between Large Hub Airports

This unique geographic location makes possible the following sea range test capabilities:

- Complex multi-participant, multiple-warfare area operations
- Sub-surface, surface, and air-launched cruise weapons testing
- Ballistic missile operations support
- Intercontinental ballistic missile (ICBM) and Polar-orbit satellite launch operations support
- Sea-environment special-access program support
- Classified target development and testing
- Joint engagement zone scenarios
- Simulated regional conflict operations
- Multiple participant live-fire exercises
- Theater Missile Defense
- Radar cross section measurement of sea and air platforms

San Nicolas Island (SNI). Located 60 nautical miles southwest of the Point Mugu complex, SNI is one of the cornerstones in the Sea Test Range because of its land mass and depth of surrounding waters. It allows the unique replication of some high-threat areas around the world. Because of its remoteness and secured environment, special-access programs frequently utilize SNI facilities. SNI is heavily instrumented with metric tracking, telemetry, and communications necessary to support long-range and over-the-horizon weapons testing, Fleet training, and Theater Missile Defense exercises. Because of its isolated environment and shoreline characteristics, SNI is ideal for providing littoral warfare training exercises, including Tri-Service and theater warfare exercises. SNI provides unique instrumentation capabilities required to support ICBM and Polar satellite launches from Vandenberg AFB.

Santa Cruz Island (SCI). Located approximately 25 nautical miles west of Point Mugu is another unique instrumented island used for meteorological data collection, secure very high frequency/ultra high frequency (VHF/UHF) radio communications and data transmission, microwave relay to/from Vandenberg AFB, and surveillance radar coverage of the inner Sea Test Range. Also located on the island is our Santa Cruz Acoustic Range Facility (SCARF), which is a unique underwater test capability used to measure acoustic characteristics of underwater weapons systems; and the Santa Cruz Radar Imaging Facility (SCRIF), which uses surface surveillance radar to track and collect radar cross section data on test ships up to 20 miles off the coast.

Laguna Peak. Located 1,567 feet above the eastern corner of the Point Mugu complex, Laguna Peak provides an elevated line-of-sight and over-the-horizon transmitter capability for flight control of guided missiles, pilotless aircraft, airborne and surface targets, and command control/command destruct of test and ballistic missiles launched from Vandenberg AFB. In addition, Laguna Peak is instrumented with surveillance radars, telemetry reception, optics, UHF/VHF (including mobile) communications, and RF retransmission of range data.

Deep Water Harbor. Located 60 miles north of Los Angeles/Long Beach Harbor, Port Hueneme Harbor provides direct, adjacent access to the NAWCWPNS Sea Test Range. While handling a moderate amount of commercial cargo traffic, a significant amount of the harbor is dedicated to Navy and Military Sealift Command use as it provides the only available deep-water harbor for military use between San Diego and Puget Sound. Port Hueneme, by virtue of its location, provides for efficient and cost-effective deployment of a variety of surface targets in support of weapon system T&E as well as for Fleet training. The harbor geography allows for utilization of all surface threats from small, remote-controlled fiberglass vessels, tow targets, and DD-class target ships, as well as the next-generation Mobile Ship Target. Adjacent docks, piers, and buildings allow for all major target conversion, modifications, and repairs, apart from scheduled

large ship dry-docking, to be completed on the Navy's facilities. Direct land access to NAWCWPNS Point Mugu allows for efficient utilization of organic technical expertise required in the multi-disciplinary nature of test and evaluation.

Threat Simulation. The unique Point Mugu location allows full-spectrum services for all Navy aerial and surface targets. The operational services provided on site at the Sea Test Range include the world's largest and most varied inventory of subscale and full-scale aerial and seagoing surface craft targets for Fleet and T&E users.

Seeker Laboratory. Sited 50 feet from the Pacific Ocean shoreline at 27 feet above sea level, the Missile Seeker Laboratory provides an unobstructed field-of-view and testing against real targets operating on the Sea Test Range with both passive and active countermeasures.

F-14 Weapon System Support Activity (WSSA). The F-14 WSSA at Point Mugu provides life cycle systems engineering support of all versions of the weapon system: F-14A, F-14B, F-14A/B Upgrade, F-14D, and F-14 Block 1. The unique siting of the WSSA laboratory complex on the ocean front contiguous with the Point Mugu Sea Test Range allows for interactive laboratory/sea test range operations adding additional capability, versatility, and economics to support program requirements for this maritime air-superiority fighter aircraft.

Western Range Interaction. Point Mugu lies within 200 miles of three other major DoD test facilities/ranges. These complexes interact so frequently with Point Mugu that they are connected with a full broad-band microwave system for real time control of test evolutions and for data transmission between sites.

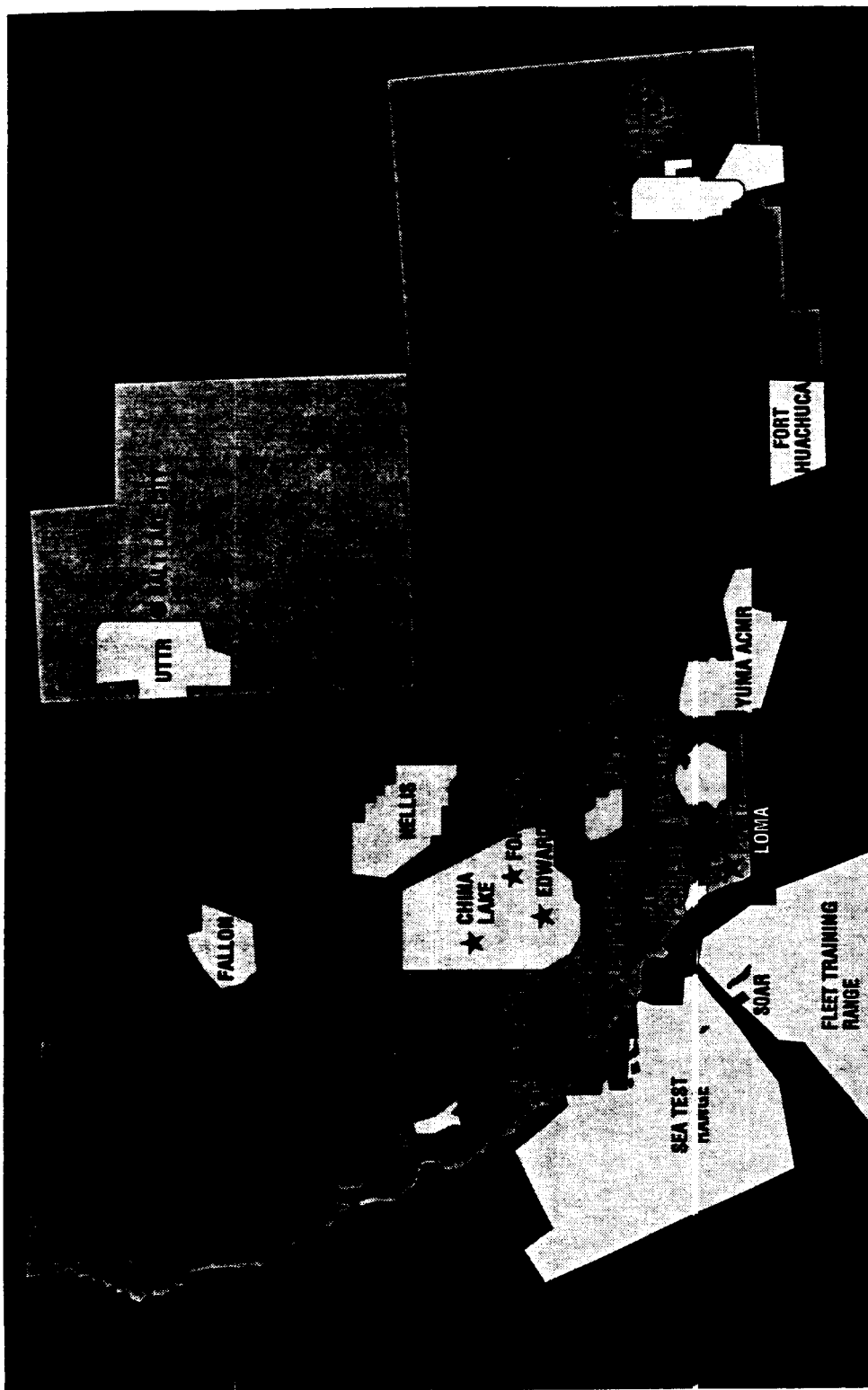
- The Western Test Range at Vandenberg AFB, the only U.S. site where satellites can be economically launched into polar orbit, lies 110 miles northwest with direct ties to Point Mugu. Because of the geographic siting of Sea Test Range instrumentations at Point Mugu, San Nicolas Island, and Laguna Peak, these locations have been designated as mandatory support sites for Air Force satellite and ICBM operations from Vandenberg.
- The Air Force Flight Test Center at Edwards AFB is 80 miles to the northeast of Point Mugu and regularly uses the Sea Test Range for its over-water flight tests.
- NAWCWPNS China Lake site is 150 miles to the northeast, providing ready access to a full spectrum of land ranges for Navy aircraft and weapons integration test programs, including air-to-air and air-to-surface missiles as well as bombs, rockets, and guns. The test capabilities at the two primary NAWCWPNS test sites at Point Mugu and China Lake are fully complementary.

In addition, three major training ranges are within close operating distance of the Point Mugu Site.

- The Navy's Southern California Operational Antisurface (ASW) Range (SOAR) off San Clemente Island is adjacent to the southern boundary of the Sea Test Range. Surface and air tracks are provided daily to the SOAR Range Center at North Island, San Diego, through the Extended Area Tracking System at Point Mugu.
- The Air Force's Nellis Test and Training Range complex is 250 miles northeast of Point Mugu. Test operations to this area are easily staged from Point Mugu.

- The Army's National Training Center at Fort Irwin lies 200 miles northeast of Point Mugu. Recent Fleet training evolutions on the Sea Test Range have included close air support at Fort Irwin.

See the following figure.



Military Ranges of the Southwestern United States

INTERCONNECTIVITY.

NAWCWPNS Point Mugu is extensively internettted with nearly 100 dedicated voice and data networks to leverage its key location and functions with other DoD ranges and facilities, as well as with other government agencies in the area. Use of these networks varies from real time command control of inter-range operations (such as Tomahawk) to exchange of range data among various ranges, exchange of air surveillance and coordination with the Federal Aviation Administration, and exchange of weather information with the National Weather Service as well as local government agencies. As a major range, the Sea Range also nets with other major ranges throughout the U.S. in support of Space Shuttle and various satellite programs.

Our extensive knowledge and experience with internetting has led OSD's DDR&E to designate Point Mugu as the primary West Coast site for high-data-rate internetting systems for test and evaluation.

The most noteworthy of these networks are the microwave network with the Western Space and Missile Center, Vandenberg AFB (with further connections to the Flight Test Center at Edwards AFB, China Lake, and the Utah Test and Training Range), the link with the Southern California Offshore Range, the Defense Simulation Internet, and various Navy tactical data links (i.e., links 4A, 11, 16).

Specific Networks.

Joint Inter-Range Microwave System (JMS). JMS is used for the major joint inter-range trunking of operational data and voice communications for linking Point Mugu, Vandenberg AFB, Edwards AFB, China Lake, and Utah Test and Training Range. This network is used continuously to pass air surveillance data between the Sea Range and Vandenberg. In addition, metric radar and telemetry data are passed from the Sea Range to Vandenberg for all satellite and ICBM launches, and command destruct commands are passed from Vandenberg to the Sea Range. Further, for operations involving aircraft from Edwards, the data link passes the Sea Range data to Edwards. Cruise missile operations such as Tomahawk use the entire network to pass data up and down the network of ranges supporting the specific scenario. (Typically Tomahawks are launched within the Sea Range and fly to China Lake.)

Extended Area Tracking System (EATS). EATS is linked to the Southern California Offshore Range (SCORE) Complex located at North Island. This network is used to pass metric tracks of air and surface vehicles on the SCORE from the Sea Range to North Island to combine with underwater tracks to provide the complete tactical "picture" of the critical ASW operations occurring at SCORE.

Defense Simulation Internet (DSI). DSI, intended to be a worldwide network, is sponsored by the Advanced Research Projects Agency (ARPA) and is used for distributed high-speed simulation and wargaming at simulation sites among the Joint Uniformed Services. An experimental network, 67 DSI nodes were implemented (one of which is at Point Mugu) in phases from 1989 through 1991, with expansion plans for the network to grow to as many as 86 nodes. DSI is the largest and most disbursed operational network. It is also the only network with sites outside CONUS. The DSI is compliant with Distributed Interactive Simulation protocols, which are based on IEEE 1278 standards and currently being implemented as the DoD wide standard.

Tactical Data Links A and J (Links 11 and 16, respectively). The Sea Range supports tactical data link operations with other ranges and tactical units as follows:

- Tactical Data Link 11 connectivity with North Island and China Lake as well as all Navy Fleet ships and aircraft and Air Force Link 11-equipped aircraft.
- Tactical Data Link 16 connectivity with Naval Research and Development (NRaD) Center System Integration Facility (SIF) in San Diego. This data link is currently under development and operational testing. As it matures, this link will expand to various operational units as well as other facilities.

Internetted Range Interactive Simulation (IRIS). The IRIS project is funded by the Defense Modeling and Simulation Office for FY 1993 and FY 1994. The project will internet the Sea Range's Battle Management Interoperability Center (BMIC), China Lake's Weapons Tactics Analysis Center (WEPTAC), and the F/A-18 Weapon System Support Facility (WSSF). IRIS is using DIS protocols and will be compatible with and exploit the DSI. IRIS is an experimental internet that shows great promise in supporting complex test and training operations being conducted on the Sea Range and elsewhere. This capability will be unique among DoD's test ranges.

Joint Environment for Testing, Training, and Analysis (JETTA). The JETTA project is funded by the Defense Modeling and Simulation Office for FY 1994 and FY 1995. The project will internet key facilities from each of the three services as follows:

- Navy. Point Mugu's Battle Management Interoperability Center, NRaD's Research, Evaluation, Systems Analysis/Enhanced Naval Wargaming System and the Systems Integration Facility, China Lake's Weapons Tactics Analysis Center, and the Patuxent River EA-6B Simulator.
- Air Force. Theater Command and Control Simulation Facility, National Test Facility, and the Real Time Electromagnetic Digitally Controlled Analyzer and Processor.
- Army. Depth and Simultaneous Attack Battle Lab and White Sands Missile Range (WSMR).
- Other facilities include the Exercise Capability (EXCAP) and the Joint Interoperability Test Center.

JETTA is using DIS protocols and will be compatible with and exploit the IRIS technologies and DSI.

b. What is the importance of the present location relative to customers supported?

The geographic location of the Point Mugu site is critical to the U.S. Navy, other DoD, and foreign clients because the site represents DoD's largest and most heavily instrumented sea/air range, including 125,000 square miles of instrumented open-ocean test space and 36,000 square miles of controlled air space, metric track of up to 35 objects, target control for up to 10 airborne targets, telemetry for up to 20 sources, three control rooms, including T&C alpha with over 40 support positions, and a battle management interoperability center replicating a carrier or composite warfare commander cruiser environment. San Nicolas island is a remote, secure off-shore test facility with a fully operational jet airfield, providing multiple launch and recovery support for all Navy full scale and subscale targets. It is fully instrumented and is capable of supporting full spectrum test operations and weapons handling, launching, and impact.

The Port Hueneme Division of the Naval Surface Warfare Center, an element of many Naval Sea Systems Command projects, such as AEGIS, Standard Missile, Rolling Airframe Missile (RAM), Seasparrow, and Close-In Weapon System, is 10 miles from Point Mugu.

The Naval Command, Control, and Ocean Surveillance Command Research and Development Center at Point Loma near San Diego lies 110 miles to the southeast. Command and control projects such as F-14J/JTIDS (Joint Tactical Information Display System), Tactical Environmental Support System, and Uniform Network Technology are jointly worked between the centers.

Commander, Third Fleet (COMTHIRDFLT) is homeported in San Diego. COMTHIRDFLT ships and aircraft have ready access to the Sea Test Range for missile firing training exercises. All THIRDFLT live fire weapons operations in the Southern California area are conducted on the Sea Test Range at Point Mugu.

The Point Mugu site provides support to the Channel Islands Air National Guard (CIANG) Wing by providing various station support functions as well as technical support from various elements. The Air National Guard decision to relocate from Van Nuys, California, was based upon the fact that the site operates two runways (11,100 by 200 feet and 5,500 by 200 feet) that meet the requirements for both the missions performed by the CIANG; medical transportation for the Air Force mission; and firefighting capability for the State of California, which requires Point Mugu airfield support for more than 30,000 air operations per year.

Point Mugu is located within the Southern California aerospace industrial base, and many of DoD's prime contractors are users of the testing facilities at the site.

In addition, tenants at Point Mugu, such as VX-4 and the Naval Air Reserve, use the Sea Test Range for numerous operations.

With the extensive capability at Point Mugu and the close proximity of other DoD facilities, the Navy has successfully prosecuted some of its most challenging flight test programs, including:

- Tomahawk Land Attack Missile with its over 800-mile range requiring the interconnection of up to seven DoD ranges (San Clemente, Point Mugu, Vandenberg, Edwards, China Lake, Tonopah, and Utah Test and Training Range connected by Inland Route (R-200) (1977 to present). This series has included eight coordinated Tomahawk air strikes into China Lake and Fallon with Fleet aircraft. Most west coast test Tomahawk Land Attack Missile flights initiate in the Sea Test Range and terminate at a target complex at the China Lake site.
- Tomahawk Antiship Missile with its over 200-mile range over water and extensive search patterns (1976 to present) (Point Mugu and Vandenberg).
- F-14/Phoenix weapons integration testing, including multi-target scenarios of up to six targets (1972 to present) (Point Mugu and Vandenberg).
- F/A-18/AMRAAM (Advanced Medium-Range Air-to-Air Missile) weapons integration testing, including multi-target scenarios of up to four targets (1986 to present) (Point Mugu and Vandenberg).
- AEGIS Combat System testing including a manned raid of over 40 aircraft and multi-missile scenarios against nine targets in a heavy ECM environment (1988) (Point Mugu and Vandenberg).

- Trident tactical-launch operational testing scenarios of up to four missiles rippling two at a time (1982 to present) (Point Mugu, Vandenberg, and Southern California Fleet Training Range).
- Joint Electro Magnetic Interference (JEMI) graduation exercises involving simultaneous operation of up to 26 Tri-Service weapon and combat systems in close proximity (1991) (Point Mugu, SOAR, and Vandenberg).
- Fleet training including many multi-platform, multi-threat exercises involving a variety of air-to-air, air-to-surface, and surface-to-air missiles.
- Recently the Sea Test Range has worked closely with operational units from throughout the Western U.S. to coordinate more complex training scenarios under a concept called Battle Management Interoperability Test and Evaluation/Training Exercises (BITE). Exercises conducted since June 1991 have included Navy, Marine, and Air Force elements testing and exercising a number of aspects of warfare, including command and control, reconnaissance, engagement, and battle damage assessment. Up to six major combatants and 50 aircraft have participated. Multiple-day scenarios staged from the Sea Test Range have involved joint force projection components to China Lake and the National Training Center, Fort Irwin. In addition, our participation in Tandem Thrust 92 (conducted to evaluate solutions to joint service command and control interoperability lessons learned during Desert Storm) demonstrated the use of the Sea Test Range's BMIC as an alternate strike planning center ashore under the Navy's Copernicus architecture.

The Point Mugu site provides facilities support at Laguna Peak for the Naval Satellite Support Operations Center (NAVSOC) for communications support for operational satellites.

FEATURES AND CAPABILITIES

9. Computational Facilities.

9a. Describe the general and special computational capabilities at this site. Include super computing, parallel computing, distributed computing and networking. Include high-speed data transfer, fiber optic links, microwave links, network interconnectivity and video teleconferencing capabilities. Do not discuss desktops and laptops except as they relate to networking.

INFORMATION SYSTEMS DEPARTMENT.

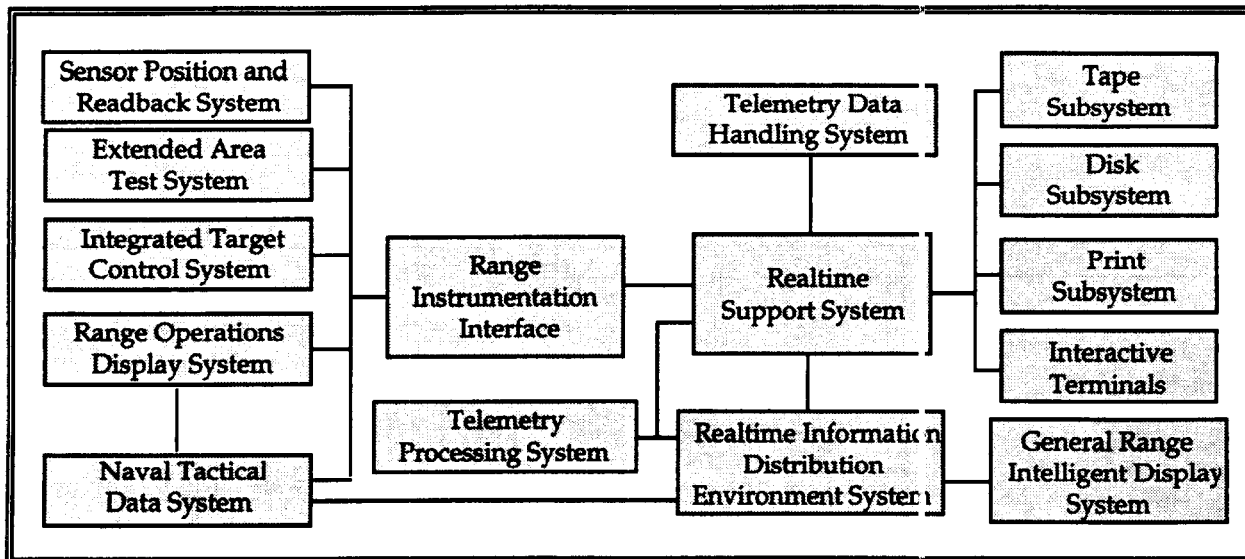
Center-Wide Local Area Network (C-LAN). NAWCWPNS Point Mugu supports data and video communications over a C-LAN composed centrally of a broadband coaxial TokenBus network. A significant portion of the backbone is also fiber-optic-based, providing service to San Nicolas Island, Laguna Peak, and many buildings on site not directly accessible to the broadband. The C-LAN is moving toward a 100% fiber-optic-based backbone. It is a multi-protocol bridged network supporting a variety of services including access to financial systems, administrative services, DMS, electronic mail and file servers, both on site and throughout NAWC. A Sequent minicomputer provides NAWC-wide management database services. The C-LAN provides NAVWAN access using encrypted T1 WAN connections to China Lake and Patuxent River, and Internet access via a 56 Kbps Milnet node. The network supports approximately 180 Ethernet and 70 AppleTalk LANs, providing connectivity to 3500 devices. Remote and nonconnected local users have access via a secure dial-up facility.

Video Teleconferencing Centers (VTCs). Two conference room level VTCs provide secure real time video conferencing capability to NAVAIR, other field activities, other DoD agencies and prime systems contractors, and other commercial activities. These facilities are available to all government organizations and government-sponsored contractors. The voice communications infrastructure, which is currently undergoing a transition to a fiber-optic-based system, consists of a Northern Telecom SL-1 Meridian switch configured to support 7500 analog and digital circuits, ISDN capable remote digital switches, telephone sets, and a planned voice mail system. The telecommunications system can also handle low-speed data and compressed video with upgrade to dial-up video services. It is connected to the Defense Switched Network and FTS-2000 as well as the commercial telephone system. Low bandwidth, compressed desktop VTC is currently supported in a test environment, with high-quality, on-demand desktop VTC service planned for implementation over the C-LAN fiber-optic infrastructure.

RANGE COMPUTER SYSTEMS.

Range Data Processing Center. The Range Data Systems Department provides NAWCWPNS range support via the Range Data Processing Center. The computer center interfaces with all the on-base and remote instrumentation and receives and transmits data in real time for range test and evaluation, operational control, monitoring, and range safety. The computer center consists of two real time Cyber computers with extended memory, two post-flight Cyber computers, 50 gigabytes of on-line disk storage capacity, 1 terabyte of on-line tape storage, and all the supporting peripheral equipment. The Center is supported by a redundant Uninterruptable Power System (UPS). The central computer center collects all range data, processes the data, records the data for later use, and provides processed data for display in the operational control rooms. The system is certified for multi-level processing of classified data. The postflight Cyber computers provide the range customer with additional processing and analysis of the data for their operation. These data are provided to them in many forms and formats based upon their requests and needs. The Cyber

computers and peripherals are in the process of being replaced by the Range Data System (RDS), which will provide more economical support on a modern distributed system. The systems providing real time support are shown in the following figure.



Existing Real Time Data System.

These systems include:

- Cyber Real time System
- Range Instrumentation Interface (RII)
- Telemetry Processing System (TPS)
- Sensor Positioning And Readback System (SPARS)
- Extended Area Tracking System (EATS)
- Integrated Target Control System (ITCS)
- Display
 - Range Operations Display System (RODS)
 - General Range Intelligent Display System (GRIDS)
- Naval Tactical Data System (NTDS)
- Real time Information Distribution Environment (RIDE)

Range Instrumentation Interface (RII). The RII consists of two military AN/UYK-43 computers for interfacing many instrumentation and computer systems together in real time. These interface devices connect directly to the Cyber 175 real time computers. The RIIs handle classified and unclassified data.

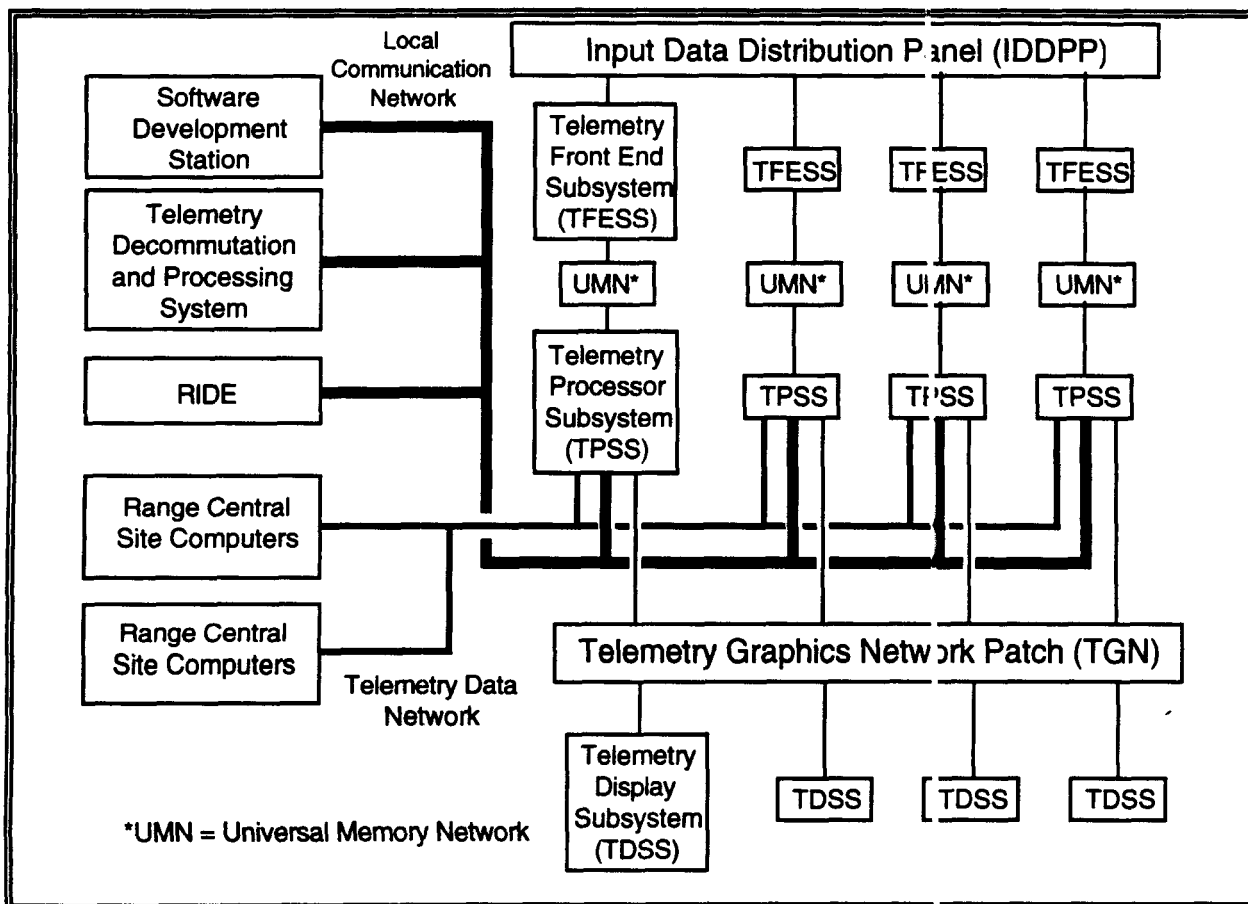
The purpose of the RIIs is to provide a common bi-directional multi-channel interface to the Cyber 175 computer. There is one RII connected to each Cyber 175, both having the same hardware configuration. Each RII can be configured via setup files to process data from the same range instrumentation devices, or configured independently to process data from different range devices. Priority of processing is defined by the Channel Configuration File when the RII is configured for

real time support. Range device processing priority is according to channel assignments (channel one being the highest). Each RII has 32 channels available for assignment.

Telemetry Processing System (TPS). The TPS is the latest range Real Time Telemetry Operations support system. TPS is located on the second floor of Building 53C, in the Telemetry Data Center (TDC). TPS contains four independent systems capable of driving any of the displays in four display rooms located in the TDC.

Each of the subsystems can process four independent PCM streams, two phase amplitude modulated (PAM) streams, and two FM streams. The TPS provides outputs to the strip charts, the real time Cybers, RIDE, local graphic displays, local digital recording, and on-line printouts (real time and near real time).

Each of the TPS subsystems is configured as shown in the following figure.



TPS Configuration.

The Telemetry Postflight facility provides the range with five independent telemetry processing stations. These stations are capable of providing range postflight support to as many as five

separate efforts simultaneously. The outputs consist of chart records, computer tapes, instrumentation tapes, and video doppler displays.

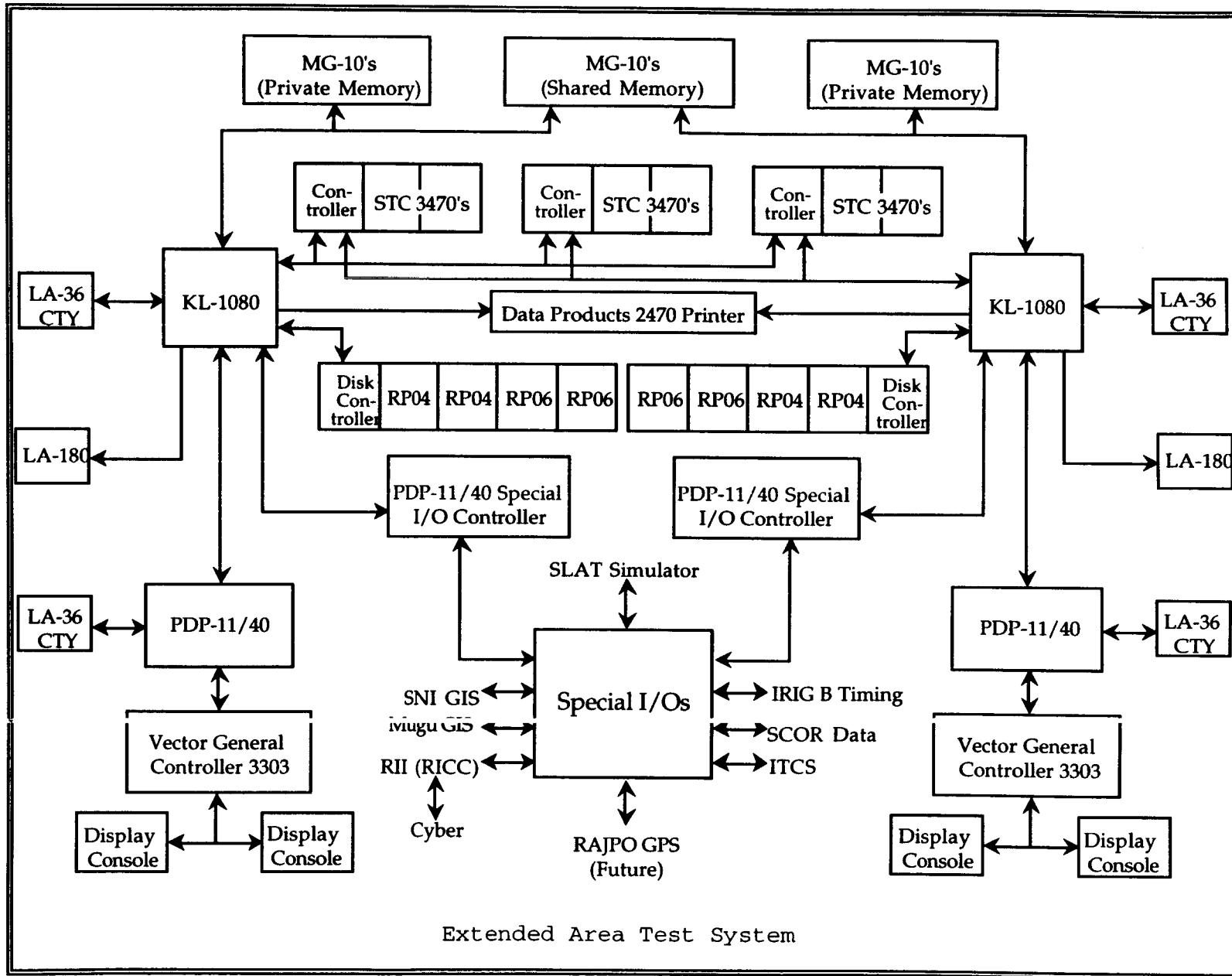
Sensor Positioning and Readback System (SPARS). SPARS is a system that provides data from the radars and telemetry antennas to the central computer center and acquisition data back to the radars and telemetry antennas. It is currently being upgraded from old unique hardware to modern microcomputer technology. SPARS provides for data from up to 64 local and remote instrumentation sites in real time. Input/output (I/O) buffers are connected to the RII; and sensor buffers are connected to radars, telemetry systems, optics, and other range instrumentation. The I/O buffers and sensor buffers communicate via synchronous modems at 4800 baud. Encryption equipment is utilized to allow for transmission of classified data.

SPARS provides for the interrogation and positioning control of sensor systems including tracking radars, telemetry, command/control, optics, and *intra-range antenna communications systems*. SPARS operates through the utilization of sensor buffer devices located at the remote antenna sites. Data from these devices are transmitted to a centrally located I/O buffer that communicates with the real time computer system through the RII. The I/O buffer allows the multiplexing/demultiplexing of the remote sensor data into one real time computer data channel for high speed block mode parallel data transfer. SPARS is time-synchronized to range timing.

Extended Area Test System (EATS). EATS is used to augment NAV/CWPNS range tracking systems and to provide time, space, position information (TSPI) data to range users. EATS is a multi-lateration, multi-operational, multi-participant cooperative tracking system. It also extends target-control function by relaying messages from ITCS (see the following figure).

EATS provides time, space, tracking position, and target control relay capabilities for instrumented test vehicles both within and beyond the line of sight of land-based systems.

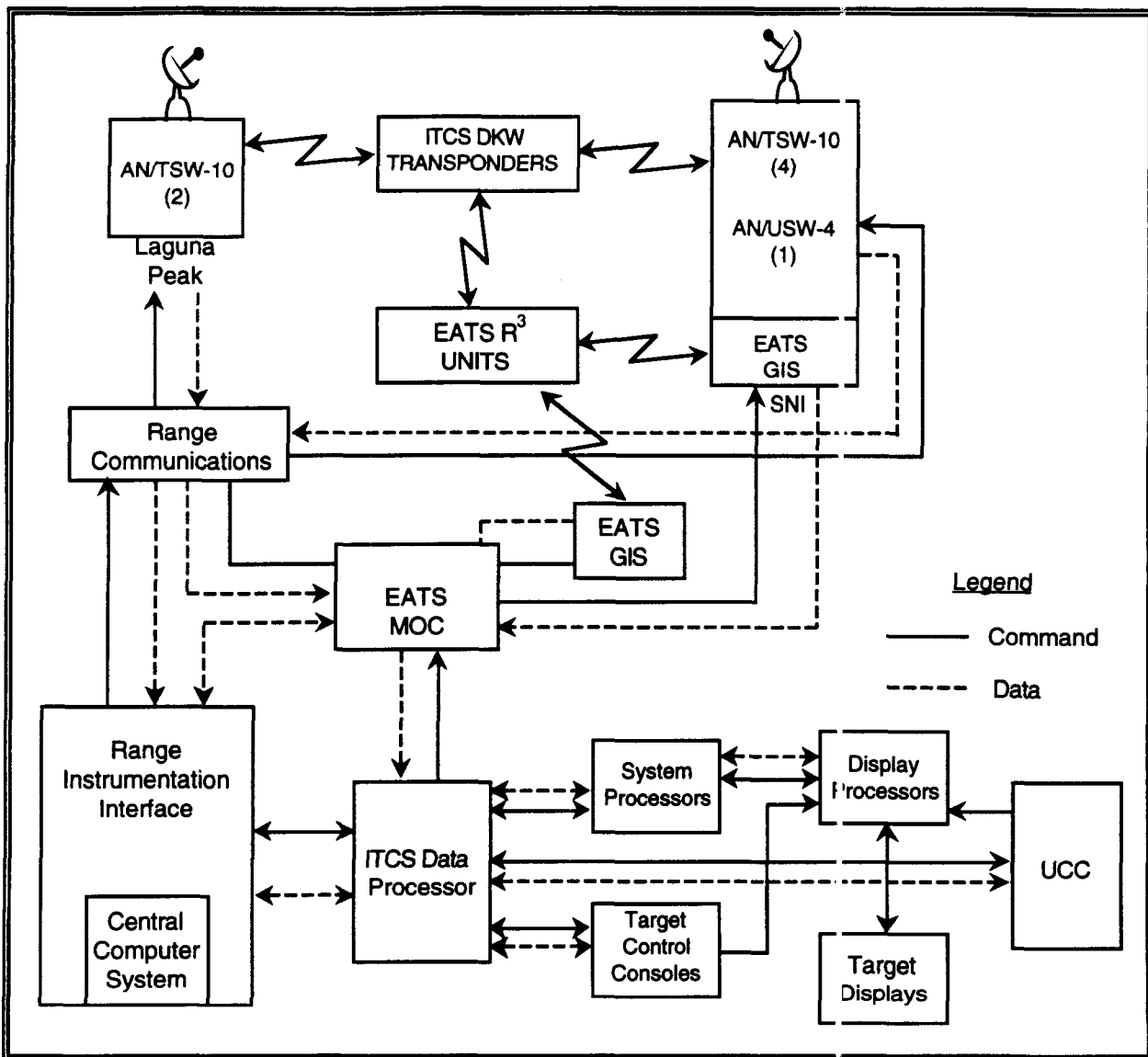
EATS uses a transponder unit known as the R-Cubed, or R3. It functions as either a Reporter or Responder. As a Reporter, R3 returns collected range, meteorological, or other data, and as a Responder it indicates range from requestor and Relay-forwards EATS messages to another R3 unit.



EATS provides a capability to extend the range instrumentation functions of tracking and target control 250 nautical miles (nm) or more seaward of San Nicolas Island (SNI) from Baja California to Monterey Bay, and to augment similar existing land-based instrumentation functional capabilities. When operating under a full load with maximum data recorded and relaying ITCS range control data, EATS can generate approximately 30 state vectors per second. Aircraft are typically updated at approximately 3 Hz; surface craft are updated at approximately 1/2 Hz; and low-dynamic aircraft are updated at approximately 1 Hz; 10-Hz update rates are required for high-dynamic missiles, targets, etc.

The EATS Master Operations Control Station (MOCS) is the EATS mission tracking center. It includes the EATS computer, operational display, control room, and MOCS R3 units.

Integrated Target Control System (ITCS). Although several target control systems are used at NAWCWPNS, our primary system is the ITCS. ITCS works in conjunction with the Universal Cockpit Control Systems for full-scale targets. Other systems include: VEGA, Vandal Target Control System, a video camera system for formation control of QF-4s, a tactical air navigation (TACAN) guidance system for mobile sea range operations, EATS, and a Mobile Over-The-Horizon Relay System (MOTHR), which is a GPS-based system. With ITCS we have the capability to control up to six targets simultaneously. In the recent past, we have supported up to 12 target scenarios by combining controlled and preprogrammed presentations. We are in the process of procuring a Next-Generation Target Control System (NGTCS) under a Tri-Services development program. NGTCS will be the replacement system for ITCS. NGTCS is a GPS-based system that will eventually be used by all services (see the following figure).



ITCS.

General Range Intelligent Display System (GRIDS). GRIDS is a multi-purpose, multi-functional, menu-driven graphics display system for range control and data analysis. Functional capabilities provide for preoperational scenario planning, real time data analysis, real time operation control and evaluating, and post-operational data analysis and debriefing. GRIDS allows the combining of TSPI data with telemetry information in a multitude of display types, combining various analog, digital, and map presentations. Input data, in their raw form, can be recorded in real time for playback at various speeds, both forward and backward, through the display sets used in the original operation. The recorded data can also be replayed through a completely new set of display types, giving the user the ability to view his data in various post-operational configurations independent of how it was viewed in real time.

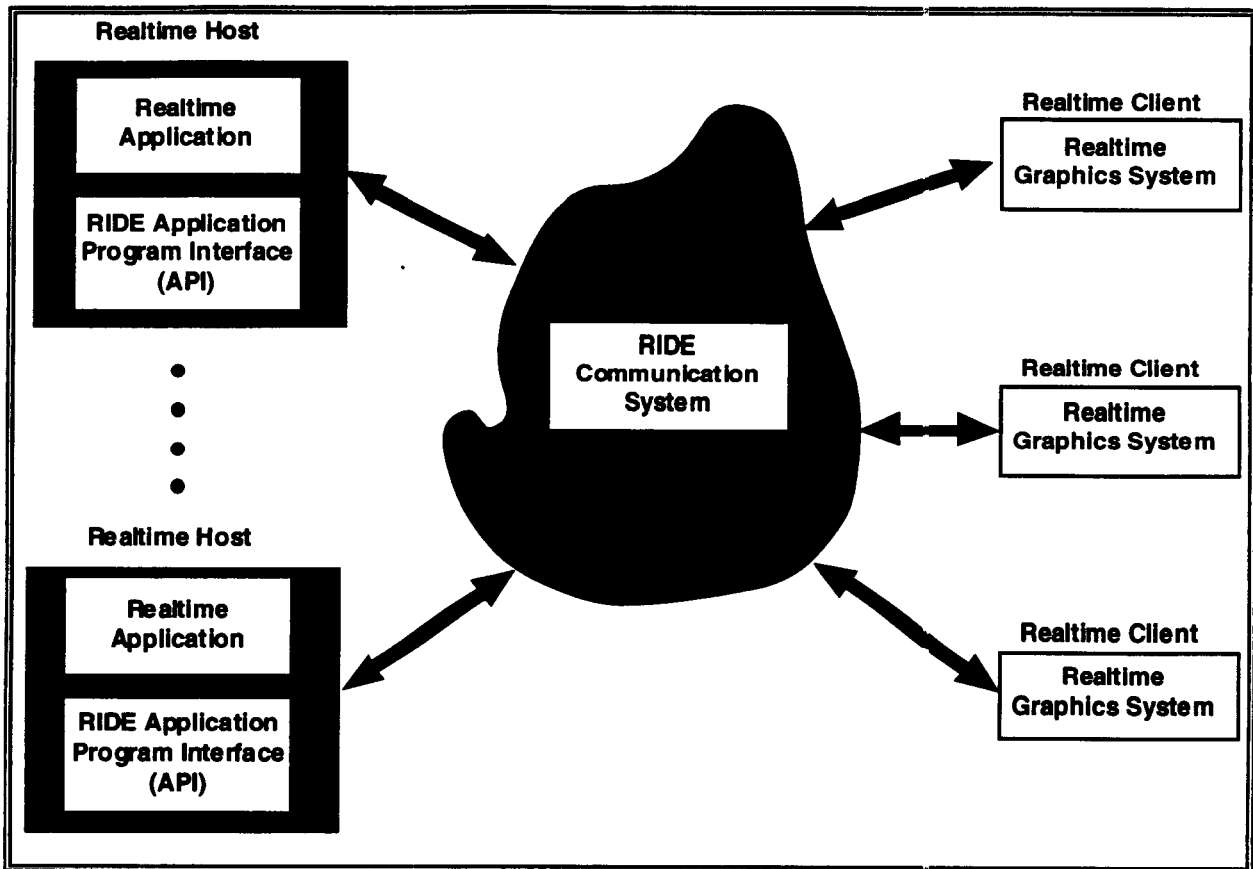
Naval Tactical Data System (NTDS). The NTDS at NAWCWPNS is used primarily for range clearance and safety. A secondary function is air intercept control (AIC) of commercial and military aircraft in range air space. Two NTDS consoles are dedicated to an AIC function during operational hours.

Multiple surveillance radar inputs are processed by the Automated Range Surveillance System (ARSS) and a "best track" is forwarded to NTDS. All surveillance tracks with identification friend or foe (IFF) information are automatically entered into NTDS as system tracks. Precision data, including metric radar tracks, EATS tracks, and ITCS tracks, are also provided to NTDS for automatic tracking via the RII.

Raw video and IFF are provided to NTDS directly from the radars via the radar switchboard and the UPA-59 IFF decoder/interrogator. Any non-IFF video is evaluated by an NTDS operator and if it is determined to be a ship or aircraft, a manual track is entered into the system.

In addition, remote tracks are entered into the NTDS via the tactical data link, Link-11. Other ships and/or shore sites send their tracks to NTDS to provide more complete coverage of the range—particularly in areas where NAWCWPNS' own radars do not cover. The Link-4A tactical data link provides tracks from Link-4A-equipped aircraft to the NTDS.

RIDE is a modern network of components used to provide controlled information from the central computers to over 50 general real time information display system components and other equipment. RIDE consists of open architecture equipment using a VME bus as shown in the figure below and was established to satisfy various performance and functional requirements. It provides a secure data-distribution system for real time data used in weapons test and evaluation operation control and monitoring. It is accredited for multi-level processing of classified data.



RIDE Functional Description.

Battle Management Interoperability Center (BMIC). The BMIC allows the linking and use of command, control, communications, coordination, and intelligence (C4I) systems during live missile firing events in the controlled, closely monitored range environment. This combination creates the potential for end-to-end scenarios with extremely realistic aspects for testing, training, and system analysis. BMIC is located in the Range Operations Building along with the control rooms normally associated with range test and evaluation of aircraft and weapons. BMIC consists of a fixed site facility with a variety of Fleet planning support systems such as Joint Operational Tactical System, BEES, Advanced Tactical Workstation (ATW), Tomahawk Mission Distribution System (MDS), and Tactical Environment Support System (TESS), as well as the local and remote electronic and communications systems, such as Officer in Tactical Command Information Exchange Subsystem (OTCIXS), required to coordinate complex activities encompassing weapons RDT&E, Fleet training, and range support activities. Real time weather satellite imagery from the Defense Meteorological Satellite Program (DMSP) satellite is downloaded and applied to evaluate conditions along the missile flight path. BMIC incorporates the potential to create a theater-level environment and dynamics by linking with synthetic applications (live, constructive, and virtual), via the Distributed Simulation Internet (DSI). This allows the BMIC to interconnect and interact with the multitude of DoD facilities that use DSI to expand their playing fields and capabilities. The BMIC can receive simulated threats from other facilities, and in return supply other facilities with actual (i.e., live) simulation from the NAWCWPNS Sea Test Range. BMIC-related operations bring together assets from both T&E and Fleet training, creating a more operationally realistic

situation for both. This provides a middle-ground arena between the laboratory and shipboard environments, which allows a flexible mix of laboratory control and operational dynamics.

Operation Control Rooms. NAWCWPNS Operation Control Rooms (OCRs) are used extensively to control weapons systems T&E operations and Fleet training operations on the Sea Test Range. Operations vary in complexity from very simple operations, such as a single-aircraft captive flight, to extremely complex multi-participant operations, such as a major Fleet training exercise. Three control rooms, OCR Alpha, OCR Bravo, and OCR Delta, are available to display instrumentation data and provide situational awareness displays for operations conductors, range safety personnel, aircraft intercept controllers, and project personnel. OCR Alpha is our largest control room capable of supporting very large operations. OCR Alpha is presently driven by data from the Range Central Processing System CYBER computers and the Range Operations Display System (RODS), but it is in the process of being upgraded to a modernized configuration based upon a distributed architecture using workstations. OCR Bravo and OCR Delta have recently been modernized and now have features available from the latest state of the art technology including the ability to rapidly reconfigure the rooms between operations, built to strongroom standards, security accreditation to SECRET level, immediate playback after operations, and linking of recorded data to NAWCAD.

Geophysics Systems. The NAWCWPNS Geophysics Division provides a full spectrum of meteorological, oceanographic, geodetic, engineering, and technician services. These services include climatic guidance for planning range programs and instrumentation sites, geodetic high-precision field surveys to establish precise locations for radar and target sites, weather/sea forecasts and tailored briefings for preop, Go/No-Go decision making; DD-75, horizontal weather depictions and flight packets to ensure airfield and cross-country aviation safety; surface weather observations to maintain the Point Mugu and SNI airfields in an "open" status; upper air soundings to 100,000 feet for data to correct all metric radar tracking data for atmospheric refraction and to satisfy Range program requirements for wind (chaff), drift, speed of sound (Mach No.), attenuation of EO/IR energy, and exploitation of ducting for RF sensor performance; remote atmospheric and ocean measurements including buoys (sea state and direction), automatic weather stations on neighboring islands, shipboard evaporation duct measurements, and both fixed and helicopter mounted atmospheric data to determine refractive structure along specific operational flight paths; meteorological rocket-borne measurements to 300,000 feet; etc. Real time satellite and current weather/sea displays monitor conditions in operation areas and along missile flight paths with large screen displays in tracking and control rooms. The Navy's Environmental Systems Program Office at Space and Naval Air Warfare Systems Command (SPAWAR) and Chief of Naval Operations (CNO) have established a Tactical Environmental Support System (TESS) and satellite readout capability at Point Mugu to test the functionality and connectivity of TESS with operational centers at Monterey, Pearl Harbor, and ships at sea. Because of the Range's unique coastal/operational setting and comprehensive geophysical capabilities, they envision development of a wide-area network (WAN) to demonstrate push/pull of environmental data between Point Mugu, Monterey (FNO/NRL), San Diego (FWOC and NCCOSC/NRaD), NAVOCENO at Stennis Space Center, Miss., and NAVELEX Vallejo. This effort will include a NITES system at Point Mugu to demonstrate portions of JMCIS architecture for critical environmental support issues. We are also tasked to help develop an interface between TESS and TAMPS and to explore and develop products and interfaces with Tomahawk Mission Distribution System (MDS) to support Tomahawk upgrades. Because of Point Mugu's unique littoral/coastal/ocean geography and weather patterns, the Test Director for the Army Smart Weapons Operability Enhancement Program has tasked us to make multi-spectral measurements in a variety of coastal backgrounds with the aim to modify SPIRITS models and validate other models via internet from our real time setting.

Surveillance Radar Data Processing. The Automated Range Surveillance System (ARSS) processes and displays correlated synthetic radar video and IFF beacon contact symbology. ARSS receives inputs from ARSR-1 air surveillance radars located at SNI and Vandenberg AFB, AN/FPS-93 air surveillance radar on San Clemente Island, and three AN/FPS-114 surface search radars located at Laguna Peak, SNI, and Santa Cruz. The ARSS correlates radar contacts from all the radar inputs and selects the most accurate data for display. In addition to displaying track data on Tektronix terminals, the ARSS sends air and surface IFF beacon contact data to the NTDS/ACDS UYK-43 computers for processing and display on NTDS/ACDS display consoles and UPA-59 IFF decoders.

Plead Control Surveillance Center. Plead Control utilizes Naval Tactical Data System (NTDS)/Advanced Combat Direction System (ACDS) display consoles to accomplish air/ocean surveillance of the Sea Test Range, air control, air intercept control operations, clearance control, real time monitoring of air/sea tests, and tactical data exchanges with Fleet ships and aircraft via Link-11/4. Five AN/UYK-43 computers running the Fleet CGN-9/ACDS software program process the data to be displayed. NTDS/ACDS receives radar video data from air and surface surveillance radars located at Point Mugu, Laguna Peak, SNI, Santa Cruz, San Clemente, and Vandenberg AFB. The UYK-43 computers also incorporate the tactical data link information from the Link-11 and Link-4 data terminals. In addition, NTDS/ACDS exchanges track data with other Point Mugu range computers such as the RIDE, RII, GRIDS, and CYBER. The NTDS/ACDS display console provides the overall picture of the Sea Test Range (see the following photograph).

RCO and ATC System. There are many commercial flights passing in and around the Sea Test Range every day, and these flights must be controlled by Range Control Officer (RCO) and Air Traffic Controller (ATC) personnel at Point Mugu. RCO/ATC personnel communicate and coordinate the commercial air traffic with the Federal Aviation Agency (FAA) and military Fleet air control and surveillance facilities along the west coast. Currently the RCO and ATC personnel use NTDS display consoles to monitor and control the commercial aircraft; however, we are in the process of providing a new ATC system that will be certified by the FAA for ATC functions. The commercial computers and displays along with government-owned ATC software are already in use at China Lake, Edwards AFB, and the FAA's High Desert TRACON. The ATC system will process and display air surveillance radar data and will also have the capability to process information from other FAA centers located throughout the west coast (see the following photograph).

Range Automated Scheduling System. A Range Automated Scheduling System, comprised of 18 workstations, is used to develop the range schedule, and to provide range resource utilization reports and inputs to the range billing system.

Frequency Resource Record System (FRSS) Distributed Computing Facility (DCF). As the Navy Frequency Coordinator Western U.S. (NFCWUS), NAWCWPNS is a host site on the DoD Frequency Resource Record System (FRSS) Distributed Computing Facility (DCF). The FRSS DCF is a secure worldwide network for spectrum management. The system consists of a central computer facility at the Electromagnetic Compatibility Analysis Center (ECAC) in Annapolis, Md., and DCFs using Microvax computers at the Military Department (MILDEP) frequency management centers, Commanders in Chief (CINCs), the Air Force Material Command, and the NFCWUS. All the sites are interconnected through the Defense Data Network (DDN) Secret level DSNET1. Access on this network to the DoD's frequency database and to the CINC and service spectrum management offices allows timely coordination of frequency actions and resolution of conflicts. The Point Mugu NFSWUS host is the only DFC site located at a T&E range.

Configuration Management Information System (CMIS). CMIS is a DoD standard configuration management software tool used by the Sea Range. It uses an ORACLE-driven database application developed by DoD to provide a standard business process for the closed-loop, life cycle management of systems, products, and assets. CMIS operates in a client/server environment and is designed to capitalize on a variety of network configurations. Any campus area network (CAN) presently installed at military bases can host CMIS as long as they are Internet (TCP/IP)-compatible. CMIS also enables the user to view images of technical drawings through a graphical user interface. CMIS identifies and maintains engineering and logistics technical data required to design, build, maintain, overhaul, and repair the configuration items that comprise each baseline. The CMIS defines and maintains configuration baselines for a product to the lowest level of replacement or maintenance. CMIS currently operates in a client/server environment/architecture. The CMIS application runs on a IBM-compatible 386 personal computer (PC) (or better) and communicates with a 486 PC server. Presently at NAWCWPNS there are six clients accessing the database over the network. Future requirements will increase the clients to 32 and upgrade the server to a SUN SPARC station or equivalent minicomputer. This system is a DoD Joint Logistics System Center (JLSC) migration system for configuration management.

Administrative Network. The Range Operations Department Network employs standardized ethernet interface designs to connect department personnel. There are currently 44 individual workstations at three sites operating on the network. By the end of next fiscal year there will be a total of 140 workstations connected at seven sites at Point Mugu, SNL, and Port Hueneme. The network employs two 486 computers as the file servers and provides a communication capability that allows department personnel to exchange vital technical and administrative information. The network provides interconnection with other NAWC sites.

Sea Range Administrative Network. The Sea Range Directorate Administrative Network connects Sea Range buildings via fiber-optic cable that will soon (1994) be running FDDI protocol. Inside the buildings, standard ethernet in the form of 10BaseT twisted pair is used to connect each workstation. Six file servers are used to distribute WordPerfect, MS Word, dBase, FoxPro, Excel, Lotus, and other commonly used off-the-shelf programs. The servers are also used for in-house programs such as timekeeping and personnel data collection, which managers use as a basis of decision making. All Sea Range employees are expected to have access to the network. Connection to the CLAN provides access to other departments and directorates or Point Mugu directly and other Navy sites via a CISCO gateway to the DDN network.

LABORATORIES.

Cruise Missile Simulation Laboratory (CMSL). CMSL is a secure, VAX/VMS-based multi-user system for analytic simulation and test data analysis of mainline department projects including Harpoon, SLAM, and Tomahawk. The CMSL utilizes a secure VAX 8350 medium-scale system hosting an extensive VAXcluster arrangement of shared magnetic peripherals. Networked to the VAX 8350 central node are office area workstations and PCs that have been cleared for classified operations.

Special Projects Analysis Center (SPAC). SPAC is a secure, TEMPEST-approved, VAX/VMS-based multi-user system for analytic simulation and test data analysis of classified department projects. The SPAC uses an ethernet-based Local Area VAXcluster (LAVC) consisting of a MicroVAX 3400 minicomputer acting as the boot node/file server system for a multi-user MicroVAX II, 10 VAXstations, and 2 DECstations; 4 more workstations are on order and will be installed in FY 1994. Also networked within this laboratory are 10 Macintoshes and 2 IBM PC compatibles. The SPAC is a high-security, self-contained TEMPEST lab used strictly in support of

classified programs. SPAC service utilities (telephone, power, etc.) are isolated from the rest of Building 761, and no external data or network communications lines enter or exit this closed facility.

Command and Control Vehicle Simulation Laboratory (CCVSL). CCVSL is a VAX/VMS-based multi-user system for real time, hardware-in-the-loop simulation of missile targets (e.g., BQM-34S, BQM-74C/E, etc.) and unmanned aerial vehicles (UAVs). The CCVSL is an ethernet-networked group of minicomputers using a MicroVAX 3600 as the central host/software development system. Connected to the host are four MicroVAX 3400 ELN systems, which provide real time, hardware-in-the-loop simulation. This laboratory also employs an HP 9000-835 Turbo SRX minicomputer for coordinated three-dimensional animation display during real time simulation operations. The CCVSL also employs two collocated Macintoshes for networked data display, report generation, and off-line engineering analysis.

Seeker-in-the-Loop Laboratory (SILL). SILL is a DEC Alpha, OSF-1 (UNIX)-based system for dedicated, hardware-in-the-loop simulation of either Harpoon or SLAM, using the appropriate missile seeker mounted in an anechoic chamber. The SILL is built around a DEC 3000 Model 400 AXP workstation system (DEC Alpha/OSF-1) for real time seeker-in-the-loop simulation of Harpoon and SLAM. This laboratory also employs an anechoic chamber, special-purpose electronics, and a networked IBM PC-compatible system for control of target RF generation.

Strike Systems Networking Capabilities.

The Strike Systems Department operates three distinct networks. The first of these, the Cruise Missile Simulation Laboratory Network, is a secure, fiber-optic ethernet network linking the CMSL and CCVSL to secure engineering workstations, video terminals, and personal computers located within the office areas of Building 761. In addition to the basic fiber-optic cabling, hardware elements of this network include 3 fiber-optic stars, 4 terminal servers, and 11 fiber-optic transceivers.

The second net operated is the C-LAN AppleTalk Network, an unsecured broadband ethernet to Apple LocalTalk network. It provides corporate connectivity to every LocalTalk device located within department office spaces. This network uses three modified Shiva FastPath routers to provide a C-LAN gateway to each of the three department LocalTalk networks located in Buildings 761, 6-1, and 6-2. A Shiva NetBridge is also employed to form a two-zone internet for the large number of devices in Building 761. Two integral computer servers are also connected to the department's C-LAN AppleTalk Network. The first of these is a Macintosh SE/30, which handles all electronic mail (Quickmail) for the department, including electronic telecommunications. The second server is a Macintosh Centris 610, which acts as the departmental AppleTalk file server, 4D Server, and KeyServer. 4D Server is a multi-user database system developed and marketed by ACI US. KeyServer is a centralized license compliance and usage management package from Sassafras Software.

The third network, which is also attached to the C-LAN AppleTalk Network, provides an unsecured, modem accessed, electronic bulletin board service (BBS) for authorized users to obtain GPS information. The primary users of the GPS BBS are land-based naval flight squadrons who need GPS almanac data to initialize GPS-guided weapons such as SLAM. Other unclassified data can and have been placed on the GPS BBS to rapidly disseminate unclassified engineering information for important and specific purposes. The GPS BBS system uses a Macintosh SE running Telefinder commercial software marketed by Spyder Island.

Strike System VTC Capabilities. The Strike System Department VTC Facility is a secure facility for VTC of classified department projects. The VTC uses a high-speed digital telecommunications network based on PacTel System 4000. The System 4000 generates analog video and audio signals. These signals are digitized and finally compressed for transmission to a separate KG-194A digital encryption unit. The resulting signal is then transmitted over a standard AT&T T1 data line. The reverse process is used for received digital VTC data. The VTC facility consists of two monitors, a remote pan-tilt-zoom camera, a document camera, and a VHS and UMATIC VCR.

Hardware-in-the-Loop (HWIL). Specialized missile HWIL laboratories use three-axis flight tables, unique microwave signal sources and presentation equipment, special microwave anechoic chambers with walls accommodating horn arrays, and real time simulation computers. The missile HWIL laboratories support 33,500 simulated missile intercepts each year. During any given intercept, actual missile hardware operates against multiple complex simulated targets and ECM. Computer resources used for data reduction, digital simulation, and report generation include approximately two dozen multiple-user computer systems.

Radar Cross Section (RCS). Radar signature measurement facilities include instrumentation radars, compact range reflectors, and large anechoic chambers, (including one specifically designed for bistatic measurements), and special target support and handling equipment. The computers in the RCS laboratories provide the capability to perform data acquisition and reduction and diagnostic analysis of monostatic and bistatic RCS measurements.

Weapon System Support Laboratory (WSSL). WSSL is tasked to support the EA-6B System Software Support Activity (SSSA). The WSSL provides the EA-6B Tactical Jamming System hardware and realistic threat emitter environments for tactical software enhancements and trouble report resolution. Avionics equipment is integrated with specialized hardware and software to emulate the electronic warfare environment. This function is supported by an extensive array of VAX, DECstation, PC, Macintosh, and Hewlett-Packard (HP) computers, as well as high-end X-terminals. This equipment is networked to enable sharing of resources and compute capabilities, and to provide an environment for efficient software development.

Electronic Warfare Database Support (EWDS). EWDS laboratory is tasked with producing and maintaining the mission-critical reprogrammable database of the EA-6B aircraft. EA-6B squadrons performing electronic support measures (ESM)/ECM missions provide direct support to the Fleet's command and control requirements. The mission is dependent upon highly accurate and up-to-date EW data. The EWDS laboratory at NAWCWPNS provides the engineering, analysis, and integration of intelligence data necessary to maintain and release periodic data tape updates to Navy and Marine Corps EA-6B end-users. A network of VAX, HP, SPARCstation, NeXT, and PC computers are utilized in the laboratory to provide database, intelligence, and threat data analysis functions.

Tactical Aircraft Mission Planning System (TAMPS). The laboratory facilities located at NAWCWPNS Point Mugu were developed to provide full support for the design, development, and life cycle support of the TAMPS version 6.0 and beyond. This laboratory is a networked Sun workstation environment including a SPARC Center 2000 Server and 19 SPARC workstations. The laboratory is not currently connected to external networks for reasons of security. In addition, the laboratory hosts three DTC-2 workstations utilized for testing and one desktop version of the TAC-3, as well as various peripheral devices including printers, scanners, and secure communication devices. The laboratory is capable of simultaneously supporting approximately 25 personnel engaged in software development and test.

Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES). The laboratory facilities located at NAWCWPNS Point Mugu were developed to provide full support for the design, development, and life cycle support of the TERPES for the U.S. Marine Corps. This laboratory is a networked Sun workstation environment including a SPARC Center 2000 Server, two SPARC Server 690s, and 19 SPARC workstations. The laboratory is currently connected to several secure communication systems that provide access to national source information required for processing, analysis, and data fusion of Intel information. The laboratory is also connected to the Point Mugu Battle Management Interoperability Center to supply Intel information required for local T&E efforts. In addition, the laboratory hosts a mock-up of a typical TERPES Van system that is used for integration and test of software updates and Fleet training. The laboratory is capable of simultaneously supporting approximately 25 personnel engaged in software development, test, and integration.

Advanced Technology Development (ATD) Laboratory. The ATD laboratory was developed to support science and technology innovations in the information warfare technology area. This laboratory is currently equipped with the following computer systems: two HP 1000 computers, two SPARC 10 workstations, two Silicon Graphics workstations, and one three-dimensional digitizer. Although the laboratory is not currently connected to other facilities, funding has been approved and efforts are under way to connect the laboratory via fiber-optic link to several other key laboratories at NAWCWPNS. This connection will allow development of a capability to interconnect the equipment necessary (mission planner, flight simulator, Virtual Reality engine, etc.) to simulate a collaborative planning and rehearsal environment.

Electronic Combat Simulation and Evaluation Laboratory (ECSEL). Specialized equipment includes several advanced multiple environment simulators with parallel processing and high-speed data transfer as well as another scaled-down version of the same. The laboratory has a reconfigurable closed-loop simulator for use in developing and validating jamming techniques. Other simulators to closely model the threat environment and allow valid EW systems development include two other complex closed-loop simulators for radar and threats of various types and complex reprogrammable signal-generation capability for various radars and communications signals. The ECSEL is highly integrated with distributed computing, multiple minicomputers, and microcomputers supporting development and simulation. It has a data acquisition system with high-speed data transfer and real time data recording capability.

Weapons Preparation Laboratory. The laboratory consists of Sparrow functional test equipment (FTE): AN/DPM-21 (intermediate level), AN/DPM-22 (depot level), and AN/DSM-162; HARM FTE: AN/DSM-160, and AN/DSM-161 (depot level); Sidewinder FTE: AN/DSM-152 (intermediate level); Phoenix FTE: AN/DSM-130(V); AMRAAM fully automatic test set, and Harpoon/SLAM AN/DSM-127 test sets. Additionally, the laboratory has a Sidewinder rate table and maintains a fully instrumented Sparrow Golden Bird missile for special T&E of weapon and aircraft systems.

Integration and Advanced Test Technology Facility. The facility is utilized for integration, development, acquisition, and life cycle support of weapons/guided munitions test program sets (TPSs). The facility is utilized by TPS developers to integrate and debug TPS hardware and software for use with the Consolidated Automated Support System (CASS) family of test equipment in accordance with Navy and DoD Automatic Test Systems acquisition strategies. The CASS testers throughout the Navy are linked via a wide-area network (WAN) using ethernet for data reduction, test data correlation, and TPS program generation and validation. The facility provides support to guided missile systems, free fall weapons and rockets, and torpedoes, as well as computers, software, and other technology based programs.

Computer-Aided Design and Analysis Facility. The Computer-Aided Design and Analysis Facility includes six UNIX-based workstations networked together. The platforms are used for the design analysis and simulation of electronic circuits, subsystems, and systems used in telemetry and instrumentation of weapon systems. Capabilities include schematic capture, netlist generation, printed wiring board design and generation, hybrid microcircuit design, application specific integrated circuit design, analysis, and simulation. Additional features include both analog and digital simulation and digital synthesis via VHDL.

10. Mobilization Responsibility and Capability.

a. Describe any mobilization responsibility officially assigned to this site. Cite the document assigning the responsibility.

Military Mobilization. Official mobilization requirements are based on Naval Reserve Unit Assignments as directed by Chief of Naval Reserve by Reserve UIC. In the case of NAWCWPNS the following units are assigned on site as indicated.

1. NR NAWS 01176 China Lake, Calif., supported by NAR Point Mugu
2. NR NAWS 0376 Point Mugu, Calif., supported by NAR Point Mugu
3. NR NAWS 0170 China Lake, Calif., supported by NAR Dallas, Texas
4. NR NAWS 02276 China Lake, Calif., supported by NAR Point Mugu
5. NR NAWS 1076 Point Mugu, Calif., supported by NAR Minneapolis/St. Paul

The most recent military mobilization plan is based on February 1988 data. The Bottom-Up Review concluded that a heavier reliance on Reserve component capabilities in the future was warranted in order to carry out the military strategy and to provide emergency domestic response. Presently mobilization plans are being sized and shaped to ensure success of the DoD strategy to win two nearly simultaneous major regional conflicts. A specific document assigning this responsibility has not been issued.

(1) What functional support area(s) does this responsibility support? Refer to Appendix A for the list of functional support areas?

The major support capabilities would involve troop movement, Fleet training, electronic warfare mobilization support, F-14 WSSA mobilization support, threat simulation mobilization support, in-service engineering support, aircraft maintenance, security, and air operations.

Several unique features in terms of capability and geographic location of the Point Mugu site would be invaluable in the event of a future contingency requiring the mobilization of U.S. Naval forces.

Troop Movement. The capability to move military troops, equipment, and supplies from the Point Mugu site has been demonstrated on numerous occasions in the past. The Point Mugu site is a staging area for deployment of Seabee personnel to locations worldwide via military airlift and commercial airline contracts. Enhancing this airlift capability is the close proximity of the Point Mugu site to the Port of Hueneme, the only deep water port between San Francisco and Los Angeles. In addition, airfield support provided to the Air National Guard allows mobilization for both DoD and the state of California.

Fleet Training. The capability to provide crucial training to Fleet vessels would be critical during any mobilization effort. The Commander, Third Fleet is homeported in San Diego, and Fleet ships and aircraft have ready access to the Sea Test Range for missile firing training exercises. In support of this training capability, complex training scenarios have been developed under the Battle Management Interoperability Test and Evaluation/Training Exercises (BITE) concept. Thirteen exercises have been conducted since June of 1991 and have included Navy, Marine Corps, and Air Force elements testing and exercising a number of aspects of warfare, including command and control, reconnaissance, engagement, and battle damage assessment. Up to six major combatants and 40 aircraft have participated. Most recent scenarios involve Joint Force projection components to China Lake and the National Training Center, Fort Irwin.

Geographical Proximity to Defense Contractor Base. The Point Mugu site is approximately 60 miles northwest Los Angeles, on the Pacific coast in Ventura County. The Los Angeles area has served as a hub of the aerospace industry over the past years, and its close proximity to the Point Mugu site would allow for rapid action during a mobilization effort. Additionally, Ventura County has proven to be an excellent source of technology-based industry that supports the site.

Electronic Warfare Mobilization Support. EW at the Point Mugu site has the following proven support capabilities for mobilization efforts:

The Electronic Warfare Software Support Activity (EWSSA) has the capability, proven during Desert Shield/Storm, of rapid update of threat libraries for tactical EW systems in response to a changing threat. This includes 24-hour laboratory and analysis capability as well as a reprogramming and training team traveling to and supporting deployed forces. In addition, the EWSSA is developing, and has demonstrated during Fleet Exercises, the ability to transfer data for EW library updates to deployed forces via satellite communications.

The Point Mugu site has proven capability to support deployed or deploying forces by rapid software change support of the EA-6B system, 24-hour laboratory capability, and deployed teams in support of rapid software and hardware updates for the Marine Corps Intelligence system supported during Desert Shield/Storm.

F-14 WSSA Mobilization Support. The F-14 WSSA can perform the following roles in a military mobilization:

- Emergency software release capability to meet a wartime threat (integration of new software capability or integration of new weapons)
- Aircrew training in SITS/SIC F-14 cockpits prior to war zone deployment
- Emergency software tactical tape release to enhance capability in specific geographical areas
- Release of highly trained pilots/radar interoperability to deploy to war efforts
- Rapid deployment of new tactics or techniques in a highly controlled efficient laboratory environment prior to field deployment

Threat Simulation Mobilization Support. In the area of threat simulation, the Point Mugu site supports a large number of ALQ-167 pods and associated support equipment. This equipment is used for Fleet training as well as in "quick reaction" tactical applications. A team of engineers and technicians are "on call with passports" and are maintained in a readiness status for deployment of systems and personnel as required by the Fleet. The systems they support are modular and provide for geographical reconfiguration to the specific threats encountered in the specific theater of interest when needed during Fleet mobilization efforts. These teams have provided on site support with quick reaction efforts dating back to the 1980s, including the Iranian hostage crisis and Lebanon and Libyan efforts. Some of these threats can only be accommodated by a threat specific configuration of the ALQ-167.

During Operation Desert Storm, Point Mugu site teams were sent to carriers in the Persian Gulf and bases in Saudi Arabia to prepare the ALQ-167 pods for tactical operations. On 24-hour notice, the site deployed C-130 aircraft to collect BQM-74 targets and launcher assets throughout the U.S. A quick reaction team configured BQM-74 targets and support equipment for deployment as well as for training military personnel to use the target in Desert Storm as unmanned decoys. They also arranged for and transported the equipment to the loadout point for transport to the Gulf. They configured and provided to VC-6, QST-33 high-speed target boats, which were used for mine clearance support in the Gulf. This effort enhanced the Navy and Marine Corps mobilization effort because equipment was modified on site and was quickly applied to the tactical environment.

Weapons System Drawing Repository. A repository of each of the major air-launched weapon systems already in inventory is available at the Point Mugu site. In the event of a mobilization requirement, these drawings would prove to be an essential capability for quick reintroduction of weapons systems.

In-Service Engineering Support. During Operation Desert Shield/Storm, the Point Mugu site workforce was on call 24 hours a day and had 15 civilian personnel in the Persian Gulf providing technical assistance. Within 48 hours of initial mobilization, weapons problems were resolved, hardware modifications were developed and incorporated, and engineering and logistics expertise was provided. This accelerated the availability of requested weapon configurations in the Persian Gulf and also provided the capability for the final cleanup stage. With constrained resources, weapons systems will continue to age. There will be few new starts, leaving an aging inventory of weapons, requiring a highly skilled workforce knowledgeable in existing weapons to support the weapons during extensions well beyond their design life and to ensure safe, reliable weapons when needed for war.

Expansion Capability. The mission, functions, and assets of the Point Mugu site are suitable for the diverse role and workload assigned, including immediate mobilization. The development of the site's facilities and maintenance of its core infrastructure over the past several decades have been planned with long-term strategic purposes in mind. The Point Mugu site is prepared to accommodate changes to the mission and scope of the workload. Areas suitable for expansion in the event of rebuilding of U.S. Naval forces include the following:

- Aircraft-weapon systems integration and related software engineering.
- Central role in the development, test, and implementation of battlegroup interoperability doctrine, tactics, systems networking, and operations.
- Test and evaluation of Joint Service platforms and associated weapon systems and payloads.
- Laboratory modeling and simulation for weapon systems.
- Threat simulation systems development, test, operations, and support; increased program management functions.
- Range systems architecture, development, and acquisition.
- Program management for decentralized headquarters functions or joint cooperative efforts related to major range test facilities.
- In-service management and engineering support for weapons systems, including configuration management, logistics, and maintenance programs.
- Special projects requiring secure and remote facilities.
- San Nicolas Island has the potential for siting and launching of large rockets. The isolation provided by 60 miles of ocean enhances security and eliminates noise pollution when compared to mainland sites. The 10,000-foot runway will accommodate C-5 aircraft. Taxiway and parking areas could be upgraded and a deep water pier/harbor could be constructed.

The Point Mugu site has the capacity to accommodate an expansion of mission responsibilities related to current assignments. Facilities exist to support engineering functions requiring laboratory, industrial, and hangar space. Administrative spaces are available but more limited in scope. Land (60 acres) is available for construction. It is noted, however, that there are leased spaces for the In-Service Engineering Weapons Support Department, the CASS Laboratory, and the TPS Integration Facility. The current plans are to move these functions back to the main base.

Point Mugu could accommodate increased aircraft operations, given ultimate reduction or closure of other activities severely affected by encroachment, or in the event of a necessary U.S. military buildup. This was demonstrated recently when the Channel Islands Air National Guard relocated from Van Nuys, California, a decision based upon the fact that the site operates two runways

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(11,100 by 200 feet and 5,500 by 200 feet) that meet the requirements for the missions performed by the CIANG, medical transportation for the Air Force mission, and fire fighting capability for the state of California, which requires Point Mugu airfield support for more than 30,000 air operations per year. While this Air National Guard unit is not a tenant of the Point Mugu site, it is located adjacent to Point Mugu and utilizes Navy runway facilities. The Air Force invested approximately \$80 million between 1988 and 1990 to construct facilities on 260 acres, and presently operates 16 C-130 aircraft with 260 civil service technicians and approximately 1,500 traditional guardpersons. This unit is the largest C-130 airlift wing in the Air National Guard.

(2) What portion of the work years and dollars, as reported in each applicable functional support area reported in Tab A, are spent solely on maintaining your activity's readiness to execute the mobilization responsibilities?

Approximately 1 man year of functional support is provided to support the Reserve unit annual training requirements. This also includes detachment training as required.

(3) How many additional personnel (military & civilian) would be assigned to your activity as part of the mobilization responsibility? Include separately any contractor assets that would be added.

Selected Reserve support would include approximately 20 officers and 180 enlisted personnel.

b. Does your activity have adequate facilities to support your mobilization responsibilities? (yes/no)

Yes

(1) If yes, is any space assigned for the sole purpose of maintaining mobilization readiness? (yes/no) If yes, list the square footage assigned.

No

(2) If no, what repairs, renovations and/or additions are required to provide adequate facilities? What is the estimated cost of this work?

No repairs or renovations are required. Present required tasking only requires standard office support (i.e., equipment such as computers, phone, supplies, etc.).

(3) Are there any restrictions that would prevent work (noted in paragraph 10.b.(2) above) from taking place (i.e., AICUZ, environmental constraints, HERO, etc.)? If yes, describe.

No

c. Describe any production facilities that would be activated in case of a future contingency.

Aircraft maintenance and air operations facilities would see a substantial increase of production.

d. Is your activity used as a Reserve Unit mobilization and/or training site?

Yes

11. Range Resources. *Include a copy of the form provided at Tab C of this data call for each range located at this activity or operated by this activity. Also, report ranges at detachments and sites not receiving a separate data call. The following definition of a range will apply:*

Range - An instrumented or non-instrumented area that utilizes air, land, and/or water space to support test and evaluation, measurements, training and data collection functions, but is not enclosed within a building.

NAWCWPNS Point Mugu is located on the seaward edge of the Oxnard plain in Southern California, about 50 miles north of Los Angeles. The Sea Test Range at Point Mugu is DoD's largest and most heavily instrumented sea/air range, encompassing 25,000 square miles of instrumented test space with 36,000 square-nautical miles of controlled airspace. This range has the unique feature of geographic location combined with a highly instrumented coastal region and offshore islands. The Point Mugu Sea Test Range has the capability of providing and supporting true at-sea and littoral scenarios. Facilities located at Point Mugu, Laguna Peak, and on the outlying islands of San Nicolas, Santa Cruz, Santa Rosa, and San Clemente, as well as up the coast to Tassajera Peak and as far south as San Diego, provide capability for precision metric track of up to 35 objects, target control for up to 10 airborne and surface targets, and telemetry for up to 20 sources. The Point Mugu site offers the advantage of laboratories collocated with operational air and sea test range capabilities. The combination of location, extensive instrumentation capacity, over-the-horizon command and control, unique test capabilities, and a highly skilled, experienced technical work force provides a realistic sea/air environment for conducting large integrated, joint test and evaluation and training exercises with integrated subsurface, surface, and air coverage. Finally, Laguna Peak supports Command and Destruct capabilities for ICBM and Polar satellite launches.

Point Mugu is centrally located within several DoD test and evaluation and training complexes, and extensively interconnected with the facilities at the adjacent complexes. Key among these are the following:

- The Western Test Range at Vandenberg AFB, the only U.S. site where satellites can be economically launched into Polar orbit, lies 110 miles northwest with direct ties to Point Mugu. Because of the optimized geographical siting, Sea Test Range locations at Point Mugu, SNI, and Laguna Peak have been designated as mandatory support sites for Air Force satellite and ICBM launches from Vandenberg.

- The Air Force Flight Test Center at Edwards AFB is 80 miles to the northeast of Point Mugu and uses the Sea Range for aircraft flight tests over water.

- The NAWCWPNS China Lake site is 150 miles to the northeast, providing ready access to a full spectrum of land ranges for Navy aircraft and weapons integration test programs. Most west coast Tomahawk Land Attack Missile flights initiate in the Sea Range and terminate at a target complex at the China Lake site.

- The Navy's Southern California Operational ASW Range (SOAR), a Fleet training range off San Clemente Island, is adjacent to the southern boundary of the Sea Range. Surface and air tracks are provided daily to the SOAR Range Center at North Island, San Diego, from the Extended Area Test System at Point Mugu.

- The Air Force's Nellis Test and Training Range Complex is 250 miles northeast of Point Mugu. Test operations to Nellis are easily staged from Point Mugu.

- The Army's National Training Center at Fort Irwin lies 200 miles northeast of Point Mugu. Recent Fleet training evolutions have included close air support at Fort Irwin.

- Commander, Third Fleet (COMTHIRDFLT) is homeported in San Diego. Because of its extensive instrumentation and range safety capabilities, the Sea Test Range is utilized for all of the COMTHIRDFLT live fire weapons launches in the Southern California area.

The Sea Test Range location, instrumentation, and controlled air and sea space form a unique DoD test support capability with the ability to support all of the following types of test and training operations:

- Complex multi-participant, multiple warfare area operations
- Coordinated air, surface, and submarine operations
- Submarine, surface, and air-launched cruise weapons testing (ship and land attack)
- Long range, large hazard pattern weapons testing
- Ballistic missile operations support
- Polar-orbit satellite launch operations support
- Sea-environment special access program support
- Classified target development and testing
- Joint engagement zone scenarios
- Simulated regional conflict operations
- Multiple participant live fire exercises
- Theater Missile Defense
- Radar cross section measurement of sea and air platforms
- Joint Service command and control interoperability, littoral, and strike operations

See Tab C for more detailed information.

QUALITY OF LIFE

12. Military Housing.

(a) Family Housing:

(1) Do you have mandatory assignment to on-base housing? (circle)

No

(2) For military family housing in your locale provide the following information:

Note: The total number of units includes 100 additional new units opened in April 1994.

Type of Quarters	Number of Bedrooms	Total number of units	Number Adequate	Number Substandard	Number Inadequate
Officer	4+	44	44		
Officer	3	47	47		
Officer	1 or 2	0	0		
Enlisted	4+	169	169		
Enlisted	3	619	619		
Enlisted	1 or 2	104	104		
Mobile Homes		0	0		
Mobile Home lots		0	0		

(3) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

All military housing at Point Mugu is classified "adequate".

- a. Facility type/code:
- b. What makes it inadequate?
- c. What use is being made of the facility?
- d. What is the cost to upgrade the facility to substandard?
- e. What other use could be made of the facility and at what cost?
- f. Current improvement plans and programmed funding:
- g. Has this facility condition resulted in C3 or C4 designation on your BASEREP?

(4) Complete the following table for the military housing waiting list.

Pay Grade	Number of Bedrooms	Number on List. ¹	Average Wait
O-6/7/8/9	1	N/A	N/A
	2	N/A	N/A
	3	N/A	N/A
	4+	0	0
O-4/5	1	N/A	N/A
	2	N/A	N/A
	3	14	12-18 months
	4+	0	1-6 months
O-1/2/3/CWO	1	0	0
	2	20	0
	3	3	1-6 months
	4+	0	18-24 months
E7-E9	1	0	0
	2	200	1-3 months
	3	20	1-3 months
	4+	33	1-3 months
E1-E6	1		
	2		
	3		
	4+		

¹As of 31 March 1994.

(5) What do you consider to be the top five factors driving the demand for base housing? Does it vary by grade category? If so provide details.

Top Five Factors Driving the Demand for Base Housing	
1	High-cost Area
2	Remote location of the base in relation to the community
3	Sense of security
4	Quality of housing
5	Sense of community

(6) What percent of your family housing units have all the amenities required by "The Facility Planning & Design Guide" (Military Handbook 1190 & Military Handbook 1035-Family Housing)?

Currently, 60% of the units have all amenities required, but we are in the process of renovating the remainder of the housing units.

(7) Provide the utilization rate for family housing for FY 1993.

Type of Quarters	Utilization Rate
Adequate	99.64
Substandard	0
Inadequate	0

(8) As of 31 March 1994, have you experienced much of a change since FY 1993? If so, why? If occupancy is under 98% (or vacancy over 2%), is there a reason?

No change

(b) BEQ:

(1) Provide the utilization rate for BEQs for FY 1993.

Type of Quarters	Utilization Rate
Adequate	73
Substandard	0
Inadequate	68

(2) As of 31 March 1994, have you experienced much of a change since FY 1993? If so, why? If occupancy is under 95% (or vacancy over 5%), is there a reason?

No change

(3) Calculate the Average on Board (AOB) for geographic bachelors as follows:

$$AOB = \frac{(\# \text{ Geographic Bachelors} \times \text{average number of days in barracks})}{365}$$

AOB = 93

(4) Indicate in the following chart the percentage of geographic bachelors (GB) by category of reasons for family separation. Provide comments as necessary.

Reason for Separation from Family	Number of GB	Percent of GB	Comments
Family Commitments (children in school, financial, etc.)	86	89	
Spouse Employment (non-military)	3	3	
Other	8	8	
TOTAL	97	100	

(5) How many geographic bachelors do not live on base?

None

(c) BOQ:

(1) Provide the utilization rate for BOQs for FY 1993.

Type of Quarters	Utilization Rate
Adequate	100
Substandard	None
Inadequate	100

(2) As of 31 March 1994, have you experienced much of a change since FY 1993? If so, why? If occupancy is under 95% (or vacancy over 5%), is there a reason?

No change

(3) Calculate the Average on Board (AOB) for geographic bachelors as follows:

$$AOB = \frac{(\# \text{ Geographic Bachelors} \times \text{average number of days in barracks})}{365}$$

AOB = 19

(4) Indicate in the following chart the percentage of geographic bachelors (GB) by category of reasons for family separation. Provide comments as necessary.

Reason for Separation from Family	Number of GB	Percent of GB	Comments
Family Commitments (children in school, financial, etc.)	15	75	
Spouse Employment (non-military)	3	15	
Other	2	10	
TOTAL	20	100	

(5) How many geographic bachelors do not live on base?

None

(d) BOQ/BEQ Housing and Messing.

(1) Provide data on the BOQs and BEQs assigned to your current plant account. The desired unit of measure for this capacity is people housed. Use CCN to differentiate between pay grades, i.e., E1-E4, E5-E6, E7-E9, CWO-O2, O3 and above.

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft
BOQ6, 724.11	22	22	21	348	1	167		
BOQ21, 721.12	20	20	16	270	4	225		
BEQ22, 721.12	35	19	35	270				
BEQ23, 721.13	39	21	39	270				
BEQ24, 721.11	45	32	45	240				
BEQ25, 721.13	38	19	38	270				
BEQ26, 721.12	60	31	60	219				
BOQ166, 724.12	4	4	4	560				
BOQ167, 724.12	4	4	4	560				
BOQ168, 724.12	4	4	4	560				
BOQ169, 724.12	4	4	4	560				
BOQ170, 724.12	8	8	8	332				
BOQ171, 724.12	8	8	8	332				
BEQ212, 721.11	52	26	52	254				
BEQ213, 721.11	53	27	53	222				
BEQ214, 724.12	37	26			37	252		
BEQ231, 721.12	50	28	50	256				
BEQ232, 721.11	155	130	155	295				
BEQ233, 721.11	141	127	141	295				
BEQ241, 721.11	257	134	257	280				
BOQ765, 740.81	1	1	1	500				
BOQN2, 721.30	15	15					15	145
BOQN57, 721.30	38	38	38	308				

Table (Contd.)

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft
BOQN59, 721.30	38	38	38	308				
BOQN99, 724.11	14	14	14	340				
BEQN126, 721.30	49	49	49	140				
BEQN150, 721.11	48	48	48	140				
BEQN181, 721.30	53	53	53	140				
BOQN191, 721.30	55	55	55	140				

(2) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

a. Facility type/code:

BOQ N2, 721.30

b. What makes it inadequate?

The rooms are small, and the building has central baths.

c. What use is being made of the facility?

Housing of civilian employees

d. What is the cost to upgrade the facility to substandard?

\$375,000

e. What other use could be made of the facility and at what cost?

N/A

f. Current improvement plans and programmed funding:

Renovation 1999; no programmed funding at this time

g. Has this facility condition resulted in C3 or C4 designation on your BASEREP?

No

(3) Provide data on the BOQs and BEQs projected to be assigned to your plant account in FY 1997. The desired unit of measure for this capacity is people housed. Use CCN to differentiate between pay grades, i.e., E1-E4, E5-E6, E7-E9, CWO-02, 03 and above.

The above data apply for projection to FY 1997. No additional BOQs or BEQs are planned.

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft
Same as above								

(4) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

- a. Facility type/code:
- b. What makes it inadequate?
- c. What use is being made of the facility?
- d. What is the cost to upgrade the facility to substandard?
- e. What other use could be made of the facility and at what cost?
- f. Current improvement plans and programmed funding:
- g. Has this facility condition resulted in C3 or C4 designation on your BASEREP?

(5) Provide data on the messing facilities assigned to your current plant account.

Facility Type, CCN and Bldg. #	Total Sq. Ft.	Adequate		Substandard		Inadequate		Avg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	
BDF, 722.10, B-20	33,867	268	33,867					312

(6) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

None

a. Facility type/code:

b. What makes it inadequate?

c. What use is being made of the facility?

d. What is the cost to upgrade the facility to substandard?

e. What other use could be made of the facility and at what cost?

f. Current improvement plans and programmed funding:

g. Has this facility condition resulted in C3 or C4 designation on your BASEREP?

(7) Provide data on the messing facilities projected to be assigned to your plant account in FY 1997.

Facility Type, CCN and Bldg. #	Total Sq. Ft.	Adequate		Substandard		Inadequate		Avg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	
BDF, 722.10, B-20	33,867	268	33,867					312

(8) In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified provide the following information:

None

- a. Facility type/code:*
- b. What makes it inadequate?*
- c. What use is being made of the facility?*
- d. What is the cost to upgrade the facility to substandard?*
- e. What other use could be made of the facility and at what cost?*
- f. Current improvement plans and programmed funding:*
- g. Has this facility condition resulted in C3 or C4 designation on your BASEREP?*

13. **MWR Facilities.** For on-base MWR facilities¹ available, complete the following table for each separate location. For off-base government owned or leased recreation facilities indicate distance from base. If there are any facilities not listed, include them at the bottom of the table.

LOCATION: NAWC Point Mugu		DISTANCE _____	
Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Auto Hobby	Indoor Bays	8	Y
	Outdoor Bays	25	Y
Arts/Crafts	SF		NA
Wood Hobby	SF		NA
Bowling	Lanes	8	Y
Enlisted Club	SF		NA
Officer's Club	SF		NA
Library	SF	4,680	NA
Library	Books	41,300	NA
Theater	Seats	500	N
ITT	SF	100	Y
Museum/Memorial	SF		NA
Pool (indoor)	Lanes		NA
Pool (outdoor)	Lanes	8	N
Beach	LF	1400	NA
Swimming Ponds	Each		NA
Tennis CT	Each	4	NA
Spec Foods & Beverage	SF	10,567	N

¹Spaces designed for a particular use. A single building might contain several facilities, each of which should be listed separately.

Table (Contd.)

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Volleyball CT (outdoor)	Each	2	NA
Basketball CT (outdoor)	Each	1	NA
Racquetball CT	Each	4	NA
Golf Course	Holes	9	N
Driving Range	Tee Boxes	18	Y
Gymnasium	SF	12,000	Y
Fitness Center	SF	1,800	Y
Marina	Berths		NA
Stables	Stalls		NA
Softball Fld	Each	2	NA
Football Fld	Each	1	NA
Soccer Fld	Each	1	NA
Youth Center, Main Base	SF	2,900	Y
Youth Center, Camarillo Hsg	SF	3,100	Y
Beach Motel	Rooms	24	Y

LOCATION: San Nicolas Island DISTANCE 60 Miles

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Auto Hobby	Indoor Bays		NA
	Outdoor Bays		NA
Arts/Crafts	SF		NA
Wood Hobby	SF	1,805	Y
Bowling	Lanes	4	Y
Enlisted Club	SF		NA
Officer's Club	SF		NA
Library	SF	2,790	NA
Library	Books	6,000	NA
Theater	Seats	181	NA
ITT	SF		NA
Museum/Memorial	SF		NA
Pool (indoor)	Lanes	2	NA
Pool (outdoor)	Lanes		NA
Beach	LF		NA
Swimming Ponds	Each		NA
Tennis CT	Each	1	NA

Table (Contd.)

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Volleyball CT (outdoor)	Each	1	NA
Basketball CT (outdoor)	Each	1	NA
Racquetball CT	Each	1	NA
Golf Course	Holes		NA
Driving Range	Tee Boxes		NA
Gymnasium	SF	3,220	NA
Fitness Center	SF	2,380	NA
Marina	Berths		NA
Stables	Stalls		NA
Softball Fld	Each	1	NA
Football Fld	Each		NA
Soccer Fld	Each		NA
Youth Center	SF		NA
Community Center	SF	2,824	Y
Free Weight Annex	SF	1,295	NA

(a) Is your library part of a regional interlibrary loan program?

No

14. Base Family Support Facilities and Programs.

a. Complete the following table on the availability of child care in a child care center on your base.

Age Category	Capacity (Children)	SF			Number on Wait List	Average Wait (Days)
		Adequate	Substandard	Inadequate		
0-6 months	4	1,275			14	365
6-12 months	4	1,275			14	365
12-24 months	20	2,551			7	0
24-36 months	28			1,752	8	365
3-5 years	34			3,504	37	365

b. In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means." For all the categories above where inadequate facilities are identified provide the following information:

Facility type/code:

Inadequate space in building 2-43, Quonset Hut

What makes it inadequate?

Inadequate due to deteriorated building condition, high maintenance costs, size, and configuration

What use is being made of the facility?

Facility is currently used as Child Care Facility

What is the cost to upgrade the facility to substandard?

The facility cannot be renovated to meet minimum child care standards at any cost short of total reconstruction.

What other use could be made of the facility and at what cost?

The facility could be used for limited storage, but maintenance costs would remain high, and renovation would be required to meet earthquake standards.

Current improvement plans and programmed funding:

The facility is not planned for reuse. It has been approved for demolition. MILCON project P-014 has been programmed for FY 1996. Interim provision of alternative relocatable facilities is planned for FY 1994 pending construction of P-014.

Has this facility condition resulted in C3 or C4 designation on your BASEREP?

The facility has not been listed on the BASEREP because the condition of the facility does not adversely affect the base mission.

c. If you have a waiting list, describe what programs or facilities other than those sponsored by your command are available to accommodate those on the list.

State licensed Family Home Care providers are located off base. These centers are over 9 to 12 miles away.

d. How many "certified home care providers" are registered at your base?

26

e. Are there other military child care facilities within 30 minutes of the base? State owner and capacity (i.e., 60 children, 0-5 yrs).

Yes; Construction Battalion Center, Port Hueneme; 212 capacity; 0 to 5 years

f. Complete the following table for services available on your base. If you have any services not listed, include them at the bottom.

Service	Unit of Measure	Qty
Exchange	SF	29,000
Gas Station	SF	2,967
Auto Repair	SF	,241
Auto Parts Store	SF	Incl above
Commissary	SF	23,824
Mini-Mart	SF	Incl in Exch
Package Store	SF	Incl in Exch
Fast Food Restaurants	Each	3
Bank/Credit Union	Each	1
Family Service Center	SF	1,342
Laundromat	SF	2,200
Dry Cleaners	Each	NA
ARC	PN	NA
Chapel	PN	500
FSC Classrm/Auditorium	PN	NA

15. Proximity of Closest Major Metropolitan Areas (*provide at least three*):

City	Distance (Miles)
Los Angeles, Calif.	60, southeast
Santa Barbara, Calif.	50, northeast
Oxnard, Calif.	8, northeast

16. Standard Rate VHA Data for Cost of Living.

Paygrade	With Dependents	Without Dependents
E1	326.94	182.93
E2	326.94	205.60
E3	311.34	229.41
E4	348.06	242.92
E5	380.91	265.95
E6	394.77	268.73
E7	447.34	310.75
E8	481.69	364.16
E9	479.65	364.11
W1	450.32	342.00
W2	435.19	341.34
W3	468.51	380.86
W4	497.23	440.86
O1E	415.46	308.17
O2E	406.45	324.05
O3E	439.39	371.73
O1	391.55	288.53
O2	411.56	321.68
O3	432.74	364.34
O4	454.36	395.11
O5	489.85	405.10
O6	460.45	381.12
O7	394.87	320.82

17. Off-base Housing Rental and Purchase.

(a) Fill in the following table for average rental costs in the area for the period 1 April 1993 through 31 March 1994.

Type Rental	Average Monthly Rent		Average Monthly Utilities Cost	
	Annual High	Annual Low		
Efficiency	595	350	50	
Apartment (1-2 Bedroom)	1 bedroom	675	495	60
	2 bedroom	925	625	60
Apartment (3+ Bedroom)	975	850	60	
Single Family Home (3 Bedroom)	1,200	850	110	
Single Family Home (4+ Bedroom)	1,400	950	110	
Town House (2 Bedroom)	1,100	875	60	
Town House (3+ Bedroom)	1,200	900	80	
Condominium (2 Bedroom)	925	875	60	
Condominium (3+ Bedroom)	1,200	900	80	

(b) What was the rental occupancy rate in the community as of 31 March 1994?

Type Rental	Percent Occupancy Rate
Efficiency	90
Apartment (1-2 Bedroom)	90
Apartment (3+ Bedroom)	98
Single Family Home (3 Bedroom)	95
Single Family Home (4+ Bedroom)	95
Town House (2 Bedroom)	90
Town House (3+ Bedroom)	95
Condominium (2 Bedroom)	90
Condominium (3+ Bedroom)	95

(c) What are the median costs for homes in the area?

Type of Home	Median Cost*
Single Family Home (3 Bedroom)	158,811
Single Family Home (4+ Bedroom)	176,393
Town House (2 Bedroom)	140,000
Town House (3+ Bedroom)	165,000
Condominium (2 Bedroom)	104,630
Condominium (3+ Bedroom)	131,075

*These figures apply to the Oxnard and Port Hueneme area only.

(d) For calendar year 1993, from the local MLS listings provide the number of 2, 3, and 4 bedroom homes available for purchase. Use only homes for which monthly payments would be within 90 to 110 percent of the E5 BAQ and VHA for your area.

Month	Number of Bedrooms		
	2	3	4+
January	7	6	4
February	3	11	4
March	5	12	2
April	3	16	4
May	3	18	5
June	3	18	4
July	6	12	3
August	0	20	10
September	6	19	4
October	3	20	5
November	3	19	4
December	5	20	5

Notes below refer to tables above.

1. Figures are provided by base housing referral office.
2. 90-110% of the ES BAQ and VHA for an E5 in this area is \$796.41.
3. Figures are taken from one realty listing only.
4. MLS listings are not available to the general public. Only licensed realtors can get access to MLS listings.
5. Most mobile homes are affordable.

(e) Describe the principle housing cost drivers in your local area.

Historically, factors contributing to housing prices in the local area have included:

1. Growth management restrictions in most cities.
2. Development fees in most cities contribute to home costs.
3. Typically, home prices are elevated in California coastal communities like Ventura County due to recreational benefits and mild weather conditions.
4. Proximity to the large metropolitan Los Angeles area creates additional demand on Ventura County assets from people desiring to "escape" the large city environment.

In the Ventura County area, housing is becoming more affordable and available over the last 2 years due, in part, to the reduction of the defense and aerospace industries in the Southern California area. Housing costs have reduced significantly.

18. For the top five sea intensive ratings in the principle warfare community your base supports, provide the following:

Rating	Number Sea Billets in the Local Area	Number of Shore billets in the Local Area
AO	0	42
OS	0	29
AME	0	9
AB	0	2
GSM	0	1

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18. For the top five sea intensive ratings in the principle warfare community your base supports, provide the following:

Rating	Number Sea Billets in the Local Area	Number of Shore billets in the Local Area
AO	0	34
OS	0	22
AME	0	11
AB	0	1
GSM	0	1

19. Complete the following table for the average one-way commute for the five largest concentrations of military and civilian personnel living off-base.

Location	% Employees	Distance (mi)	Time(min)
Camarillo, Calif.	35	12	20
Oxnard, Calif.	35	8	15
Ventura, Calif.	15	20	30
Port Hueneme, Calif.	10	8	15
Newberry Park, Calif.	5	21	30

20. Complete the tables below to indicate the civilian educational opportunities available to service members stationed at the installation (to include any outlying sites) and their dependents.

(a) List the local educational institutions which offer programs available to dependent children. Indicate the school type (e.g. DoDDS, private, public, parochial, etc.), grade level (e.g. pre-school, primary, secondary, etc.), what students with special needs the institution is equipped to handle, cost of enrollment, and for high schools only, the average SAT score of the class that graduated in 1993, and the number of students in that class who enrolled in college in the fall of 1994.

Institution	Type	Grade Level(s)	Special Education Available	Annual Enrollment Cost per Student	1993 Avg SAT/ACT Score	% HS Grad to Higher Educ	Source of Info
Oxnard High	Public	9-12	YES	0	N/A	46%*	School Admin.
Oxnard Elemen.	Public	K-8	YES	0	N/A	N/A	School Admin.
Hueneme Elemen.	Public	K-8	YES	0	N/A	N/A	School Admin.
Pleasant Valley Elem.	Public	K-8	YES	0	N/A	N/A	School Admin.
Somis Elemen.	Public	K-8	No military dependent	0	N/A	N/A	School Admin.
Ocean View Elem.	Public	K-8	YES	0	N/A	N/A	School Admin.
St. Anthony's	Catholic	K-8	NO	\$1,665	N/A	N/A	School Admin.
Santa Clara High	Catholic	9-12	NO	\$1,350	N/A	N/A	School Admin.

*1992 data; no 1993 data available.

NOTES:

1. Researched only those schools within 10 miles and only those major private schools. Total number of schools within this area would include pre-school and day care, and would number approximately 50.
2. All schools identified have military dependents, with the exception of Somis Elem. School.

(b) List the educational institutions within 30 miles which offer programs off-base available to service members and their adult dependents. Indicate the extent of their programs by placing a "Yes" or "No" in all boxes as applies.

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		Graduate
				Courses only	Degree Program	
USC at C.A.T.E. Newbury Park	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	YES	NO	NO	YES
CSUN at C.A.T.E.	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	YES	YES	NO	YES
West Coast Univ. Ventura	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	YES	YES	YES	YES
UCSB Ventura Center	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	YES	YES	YES	YES
CSUN Ventura Campus	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	NO	YES	YES	YES
CAL Lutheran Thousand Oaks	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	YES	YES	YES	YES
Cal Lutheran Oxnard	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	NO	NO	NO	YES
Univ. of LaVerne Ventura Center	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	NO	YES	YES	YES

Table continued.

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		
				Courses only	Degree Program	Graduate
Pepperdine Univ.	Day YES	NO	NO	YES	YES	YES
	Night YES	NO	NO	YES	YES	YES
Oxnard Union High School	Day NO	NO	NO	NO	NO	NO
	Night YES	YES	YES	NO	NO	NO
Ventura College	Day YES	NO	NO	YES	NO	NO
	Night YES	NO	YES	YES	YES	NO
Oxnard College	Day YES	NO	NO	YES	YES	NO
	Night YES	NO	YES	YES	YES	NO

(c) List the educational institutions which offer programs on-base available to service members and their adult dependents. Indicate the extent of their programs by placing a "Yes" or "No" in all boxes as applies.

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		
				Courses or ly	Degree Program	Graduate
University Of LaVerne	Day NO	NO	NO	NO	NO	NO
	Night YES	NO	NO	YES	YES	NO
	Corres- pondence	NO	NO	NO	NO	NO
University of Southern California	Day NO	NO	NO	NO	NO	NO
	Night	NO	NO	NO	NO	YES
	Corres- pondence	NO	NO	NO	NO	NO
Southern Illinois	Day YES (weekends)	NO	YES	YES	YES	YES
	Night NO	NO	NO	NO	NO	NO
	Corres- pondence	NO	NO	NO	NO	NO

21. Spousal Employment Opportunities.

Provide the following data on spousal employment opportunities.

Skill Level	Number of Military Spouses Serviced by Family Service Center Spouse Employment Assistance			Local Community Unemployment Rate
	1991	1992	1993	8.4%
Professional	3	4	3	Not broken out
Manufacturing	0	0	0	
Clerical	17	44	67	
Service	23	37	49	
Other	11	10	15	

22. Medical/Dental.

a. Do your active duty personnel have any difficulty with access to medical or dental care, in either the military or civilian health care system? Develop the why of your response.

No. Although, no "official" survey has been conducted, informal inquiries have produced no problems associated with active duty military for Medical or Dental services. It should be recognized that due to closure of the Long Beach Hospital, military personnel have been rerouted to Vandenberg AFB and San Diego Hospital for medical services. Dental services are provided at the local Branch Dental Clinic and Port Hueneme Clinic; again informal inquiries have produced no negative comments.

MEDICAL CLINIC. The Medical Clinic at the Point Mugu site is a branch of the Naval Medical Clinic, Port Hueneme. The Head, Branch Medical Clinic, serves on the staff and reports to the Executive Officer, Naval Medical Clinic, Port Hueneme. The Senior Flight Surgeon serves on the staff of the Naval Medical Clinic, Port Hueneme, and is the active duty staff medical officer to the Commander, NAWCWPNS, and the Commanding Officer, NAWS, Point Mugu.

The clinic provides medical support to the NAWCWPNS and its subordinate and tenant organizations, including NAWS. It provides comprehensive ambulatory medical care services to the Navy and Marine Corps units of the operating forces, shore activities, and their authorized beneficiaries as prescribed by Title 10, U.S. Code. Subject to availability of space, facilities, and capabilities of the medical staff, the clinic provides general outpatient clinical services for other authorized beneficiaries. The clinic maintains liaison with tenant commands and units of the Reserve Forces receiving medical care from the clinic. It provides on-the-job training for assigned hospital corpsmen and conducts selective rotation of personnel for training purposes. The clinic provides aviation, re-enlistment, and other physical examinations as required.

The Branch Medical Clinic consists of the following departments:

Primary Care. Coordinates health care delivery related to examination, diagnosis, treatment, and disposition of patients. It is divided into the Military Sick Call Division, Immunizations Division, and Primary Care Clinic Division.

Ancillary Services. Provides and coordinates all radiology, laboratory, and pharmacy support of patient care rendered at the Branch Medical Clinic. It is divided into the Radiology Division, Laboratory Division, and Pharmacy Division.

Administration. Provides administrative support to the Officer in Charge, maintaining health records and supply/operating services, as well as performing general administrative tasks. It is divided into the Personnel Support Division and Supply/ Operating Service Division.

Aviation Medicine. Provides and coordinates medical support to flight activities, maintaining a medical search and rescue watch roster. It performs aviation physical examinations, as well as coordinating non-aviation physical examinations for active duty military personnel and service academy applicants.

Occupational Health. Coordinates medical support to government employees, contractors, and military personnel onboard. It consists of the Occupation Health Division, Environmental Health Division, and Industrial Hygiene Division.

Branch Medical Annex, San Nicolas Island. Provides primary medical support to active duty military and civilian employees of naval activities on remote San Nicolas Island facility.

DENTAL CLINIC. The following are provided as the current services available at the Branch Dental Clinic: Oral Diagnosis, Preventive Dentistry, Restorative Dentistry, Periodontics, Endodontics, Oral Surgery, and Temporomandibular Dysfunction

Dependents and retirees are seen on a space-available basis.

b. Do your military dependents have any difficulty with access to medical or dental care, in either the military or civilian health care system? Develop the why of your response.

No. It should be recognized that no "official" survey has been conducted, but with informal inquiries, no negative comments have been produced. Medical services under the "Tri-Care" program and dental services covered on the "Delta Dental" plan have produced positive comments. Both programs allow member dependents, if elected to subscribe to the programs, to seek services from outside medical and dental providers. It should also be noted that military members are generally pleased with the services even though they must pay for services at the various levels identified in the plans.

The cities of Oxnard and Camarillo are immediately adjacent to the Point Mugu site and both communities offer full service medical care, including large hospitals, 24-hour emergency rooms, many urgent care centers, and an extensive array of private practitioners. A wide range of mental health and psychological counseling services are available in both communities.

Private ambulance services are available in both Oxnard and Camarillo and respond to emergencies 24 hours a day. Currently, ambulance service onboard the station is provided by crews from the Naval Medical Clinic, and is also available 24 hours a day.

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BRAC 95 DATA CALL #5

ACTIVITY UIC: 63126

23. **Crime Rate.** Complete the table below to indicate the crime rate for your air station for the last three fiscal years. The source for case category definitions to be used in responding to this question are found in NCIS - Manual dated 23 February 1989, at Appendix A, entitled "Case Category Definitions." Note: the crimes reported in this table should include 1) all reported criminal activity which occurred on base regardless of whether the subject or the victim of that activity was assigned to or worked at the base; and 2) all reported criminal activity of base.

(Material deleted.)

Because local data were not available in the format requested, the following additional data are provided on the general crime statistics for Ventura County. The source of the information is the FBI.

Crime rate comparison in numbers of crimes per 100,000 population:

United States	5,660
Western States	6,387
Pacific States	6,520
California	6,679
Santa Barbara County	4,903
Ventura County	4,301

For 1992, Ventura County had the lowest crime rate in California for Metropolitan Statistical Areas (areas with a core population of 50,000 or more). For 1992, Ventura County had the second lowest crime rate for Metropolitan Statistical Areas in the Western United States (second only to Provo, Utah). Since 1986, Ventura County has been one of the five lowest crime areas in California. 1991 saw a crime reduction of 1.4%. 1992 saw crime drop another 2.85%.

Per NAWCHQ Instructions only FY 93 crime rates were to be reported for three categories: property crimes, violent crimes, and drug crimes. The crime numbers from the original data call submittal: arson, black-market, counterfeiting, postal, customs, burglary, larceny-ordnance, larceny-government, larceny-personal, wrongful destruction, larceny-vehicle, bomb threat, extortion, were combined under the property crimes category. Assault, kidnapping, child abuse, robbery, sex abuse-child, indecent assault, rape, and sodomy were combined under the violent crimes category. Narcotics became the drug crime category.

Violent crime rate per 100,000	=	490
Property crime rate per 100,000	=	3,314
Drug crime rate per 100,000	=	704

(Material deleted.)

Material was not deleted from original data call as submitted by NAWC HQ

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NAWC HQ Change
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(15 September 1994)

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23. Crime Rate. Complete the table below to indicate the crime rate for your air station for the last three fiscal years. The source for case category definitions to be used in responding to this question are found in NCIS - Manual dated 23 February 1989, at Appendix A, entitled "Case Category Definitions." Note: the crimes reported in this table should include 1) all reported criminal activity which occurred on base regardless of whether the subject or the victim of that activity was assigned to or worked at the base; and 2) all reported criminal activity off base.

NOTES:

1. For questions 19 and 22 through 25, local NCIS are not allowed to maintain case files or statistical data. Information may be available at NCIS Headquarters.
2. Information in the above table is provided for on-base crime statistics. Local law enforcement did not maintain the requested type of data or were not able to provide the data.

Because local data were not available in the format requested, the following additional data are provided on the general crime statistics for Ventura County. The source of the information is the FBI.

Crime rate comparison in numbers of crimes per 100,000 population:

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Crime Definitions	FY 1991	FY 1992	FY 1993
1. Arson (6A)	3	3	1
Base Personnel - military	0	1	0
Base Personnel - civilian	3	2	1
Off Base Personnel - military	0	0	0
Off Base Personnel - civilian	0	0	0
2. Blackmarket (6C)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			
3. Counterfeiting (6G)	2	0	0
Base Personnel - military			
Base Personnel - civilian	2		
Off Base Personnel - military			
Off Base Personnel - civilian			
4. Postal (6L)	9	5	4
Base Personnel - military	7	2	3
Base Personnel - civilian	2	3	1
Off Base Personnel - military			
Off Base Personnel - civilian			

Crime Definitions	FY 1991	FY 1992	FY 1993
5. Customs (6M)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			
6. Burglary (6N)	10	9	8
Base Personnel - military	6	6	6
Base Personnel - civilian	4	3	2
Off Base Personnel - military			
Off Base Personnel - civilian			
7. Larceny - Ordnance (6R)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			
8. Larceny - Government (6S)	48	30	28
Base Personnel - military	42	27	25
Base Personnel - civilian	6	3	3
Off Base Personnel - military			
Off Base Personnel - civilian			

Crime Definitions	FY 1991	FY 1992	FY 1993
9. Larceny - Personal (6T)	95	104	87
Base Personnel - military	63	74	57
Base Personnel - civilian	32	30	30
Off Base Personnel - military			
Off Base Personnel - civilian			
10. Wrongful Destruction (6U)	62	54	31
Base Personnel - military	39	32	21
Base Personnel - civilian	23	22	10
Off Base Personnel - military			
Off Base Personnel - civilian			
11. Larceny - Vehicle (6V)	0	3	0
Base Personnel - military	0	1	0
Base Personnel - civilian	0	2	0
Off Base Personnel - military			
Off Base Personnel - civilian			
12. Bomb Threat (7B)	4	6	2
Base Personnel - military	2	2	0
Base Personnel - civilian	2	4	2
Off Base Personnel - military			
Off Base Personnel - civilian			

Crime Definitions	FY 1991	FY 1992	FY 1993
13. Extortion (7E)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			
14. Assault (7G)	40	29	23
Base Personnel - military	19	15	12
Base Personnel - civilian	21	14	11
Off Base Personnel - military			
Off Base Personnel - civilian			
15. Death (7H)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			
16. Kidnapping (7K)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			

Crime Definitions	FY 1991	FY 1992	FY 1993
18. Narcotics (7N)	2	6	11
Base Personnel - military	2	3	2
Base Personnel - civilian	0	3	9
Off Base Personnel - military			
Off Base Personnel - civilian			
19. Perjury (7P)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			
20. Robbery (7R)	0	0	1
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			1
Off Base Personnel - civilian			
21. Traffic Accident (7T)	118	134	113
Base Personnel - military	67	83	75
Base Personnel - civilian	51	51	38
Off Base Personnel - military			
Off Base Personnel - civilian			

Crime Definitions	FY 1991	FY 1992	FY 1993
22. Sex Abuse - Child (8B)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			
23. Indecent Assault (8D)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			
24. Rape (8F)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			
25. Sodomy (8G)			
Base Personnel - military			
Base Personnel - civilian			
Off Base Personnel - military			
Off Base Personnel - civilian			

BRAC 95 DATA CALL #5

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ACTIVITY UIC: 63126

TAB A
TECHNICAL OPERATIONS
FUNCTIONAL SUPPORT AREA - LIFE CYCLE WORK AREA FORM

TAB A
1
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TAB A
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TAB A

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.1-Platforms Undersea
Life Cycle Work Area	17-Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

4.4 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$270K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Aircraft
Life Cycle Work Area	4 - Engineering and Manufacturing Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

6.7 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$732K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$2,218K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$3,875K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Aircraft
Life Cycle Work Area	5- RDT&E Management Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

3.2 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$689K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Aircraft
Life Cycle Work Area	6 - Operational Systems Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

21.8 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$2,771K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$1,435K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Aircraft
Life Cycle Work Area	7 - Production

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

0 workyear

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

0

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$6,637K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Aircraft
Life Cycle Work Area	9 - Modernization

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

44.3 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$6,479K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$4,252K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$15,409K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

TAB A

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Aircraft
Life Cycle Work Area	11 - Maintenance

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

4.1 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$714K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$387K

c. Direct Cites. Provide total direct cite funds expended on contrac. during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

TAB A

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Aircraft
Life Cycle Work Area	13 - Testing

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

6.8 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$1,484K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$892K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Aircraft
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

25.0 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$4,784K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding:

\$3,878K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$1,438K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Aircraft
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

32.7 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$2,027K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding:*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.3 - Platforms Surface Ship
Life Cycle Work Area	4 - Engineering and Manufacturing Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

1.5 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$250K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$2,220K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$700K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.3 - Platforms Surface Ship
Life Cycle Work Area	6 - Operational Systems Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

6.0 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$591K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$164K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.3 - Platforms Surface Ship
Life Cycle Work Area	9 - Modernization

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

5.7 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$638K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$150K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.3 - Platforms Surface Ship
Life Cycle Work Area	10 - Program Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

0 workyear

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

0

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$76K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.3 - Platforms Surface Ship
Life Cycle Work Area	11 - Maintenance

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

2.7 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$207K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.2 - Platforms Surface Ship
Life Cycle Work Area	13 - Testing

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

5.4 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$414K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

TAB A

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.3 - Platforms Surface Ship
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

5.4 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$414K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.3 - Platforms Surface Ship
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

34.9 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$2,163K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity.

Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	1.4 - Platforms Space Satellites
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

2.2 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$135K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.1 - Weapons Systems Gun Systems
Life Cycle Work Area	7 - Production

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

2.3 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$3K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$204K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.1 - Weapons Systems Gun Systems
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

23.1 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$4,180K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$965K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$7,572K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.1 - Weapons Systems Gun Systems
Life Cycle Work Area	17 - Training/ Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

4.4 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$270K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	2 - Exploratory Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

1.6 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$231K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	3 - Advanced Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

40.9 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$7,298K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$1,962K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	4 - Engineering and Manufacturing Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

38.2 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$6,317K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$293K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	5 - RDT&E Management Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

60.2 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$5,696K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$860K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	6 - Operational Systems Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

34.9 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$764K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$294K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$1,992K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	7 - Production

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

0 workyear

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$515K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$6K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	8 - Acceptance Testing

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

1.3 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$2,639K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$394K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	9 - Modernization

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

6.9 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$532K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$66K

c. Direct Cites. Provide total direct cite funds expended on contracts during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	10 - Program Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

86.9 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$11,325K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$2,711K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$707K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	13 - Testing

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

112.1 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$13,180K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$19,761K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$13,451K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

307.7 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$47,184K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$25,398K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area*

\$24,404K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	15 - Program Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

8.2 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$593K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	17 - Training/Operations Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

21.5 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$ 2,173K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding

\$226K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.2 - Weapons Systems Guided Missiles
Life Cycle Work Area	18 - Simulation, Modeling and Analysis

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

24.8 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$6,193K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$31K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.3 - Weapons Systems Free Fall Weapons and Rockets
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

52.4 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$10,783K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$3,321K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$1,684K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.3 - Weapons Systems Free Fall Weapons and Rockets
Life Cycle Work Area	17 - Training/ Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

0.9 workyear

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$54K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.5 - Weapons Systems Mines
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

1.4 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$88K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct citing.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.8 - Weapons Systems Launchers
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

28.2 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$6,028K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$1,346K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$1,428K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.8 - Weapons Systems Launchers
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

4.4 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$270K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.9 - Weapons Systems Fire Control
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

2.2 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$135K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.10 - Weapons Systems Weapons Data Links
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

10.9 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$676K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	2.14 - Weapons Systems Explosive Ordnance Disposal
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

1.0 workyear

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$61K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.1 - Combat System Integration Subsurface
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

4.4 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$270K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.2 - Combat System Integration Air
Life Cycle Work Area	4 - Engineering and Manufacturing Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

126.1 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$22,211K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$40,214K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$5,151K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

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TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.2 - Combat System Integration Air
Life Cycle Work Area	5 - RDT&E Management Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

15.0 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$930K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.2 - Combat Systems Integration Air
Life Cycle Work Area	6 - Operational System Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

8.0 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$496K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.2 - Combat System Integration Air
Life Cycle Work Area	8 - Acceptance Testing

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

6.0 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$372K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.2 - Combat System Integration Air
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

112.0 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$18,810K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct contracting.*

\$35,661K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$119K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.2 - Combat System Integration Air
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

21.8 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$1,352K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.3 - Combat System Integration Surface
Life Cycle Work Area	6 - Operational Systems Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

4.0 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$248K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.3 - Combat System Integration Surface
Life Cycle Work Area	8 - Acceptance Testing

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

5.0 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$310K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.3 - Combat System Integration Surface
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

17.4 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$1,081K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	3.4 - Combat System Integration Multiplatform
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

32.7 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$2,027K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	4.1 - Special Operations Support
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

2.2 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$135K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	4.2 - Special Operations Support Coastal/Special Warfare Support
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

4.8 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$297K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	5.2 - Sensors & Surveillance Systems Radar Systems
Life Cycle Work Area	17 - Training/ Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

0.9 workyear

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$54K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	5.3 - Sensors & Surveillance Systems Special Sensors
Life Cycle Work Area	17 - Training/ Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

1.7 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$108K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	5.4 - Sensors & Surveillance Systems Space Sensor/Surveillance System
Life Cycle Work Area	17 - Training/ Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

2.0 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$122K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	5.5 - Sensors & Surveillance Systems Ocean Surveillance
Life Cycle Work Area	17 - Training/ Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

1.9 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$115K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	6.2 - Navigation Aircraft Navigation Systems
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

4.0 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$250K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	6.3 -Navigation Surface Ship Navigation Systems
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

1.6 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$101K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	6.4 - Navigation Weapons Navigation Systems
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

2.2 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$135K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	7.2 - Command, Control, Communications and Intelligence Airborne
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

1.9 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$115K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	7.3 - Command, Control, Communications and Intelligence Shipboard
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

4.1 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$257K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	7.5 - Command, Control, Communications and Intelligence Space Communications Systems
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

2.2 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$135K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	7.8 - C3I Intelligence Information Systems
Life Cycle Work Area	4 - Engineering and Manufacturing Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

11.1 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$1,632K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$3,578K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	7.8 - C3I Intelligence Information Systems
Life Cycle Work Area	6 - Operational Systems Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

13.0 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$1,466K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$6,292K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	7.8 - C3I Intelligence Information Systems
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

2.2 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$135K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$6,292K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.1 - Defense Systems Ballistic Missile Defense
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

4.4 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$270K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.2 - Defense Systems Countermeasures
Life Cycle Work Area	2 - Exploratory Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

1.1 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$141K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.2 - Defense Systems Countermeasures
Life Cycle Work Area	3 - Advanced Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

3.2 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$429K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$155K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$225K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.2 - Defense Systems Countermeasures
Life Cycle Work Area	4 - Engineering and Manufacturing Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

18.4 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$2,489K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$968K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$1,404K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.2 - Defense Systems Countermeasures
Life Cycle Work Area	5 - RDT&E Management Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

0.9 workyear

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$141K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$35K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$51K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.2 -Defense Systems Countermeasures
Life Cycle Work Area	7 -Production

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

33.8 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$4,571K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$1,655K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$2,399K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.2 - Defense Systems Countermeasures
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

10.3 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$1,371K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$496K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$719K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.3 - Defense Systems Electronic Warfare Systems
Life Cycle Work Area	2 - Exploratory Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

3.2 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$422K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.3 - Defense Systems Electronic Warfare Systems
Life Cycle Work Area	3 - Advanced Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

9.5 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$1,286K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$466K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$675K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.3 - Defense Systems Electronic Warfare Systems
Life Cycle Work Area	4 - Engineering and Manufacturing Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

55.4 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$7,468K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$2,905K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$4,210K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.3 - Defense Systems Electronic Warfare Systems
Life Cycle Work Area	5 - RDT&E Manufacturing Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

2.9 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$422K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$104K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$152K

Note:

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.3 - Defense Systems Electronic Warfare Systems
Life Cycle Work Area	7 - Production

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

101.2 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$13,713K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$4,964K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

\$7,196K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

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**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.3 - Defense Systems Electronic Warfare Systems
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

30.7 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$4,113K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$1,489K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$2,158K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	8.3 - Defense Systems; Electronic Warfare Systems
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

6.5 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$406K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	10.1.4 - General Mission Support Weapons Related Training
Life Cycle Work Area	7 - Production

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

8.9 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$173K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

\$27K

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	10.1.4 - General Mission Support Weapons Related Training
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

9.3 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$1,287K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$485K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$1,620K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	10.7 - Major Range Development and Operation
Life Cycle Work Area	5 - RDT&E Management Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

893.5 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$51,432K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$37,060K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	10.7 - Major Range Development and Operation
Life Cycle Work Area	6 - Operational Systems Development

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

19.6 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$3,800K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

0

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	10.7 - Major Range Development and Operation
Life Cycle Work Area	7 - Production

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

31.2 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$13,900K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$3,087K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$6,138K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	10.7 - Major Range Development and Operation
Life Cycle Work Area	10 - Program Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

2.6 workyears

2. Expenditures.

a. In-House Expenditures. Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$600K

b. Out-of-House Expenditures. Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. Direct Cites. Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	10.7- Major Range Development and Operation
Life Cycle Work Area	13 - Testing

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

567.9 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$29,552K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$36,904K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$20,909K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	10.7 - Major Range Development and Operation
Life Cycle Work Area	14 - In-Service Engineering

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.

1.1 workyears

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.

\$1,900K

b. **Out-of-House Expenditures.** Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.

0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	10.7 - Major Range Development and Operation
Life Cycle Work Area	17 - Training/Operational Support

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

109.8 workyears

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$14,905K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$345K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

0

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

**TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM**

Technical Center Site	NAWCWPNS Point Mugu
Functional Support Area	11.9 - Generic Technology Base Human-Systems Interfaces
Life Cycle Work Area	18 - Simulation, Modeling and Analysis

Note: An example of a functional support area - life cycle work area is "1. Platform, 1.1 Undersea, - 10. Program Support".

1. In-House Work Years. *Provide the number of in-house government employee (civilian and military) work years for FY 1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget.*

0.3 workyear

2. Expenditures.

a. In-House Expenditures. *Provide the total in-house cost in FY 1993 for this functional support area - life cycle work area.*

\$55K

b. Out-of-House Expenditures. *Provide the total funds expended during FY 1993 for this functional support area - life cycle work area. Do not include direct cite funding.*

\$873K

c. Direct Cites. *Provide total direct cite funds expended on contract during FY 1993 for this functional support area - life cycle work area.*

\$764K

Note:

In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

Out-of-House Expenditures - Is comprised of total obligational authority for direct work (customer funded, mission oriented) performed or to be performed by other than the organizational entity. Out-of-house performers may include other departmental or DoD organizational entities, industrial firms, educational institutions, not-for-profit institutions and private individuals.

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ACTIVITY UIC: 63126

TAB B
SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	1. F-14 WSSA Facility

1. State the primary purpose(s) of the facility/equipment.

The F-14 WSSA facility supports all F-14 configurations and is used to perform full spectrum life cycle support engineering for tactical software development, integration, test and evaluation, and deployment. The facility also performs weapons systems integration, data-link integration, and electronic warfare system integration. The facility additionally supports F-14 trainers software development.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The F-14 WSSA is a fixed facility containing fixed, movable, and portable equipment. The facility is fixed because the major laboratories are large HWIL laboratories housing full mock-ups of the F-14A, F-14A/B, and F-14D forward modules embedded in aerodynamic/kinematics simulations that drive the complex radar microwave target simulations and inertial navigation system (INS) sensor bus emulations. The F-14 mock-ups house the full avionics suites. The physical and environmental accommodations necessary to contain and operate the HWIL computers, special support equipment, and mock-ups require elaborate air conditioning, avionics cooling fluids, electrical power (both 60 and 400 Hz), secure computer networks, cabling, and unique ocean front siting. The ocean front location (60 feet above the water) enables the mock-ups to "roll out" and conduct interoperable test scenarios with the Point Mugu Sea Test Range (for example, performing live target tracking of real targets for combined video, infrared, and radar system stimulation).

The F-14 WSSA, with a replacement value of \$200.4 million, is a unique siting of an extensive simulation laboratory complex and flight test facility on the ocean contiguous with the Point Mugu Sea Test Range. The WSSA facilities for F-14A, F-14A/B, F-14D, and F-14 Trainers Support are ideally situated for interactive laboratory/sea test range operations and contain two unique laboratories. The WSSA controls 10 highly instrumented F-14 aircraft for flight tests of tactical software and for weapons integration and release tests.

The F-14 Systems Integration Test Station (SITS) Laboratory (see the following photo): This laboratory is used for the life cycle systems engineering support of the F-14A and F-14 A/B weapons systems, including the design, development, testing, and evaluation of software for the F-14A and F-14A/B weapons systems, software and hardware integration, and interactive laboratory/sea test range operations in support of program requirements. The laboratory currently contains one F-14A and one F-14A/B cockpit, each with a complete suite of avionics, associated weapon stores (including missiles), and extensive computer simulator laboratory systems. When linked with test aircraft the laboratory can simulate a tactical communications environment.

The F-14D Weapons Systems Integration Center (WSIC) (see the following photos): As a part of the WSIC, the Systems Integration Laboratory (SIL) is similarly used for the life cycle systems engineering support of the F-14D weapons system, including the integration of new avionics/

TAB B

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weapons into the F-14D weapons system; the design, development, integration, and testing of tactical software and hardware; and new initiative feasibility testing. There is a mock-up of the forward module of the F-14D aircraft with actual flight and weapon store hardware. The design of the laboratory provides the capability to support other current (for example, F15 or F18) or future digital avionics-based aircraft platforms as the computer driven architecture is modular for both simulations and system observability. The systems are tailored by a combination of data protocols and hardware interfaces. The Sub-System Development Laboratories (SSDLs) provide the capability to perform on-line debug and unit level and computer software unit integration testing of the Mission Computer, Display Management Processors, and Stores Management Processors. The RF environment for the F-14D radar, the Infrared Search and Track (IRST) data for the Mission Computer, and displays are simulated at the MIL-STD-1553B data bus level. In addition, the laboratory is a key element of the DARPA sponsored High Dynamic (HYDY) large scale integrated simulation network demonstration.

Both the F-14A/B SITS and the F-14D WSIC/SIL allow the tracking of live targets on the Sea Test Range with the laboratory radar systems.

The F-14 WSSA is supported by five F-14 A/B and four F-14D Fleet representative aircraft, which are uniquely configured for the WSSA role after having undergone extensive instrumentation modifications (see the following photos).

The F-14 WSSA equipment is both fixed and movable.

Computational Equipment	\$14.2 million
Special Laboratory Test Equipment	\$41.8 million
GFE Avionics	\$41.2 million
AC Instrumentation Equipment	\$50.3 million

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Facility	\$14.8 million
Equipment	<u>\$185.6 million</u> (including \$41.2 million GFE Avionics)
Total:	\$200.4 million

4. Provide the gross weight and cube of the facility/equipment.

107.4 tons 10,750 cubic feet for equipment

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Three-phase 60-Hz power
Three-phase 400-Hz power
Liquid coolant (Coolanol) for avionics

TAB B

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6. *Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).*

This facility requires a radiation hazard safe area in front of the F-14 mock-ups because of full power F-14 radar operation and approximately 10,000 feet (elevated 60 feet) of laboratory space abutting a radiation hazard safe area to enable live radar tracking from each of the F-14 mock-ups. Because of geographic location, the facility requires no special COMSEC features; alternate sites will most likely require shielding to satisfy COMSEC requirements.

7. *State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).*

This facility requires temperature and humidity controlled filtered air for all laboratories.

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

The facility would be extremely difficult to relocate because the current clean front location of the laboratories with the ability to roll out the F-14 mock-ups to look out onto the Point Mugu Sea Test Range represents a unique capability that cannot be duplicated at any other site. If, however, the facility and equipment were lost and required replication, the impact to the government would be that the F-14 WSSA function capacity would be reduced by 80% (tasking transferred to prime contractors), with full capacity not achieved for 3 to 5 years. The costs associated with the generation of commercial facilities would be in the \$25 to 40 million if only the facility was lost. If both the facility and equipment were lost, the replication costs would be \$210 to 220 million, including GFE avionics.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The basic facilities were constructed (MILCON funds) from the early 1960s to late 1980s. The equipment was mostly provided by F-14 sponsor funds, with less than 5% provided by Capital Assets Programs.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

Combat Systems Integration - AIR

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

Percent of full utilization based on a 40-hour workweek

1989	1990	1991	1992	1993
177%	195%	190%	268%	257%

12. Provide the projected utilization data out to FY 1997.

<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>
<i>307%</i>	<i>313%</i>	<i>340%</i>	<i>313%</i>

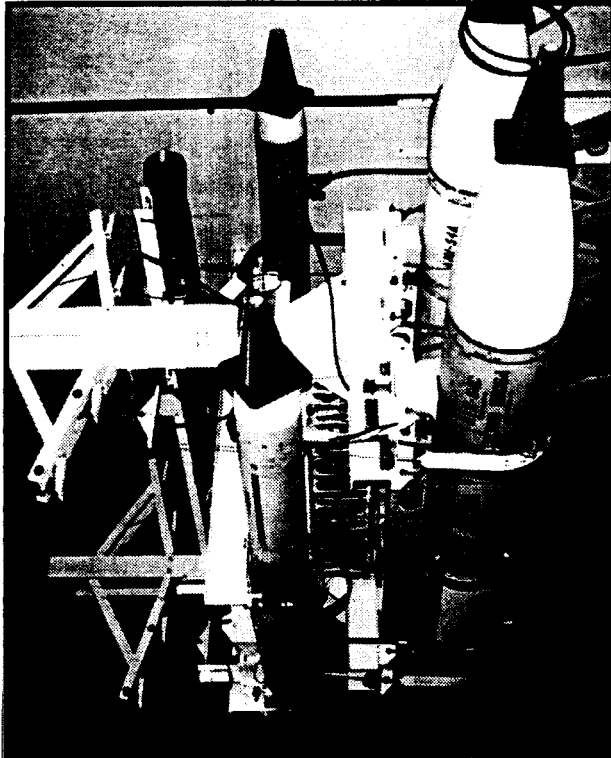
13. What is the approximate number of personnel used to operate the facility/equipment?

Government Civilian 244, Military 16, Contractor 439

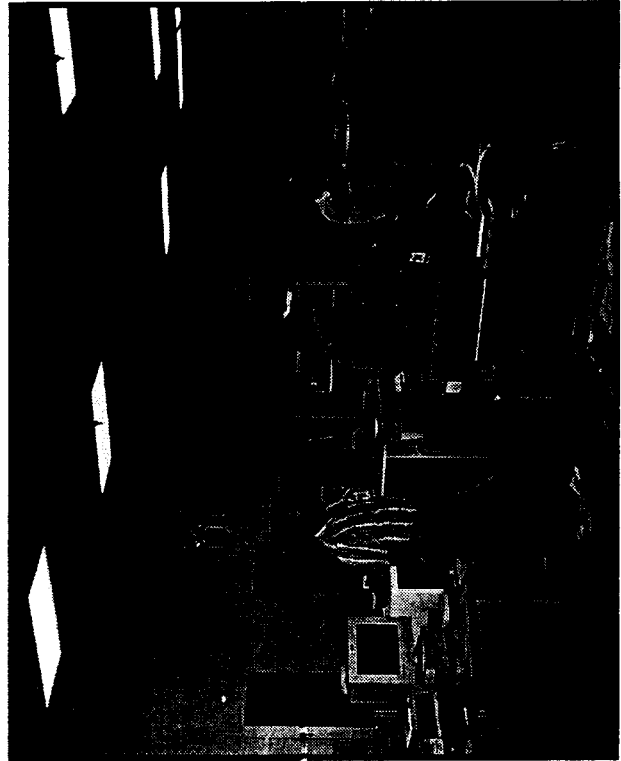
14. What is the approximate number of personnel needed to maintain the equipment?

Government Civilian 12, Contractor 23

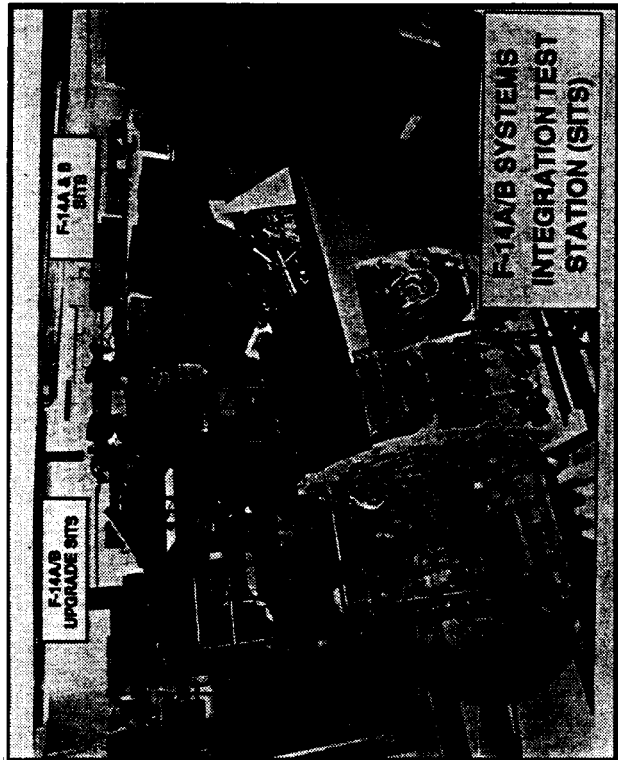
15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



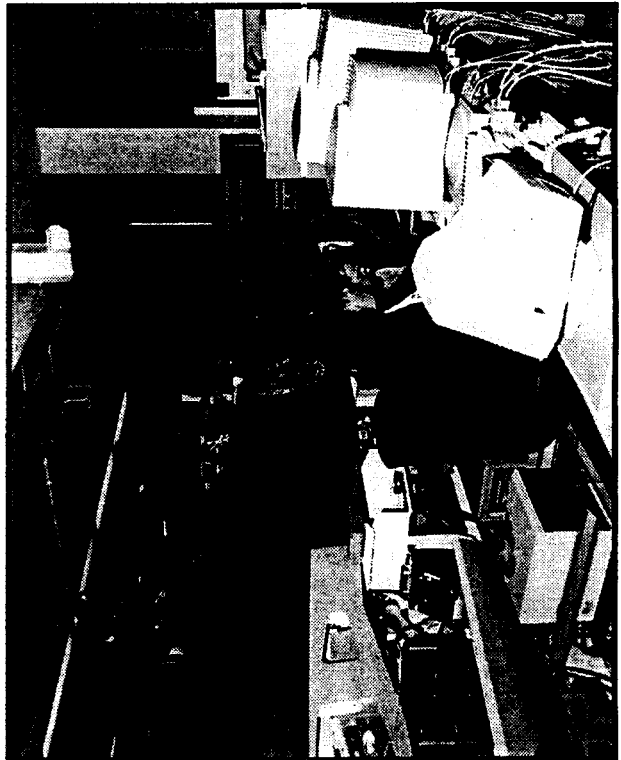
SYSTEMS INTEGRATION TEST STATION
MISSILE RACK



F14 A/B SUB SYSTEM DEVELOPMENT LAB



F14 A/B SYSTEMS INTEGRATION TEST STATION

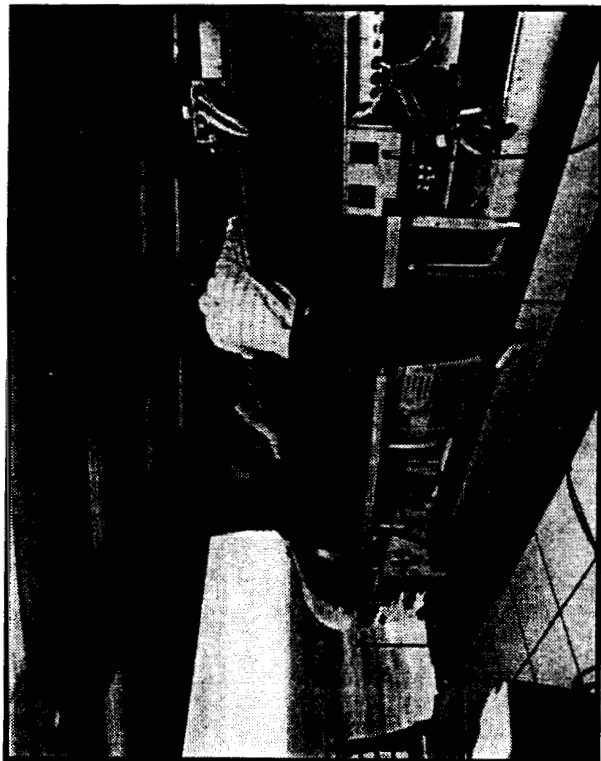


F14 A/B UPGRADE SYSTEMS INTEGRATION
TEST STATION

F-14 Weapons Systems Support Activity.

TAB B

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F14D FRAME



F14D FRAME FRONT VIEW

F-14 Weapons Systems Support Activity.



F14D FRAME REAR SEAT



F14D SUB SYSTEMS DEVELOPMENT LAB

TAB B

8

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	2. Missile HWIL Facility

1. State the primary purpose(s) of the facility/equipment.

Provides missile system performance evaluation from launch to intercept against single or multiple targets in clear or Electronic Countermeasures environment through open and closed loop T&E testing. The missile performance is assessed against maneuvering or non-maneuvering targets with glint and scintillation RF signatures. Dual spectrum (RF and infrared) testing is performed in one of the facility's four test laboratories. The facility supports weapon system acquisition milestone decisions and is used to conduct technical baseline performance evaluation of tactical missile software. Pre- and post-flight simulations are conducted for air-to-air and surface-to-air missile development and operational tests. Aircraft to missile interfaces are tested for various air-to-air missile systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is classified as fixed; major and irreparable damage would be sustained to chamber equipment and hardware during the process of its disassembly, transport and reassembly.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement cost of the facility/equipment is \$41 million.

4. Provide the gross weight and cube of the facility/equipment.

137 tons 27,700 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

220 amp, 210 VAC 60 Hz, 1 and 3 Phase
50 amp, 110/210 VAC 400 Hz
42 amp, 480 VAC 60 Hz, 3 Phase
Ground Isolation, Power Conditioning, and Filtered Power
Hydraulic Service

6. *Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).*

Acoustic Isolation of 45 STC	Secure LAN
Chilled Water	RF Shielded Room
RF Wave Guide	Anechoic Chamber
Reinforced Foundation for Flight Axis Table	Medium Pressure Air
High Pressure Argon Dry Gas	Computer Flooring

7. *State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).*

Temperature Range 65 to 75 degrees
Humidity Range 40 to 50% (controlled)

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

This facility could be replicated at another site given sufficient time and funding (approximately \$14 million and two years for building construction, \$37 million for equipment/hardware procurement, and \$4 million for equipment and hardware installation and test).

Loss of the Missile HWIL Facility will prevent the Navy from complying with congressionally mandated objective test and evaluation of new and modified air intercept missile systems prior to deployment/production. Additionally, the Navy will be unable to reach conclusions concerning the system's technical suitability or to predict system effectiveness in combat environments/scenarios. This will impede the Navy's ability to develop system improvements, assess contractor performance, and provide missile life cycle support.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

Site construction of the facility was completed in January 1992. Two laboratories were moved into the facility in 1993, with initial operational capability in February 1994. The laboratory equipment was transported by a professional moving contractor that specialized in handling sensitive electronic equipment.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

2.2 Guided Missiles
3.2 Aircraft Combat System Integration
8.2 Countermeasures

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of full utilization of the laboratory based on a 40-hour workweek

<i>FY 89</i>	<i>FY 90</i>	<i>FY 91</i>	<i>FY 92</i>	<i>FY 93</i>
85	90	87	82	77

12. Provide the projected utilization data out to FY 1997.

<i>FY 94</i>	<i>FY 95</i>	<i>FY 96</i>	<i>FY 97</i>
63	75	85	80

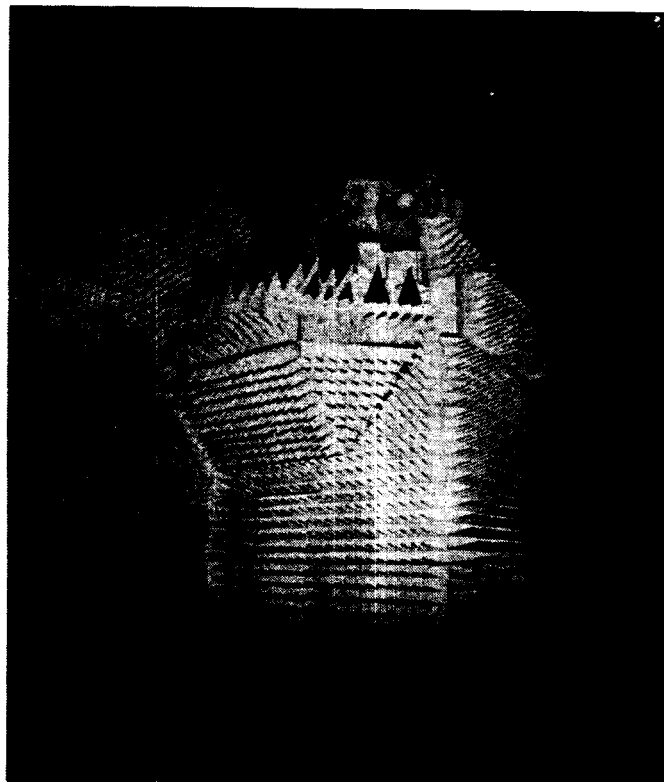
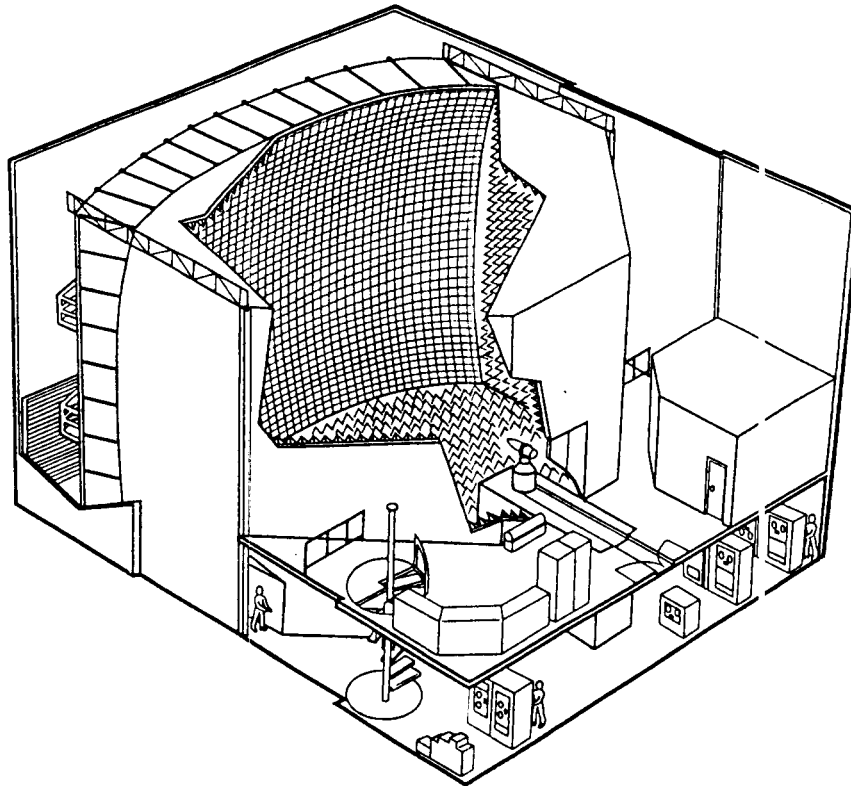
13. What is the approximate number of personnel used to operate the facility/equipment?

28 (this total includes the personnel identified in question #14).

14. What is the approximate number of personnel needed to maintain the equipment?

Eight people both operate and maintain this facility (this quantity is included in the number of personnel identified in question #13).

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Missile Hardware-In-The-Loop

TAB B

12

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	3. Intercept Weapons Evaluation Facility

1. State the primary purpose(s) of the facility/equipment.

Provides missile performance evaluation through the use of real time, post-flight, digital simulation, HWIL, and live missile flight test data analyses. Provides simulation capability and specialized data reduction, manipulation, and display. Processes telemetry data for missile performance assessment and TSPI radar data for flight trajectory analysis. Uses 6-DOF simulations to assess air-to-air missile system performance, including pre-flight risk assessment, kinematics assessment, and tactical situation matrix analysis. The facility also performs endgame analyses of all digital 6-DOF missile simulations, HWIL, and live missile flights to determine vector miss distance, fuze software and hardware evaluation, warhead effectiveness, and lethality and missile probability of kill analyses. Missile software source code is tested and evaluated to determine proper implementation, compliance with specifications, proper event sequence, I/O requirements, module interfaces, logic flow, and algorithm implementation.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Equipment in individual laboratories is considered portable. However, each laboratory is interconnected by a secure ethernet high data rate LAN system to provide digital simulation data transmission and simultaneous analysis of missile performance. The laboratories are also interconnected with the open air range and other test facilities to provide for joint system integration testing. This interconnect capability is synergetic to the facility and is not easily transportable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$8,969,000

4. Provide the gross weight and cube of the facility/equipment.

27 tons 17,500 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

188 amp, 210 VAC 60 Hz, 1 and 3 Phase 120 amp, 110/210 VAC 400 Hz
Ground Isolation and Filtered Power 100 amp, 28 VDC

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Acoustic isolation of 45 STC
1.5-ton hoist
Strong Room certification for unattended classified processing to the SECRET level

Secure LAN
Computer flooring

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Temperature range 68 - 72 degrees
Humidity range 40 - 50% relative (controlled)

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated at another site given sufficient time and funding (approximately \$7.8 million and 2 years for building construction, \$8 million for equipment/hardware procurement, and \$1 million for equipment/hardware installation and test).

Loss of the Intercept Weapons Evaluation Facility will prevent the Navy from complying with congressionally mandated objective test and evaluation of new and modified air intercept missile systems prior to deployment/production. Additionally, the Navy will be unable to reach conclusions concerning the system's technical suitability or to predict system effectiveness in combat environments/scenarios. The Navy's ability to develop system improvements, assess contractor performance, and provide missile life cycle support would be impeded.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Site construction was completed and initial operation of the Laboratory began in January 1992. Facility equipment was moved by a professional moving company that specialized in handling sensitive electronic equipment.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles
2.11 Weapons Fuzing
8.2 Countermeasures

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of full utilization of the laboratory based on 40-hour workweek

FY 89	FY 90	FY 91	FY 92	FY 93
80	80	70	65	60

TAB B

14

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12. Provide the projected utilization data out to FY 1997.

<i>FY 94</i>	<i>FY 95</i>	<i>FY 96</i>	<i>FY 97</i>
<i>60</i>	<i>60</i>	<i>65</i>	<i>65</i>

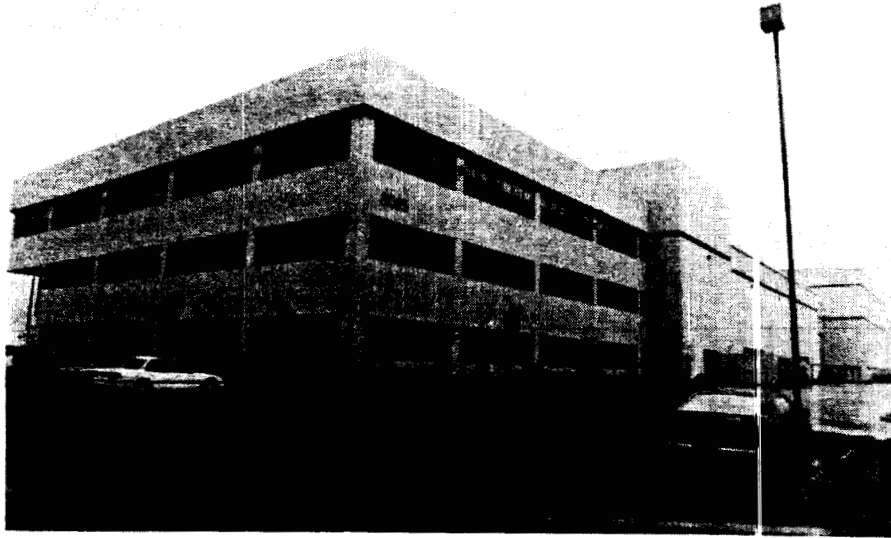
13. What is the approximate number of personnel used to operate the facility/equipment?

32 (this total includes the personnel identified in question #14).

14. What is the approximate number of personnel needed to maintain the equipment?

Three people both operate and maintain this facility (this quantity is included in the number of personnel identified in question #13).

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Intercept Weapons Systems Laboratory Evaluation Facility

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	4. Radar Reflectivity Laboratory

1. State the primary purpose(s) of the facility/equipment.

Provides near and far field monostatic and bistatic measurements of radar signatures of full scale missiles and other aerial targets up to 30 feet in length. Supports bistatic angles from 0 to 180 degrees within the VHF through W-band frequency range. Provides definition and diagnostic analyses of electromagnetic scattering and radiation measurements. Supports the development, planning, and analyses of flight test operations and engagement/ encounter simulations. Provides survivability analyses and development and test of low observable vehicles.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is classified as fixed; major and irreparable damage would be sustained to chamber equipment and hardware during the process of its disassembly, transport and reassembly.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$18 million

4. Provide the gross weight and cube of the facility/equipment.

111 tons 107,402 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

100 amp, 210 VAC 60 Hz, 1 and 3 Phase
42 amp, 480 VAC 60 Hz, 3 Phase
30 amp, 28 VDC
Ground Isolation and Filtered and Regulated Power
High Pressure Air

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Acoustic Isolation of 45 STC	Anechoic Chamber
Top Secret Physical Security	RF Shielded Room
RF Wave Guide	5 Ton Hoist
Secure LAN	
Reflector Stand Reinforced Foundation (Seismic protection to withstand a 5.0 Richter Scale earthquake)	

TAB B

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7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Temperature range 68 to 75 degrees
Humidity range 0 to 80% relative (controlled)

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated at another site given sufficient time and funding (approximately \$10 million and two years for building construction, \$18 million for equipment/hardware procurement, and \$1 million for equipment/hardware installation and test).

The bistatic laboratory is the only indoor chamber capable of near- and far-field monostatic and bistatic measurements of full scale aerial vehicles up to 30 feet in length from VHF through W-Band. Chambers similar to the monostatic capability exist at other government and contractor facilities. Loss of this unique facility will impact all three Services' and numerous contractors' ability to conduct bistatic measurements; develop, test, and counter low observable vehicles; and conduct engagement/encounter simulation and survivability analyses. Congressionally mandated weapons systems objective test and evaluation capability will be severely impaired by the loss of this facility.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Site construction for the Bistatic laboratory was completed and initial operation began in January 1992. The monostatic laboratory has been in operation for 30 years.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

- 1.1 Undersea Platform
- 1.2 Aircraft Platform
- 2.2 Guided Missiles
- 5.2 Radar Systems
- 8.1 Ballistic Missile Defense

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of full utilization of the laboratory based on a 40-hour workweek

FY 89	FY 90	FY 91	FY 92	FY 93
70	60	65	70	70

12. Provide the projected utilization data out to FY 1997.

FY 94	FY 95	FY 96	FY 97
80	85	80	80

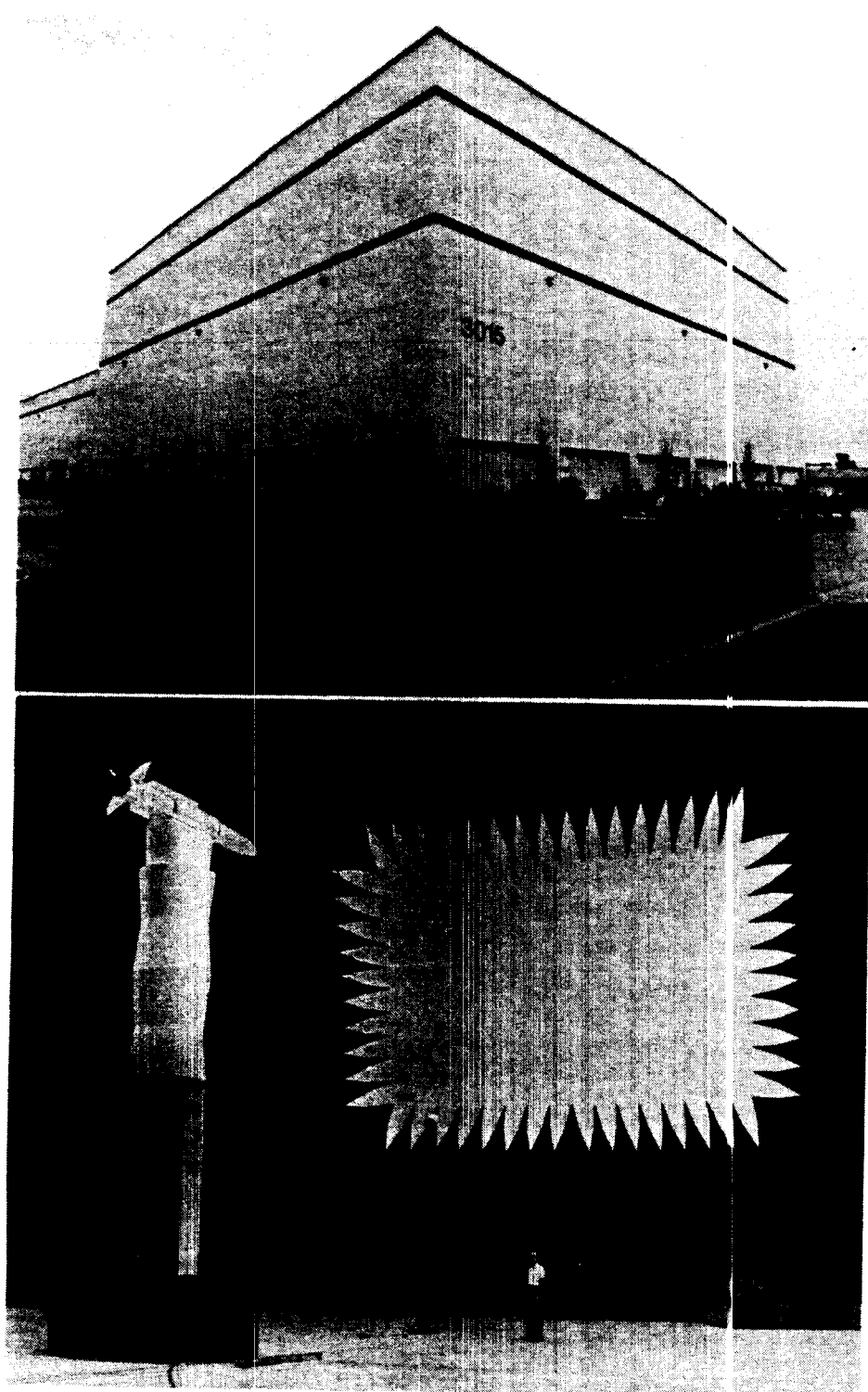
13. What is the approximate number of personnel used to operate the facility/equipment?

12 (this total number includes the personnel identified in question #14).

14. What is the approximate number of personnel needed to maintain the equipment?

One person both operates and maintains this facility (this person is included in the number of personnel identified in question #13).

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Radar Reflectivity Laboratory
TAB B
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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	5. Special Project Facilities

1. State the primary purpose(s) of the facility/equipment.

These facilities and equipment provide RDT&E for projects involving highly classified technology. These projects, which cannot be discussed here in detail for security reasons, are composed of various tasks involving all directorates at Point Mugu. NAWCWPNS Point Mugu offers a unique capability to test such systems in a sea environment, providing test results in real-life conditions. The number and size of these programs at Point Mugu have steadily increased over the past several years as a result of the successful test and evaluation of these highly classified systems.

The Special Projects capability to conduct RDT&E missions at the Point Mugu complex utilizing its unique land/sea relationship affords projects the capacity to develop and test systems in a marine environment, emulating conditions found at sea. The off-shore islands (San Nicolas Island, Santa Cruz Island) offer secure test facilities allowing effective under, on, and above water testing of highly classified projects.

Special Projects RDT&E includes test planning, operation execution, material acquisition, test site preparation, data collection, real time data analysis, post-operational data analysis, laboratory, simulation, and flight tests.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$50,000. Additional facilities and equipment utilized by special projects are incorporated into different sections of this tab.

4. Provide the gross weight and cube of the facility/equipment.

19,400 cubic feet office space

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

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6. *Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).*

NAWCWPNS Point Mugu currently has 19 facilities in which Special Projects are supported. These facilities were designed to meet DIAM 50-3 security requirements. These include engineering laboratories, classified storage facilities, ordnance assembly buildings, secure hangars, secure data reduction and analysis facilities, and computer facilities. Some of these facilities are specially designed and constructed to meet strict TEMPEST requirements. Radar cross section laboratories and chambers are utilized for Special Projects.

In addition, non-dedicated temporary secure working areas have been established, including test control rooms, telemetry processing and display areas, and data reduction and analysis facilities.

7. *State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).*

Normal environmental controls for computer based data processing and operational systems

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

The office space considered here could be relocated without extreme difficulty.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The facilities considered here were modified to meet DIAM 50-3 requirements in 1984.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

2.2 Guided Missiles
3.2 Air Combat System Integration
7.2 Airborne C3I
5.2 Radar Systems, 8.2 Countermeasures
8.3 Electronic Warfare Systems

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

95% of office spaces were occupied for the past 5 fiscal years.

12. *Provide the projected utilization data out to FY 1997.*

All spaces will be utilized 100% (10,000 square feet of additional spaces will be in utilization by FY 1997).

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13. What is the approximate number of personnel used to operate the facility/equipment?

10 people currently occupy these spaces. Personnel who are resident in other special project areas are listed separately in this tab.

14. What is the approximate number of personnel needed to maintain the equipment?

N/A

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

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5/24/94

AT

13. What is the approximate number of personnel used to operate the facility/equipment?

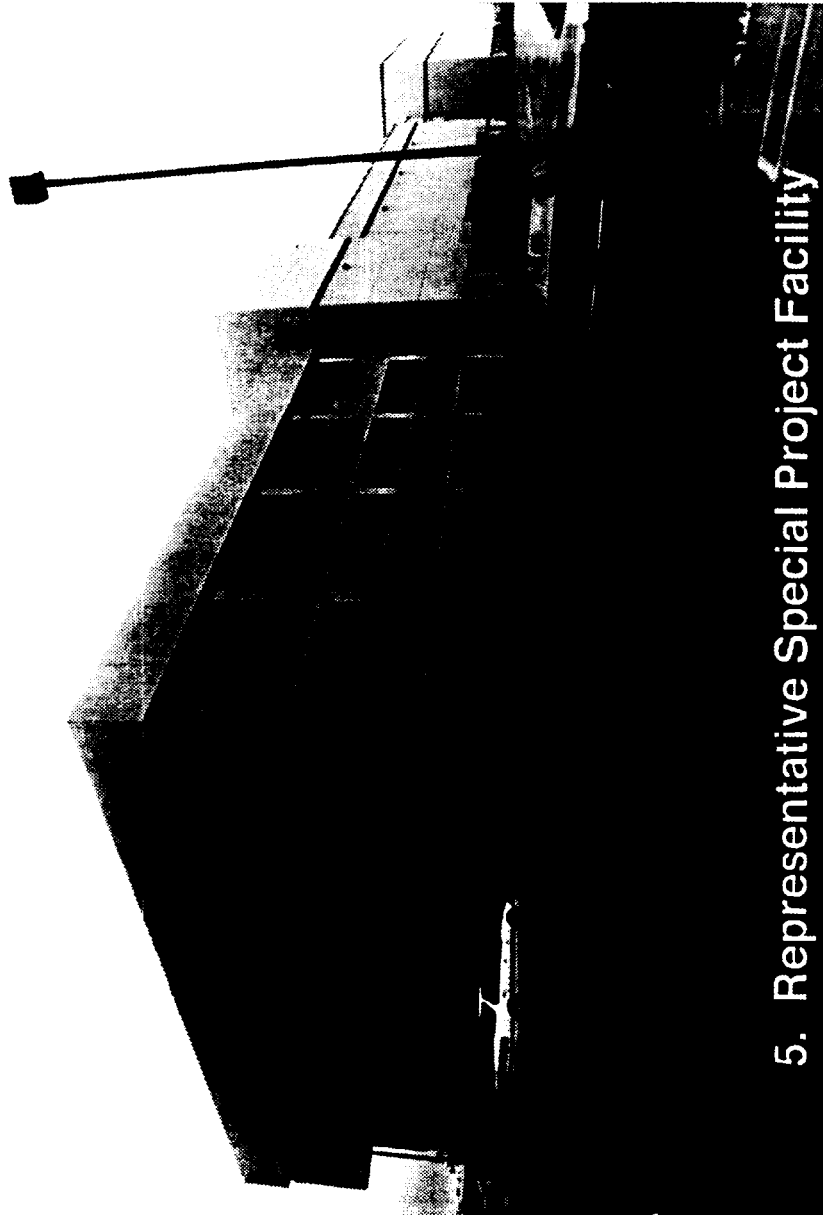
10 people currently occupy these spaces. Personnel who are resident in other special project areas are listed separately in this tab.

14. What is the approximate number of personnel needed to maintain the equipment?

N/A

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

A photograph of these facilities will not be provided because of security restrictions.



5. Representative Special Project Facility

TAB B
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NAWCHQ Change 1
5/24/94

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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	6. Warning and Surveillance Systems

1. State the primary purpose(s) of the facility/equipment.

Serves as the principal technical systems engineering agent for Naval Air Systems Command for the development, acquisition, test, and support of multi-spectral EW Warning and Surveillance systems and suites for tactical Navy aircraft, Foreign Military Sales customers, and Joint Service programs. Provides life cycle support that encompasses the design, development, systems engineering, test, verification, validation, integration, production support, acceptance, quality assurance, Fleet introduction, configuration management, distribution, control, modification, post-deployment software support, and Fleet support of assigned systems and related software. Provides quick reaction and rapid reprogramming capability to deployed Fleet systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

All assets are moveable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$1,825,000

4. Provide the gross weight and cube of the facility/equipment.

18.5 tons 5,800 cubic feet

NAWCHQ Chang
AMS NAUC-21
9/20/91

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	6. Warning and Surveillance Systems

1. State the primary purpose(s) of the facility/equipment.

Serves as the principal technical systems engineering agent for Naval Air Systems Command for the development, acquisition, test, and support of multi-spectral EW Warning and Surveillance systems and suites for tactical Navy aircraft, Foreign Military Sales customers, and Joint Service programs. Provides life cycle support that encompasses the design, development, systems engineering, test, verification, validation, integration, production support, acceptance, quality assurance, Fleet introduction, configuration management, distribution, control, modification, post-deployment software support, and Fleet support of assigned systems and related software. Provides quick reaction and rapid reprogramming capability to deploy Fleet systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All assets are moveable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$1,825,000

4. Provide the gross weight and cube of the facility/equipment.

18.5 tons 5,800 cubic feet

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	6. Warning and Surveillance Systems

1. State the primary purpose(s) of the facility/equipment.

Serves as the principal technical systems engineering agent for Naval Air Systems Command for the development, acquisition, test, and support of multi-spectral EW Warning and Surveillance systems and suites for tactical Navy aircraft, Foreign Military Sales customers, and Joint Service programs. Provides life cycle support that encompasses the design, development, systems engineering, test, verification, validation, integration, production support, acceptance, quality assurance, Fleet introduction, configuration management, distribution, control, modification, post-deployment software support, and Fleet support of assigned systems and related software. Provides quick reaction and rapid reprogramming capability to deployed Fleet systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$1,825,000

4. Provide the gross weight and cube of the facility/equipment.

18.5 tons 5,800 cubic feet

TAB B

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5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

None

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

RF shielding is required to isolate test operations from the outside environment as well as to partition within the facility to allow for multiple testing.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Temperature and humidity controls must allow for maintaining the test area compatible with typical high density electronics and computer system operation.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Loss of the facility would delay or halt the development and support of critical warning and surveillance systems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The facility was provided as a result of a Military Construction Project. Equipment was purchased and installed separately.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

8.3 Electronic Warfare (EW) Systems

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

1989	1990	1991	1992	1993
110%	130%	130%	110%	110%

12. Provide the projected utilization data out to FY 1997.

1994	1995	1996	1997
110%	1100%	90%	90%

13. What is the approximate number of personnel used to operate the facility/equipment?

5

14. What is the approximate number of personnel needed to maintain the equipment?

1

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Warning and Surveillance Systems

R

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	7. Electronic Warfare Countermeasure Systems Capability

1. State the primary purpose(s) of the facility/equipment.

Acquisition, development, test, integration, and evaluation of multi-spectral self-protection electronic warfare countermeasures system. Provide threat assessments and develop and improve countermeasures techniques for these on-board/off-board countermeasures systems. Incorporate countermeasures techniques that are effective and increase aircraft survivability and mission success. Produce and deliver software user data files for deployed countermeasures systems that reflect threat changes as required by the Fleet. Increase the survivability of fixed and rotary wing aircraft that use lightweight electronic warfare systems. Integrate electronic warfare responses to provide optimum utilization of aircraft sensors and tactics. Maintain engineering expertise and facilities for the analysis and exploitation of foreign electronic warfare and weapon systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

Electro-optical modeling and simulation lab (moveable)
ALE-47 Integration Test Bench (moveable)
ALE-50 Power Up Test Set (PUTS) (moveable)

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$2.8 million

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	7. Electronic Warfare Countermeasure Systems Capability

1. State the primary purpose(s) of the facility/equipment.

Acquisition, development, test, integration, and evaluation of multi-spectral self-protection electronic warfare countermeasures system. Provide threat assessments and develop and improve countermeasures techniques for these on-board/off-board countermeasures systems. Incorporate countermeasures techniques that are effective and increase aircraft survivability and mission success. Produce and deliver software user data files for deployed countermeasures systems that reflect threat changes as required by the Fleet. Increase the survivability of fixed and rotary wing aircraft that use lightweight electronic warfare systems. Integrate electronic warfare responses to provide optimum utilization of aircraft sensors and tactics. Maintain engineering expertise and facilities for the analysis and exploitation of foreign electronic warfare and weapon systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Electro-optical modeling and simulation lab (moveable)
ALE-47 Integration Test Bench (moveable)
ALE-50 Power Up Test Set (PUTS) (moveable)

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$2.8 million

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	7. Electronic Warfare Countermeasure Systems Capability

1. State the primary purpose(s) of the facility/equipment.

Acquisition, development, test, integration, and evaluation of multi-spectral self-protection electronic warfare countermeasures system. Provide threat assessments and develop and improve countermeasures techniques for these on-board/off-board countermeasures systems. Incorporate countermeasures techniques that are effective and increase aircraft survivability and mission success. Produce and deliver software user data files for deployed countermeasures systems that reflect threat changes as required by the Fleet. Increase the survivability of fixed and rotary wing aircraft that use lightweight electronic warfare systems. Integrate electronic warfare responses to provide optimum utilization of aircraft sensors and tactics. Maintain engineering expertise and facilities for the analysis and exploitation of foreign electronic warfare and weapon systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$2.8 million

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4. Provide the gross weight and cube of the facility/equipment.

1.9 tons 2,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Cooling (for ASPJ Environmental Conditioned System) 8VDC, 400-Hz, three-phase power (for ALE-47, ALQ-162, ALQ-126, 165) 50-Hz, 220VAC for FMS Secure Room (TEMPEST qualified); airfield for aircraft flight checks

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Shielding, RF absorbing material (for anechoic chamber)

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Laboratory type temperature and humidity control

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Electro-optical modeling and simulation lab (moveable, difficult to relocate)
ALE-47 Integration Test Bench and ALE-50 Power Up Test Set (PUTS) (moveable; easy to relocate; if lost, high increase in test time and cost but low impact to TACAIR EW readiness)

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Normal commercial surface shipping (shock isolated) moving vans

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Electronic Countermeasures
F-14, F-18, AV-8, HH-60H, V-22, FMS, EA-6B, A-6
Armament/Weapons (HARM)
Other T&E

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

1989	1990	1991	1992	1993
NA	NA	NA	50%	80%

Rev.

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12. Provide the projected utilization data out to FY 1997.

<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>
<i>80%</i>	<i>85%</i>	<i>85%</i>	<i>80%</i>

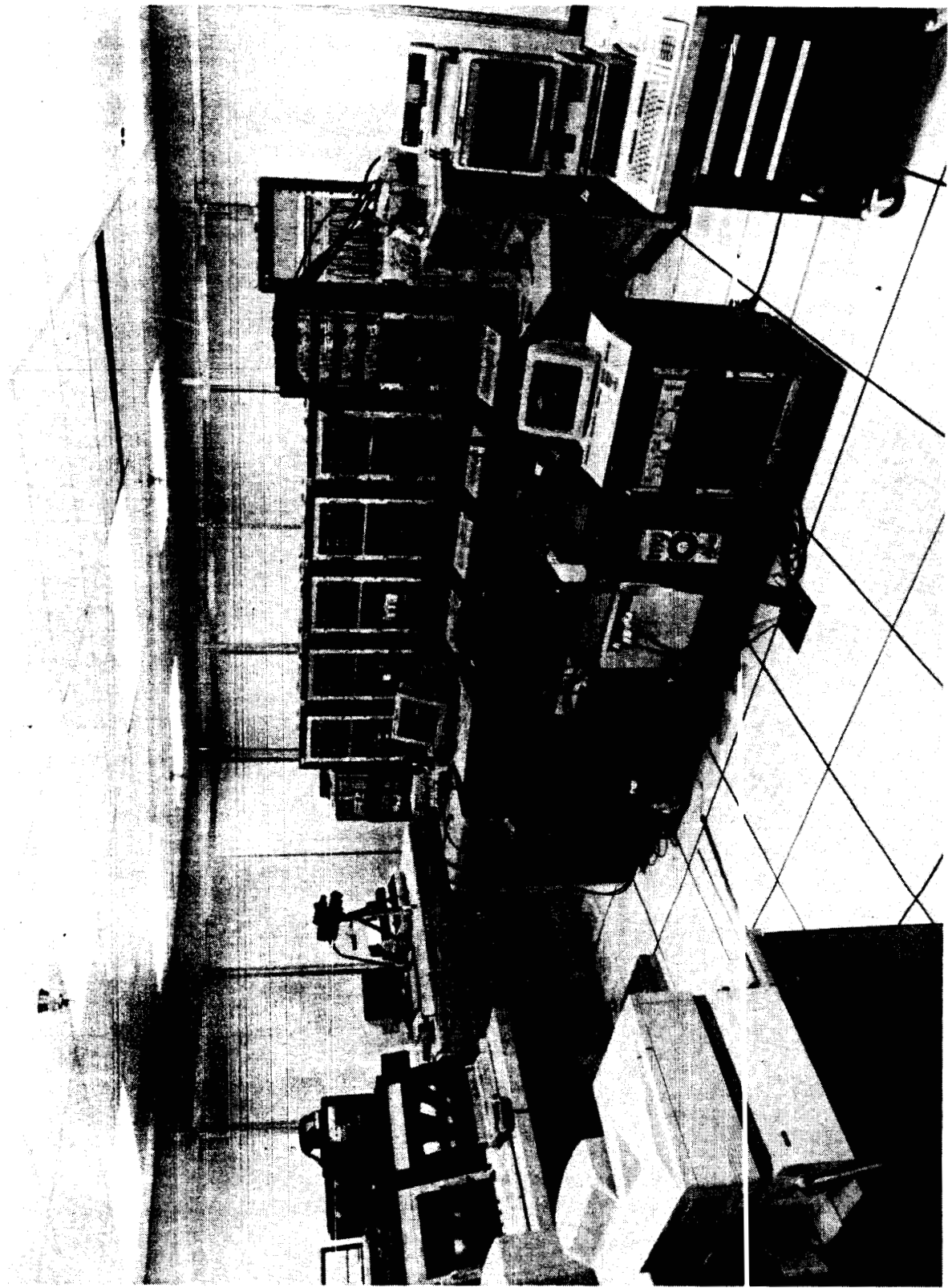
13. What is the approximate number of personnel used to operate the facility/equipment?

50

14. What is the approximate number of personnel needed to maintain the equipment?

4

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Electronic Warfare Countermeasure Systems Capability

R

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	8. EW/Radar Support Equipment

1. State the primary purpose(s) of the facility/equipment.

Acquisition, development, integration, test, and evaluation of Organizational Level Support Equipment (SE) for EW and Radar avionics systems. Design, development, test, evaluation, and pre-production fabrication of the Rapid Reprogramming software data loader. Acquisition, test, and evaluation of Intermediate Level SE for EW and Radar avionics systems. Logistics engineering support for prime avionic systems and SE.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

All system are moveable class 2.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$11,653,000

4. Provide the gross weight and cube of the facility/equipment.

26.8 tons 329,000 cubic feet

NAWCHQ Change
AMS NAWC-21
9/20/91

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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	8. EW/Radar Support Equipment

1. State the primary purpose(s) of the facility/equipment.

Acquisition, development, integration, test, and evaluation of Organizational Level Support Equipment (SE) for EW and Radar avionics systems. Design, development, test, evaluation, and pre-production fabrication of the Rapid Reprogramming software data loader. Acquisition, test, and evaluation of Intermediate Level SE for EW and Radar avionics systems. Logistics engineering support for prime avionic systems and SE.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All systems are moveable class 2.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$11,653,000

4. Provide the gross weight and cube of the facility/equipment.

26.8 tons 329,000 cubic feet

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	8. EW/Radar Support Equipment

1. State the primary purpose(s) of the facility/equipment.

Acquisition, development, integration, test, and evaluation of Organizational Level Support Equipment (SE) for EW and Radar avionics systems. Design, development, test, evaluation, and pre-production fabrication of the Rapid Reprogramming software data loader. Acquisition, test, and evaluation of Intermediate Level SE for EW and Radar avionics systems. Logistics engineering support for prime avionic systems and SE.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$11,653,000

4. Provide the gross weight and cube of the facility/equipment.

26.8 tons 329,000 cubic feet

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5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Three-phase, 400-Hz power, and +28 volts DC

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Physical security and RF shielding

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

None

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This combination of facility and equipment is the only one in DoD and would be extremely difficult to replicate or relocate and to put back into operation if moved. Also relocation would result in a loss of this unique capability for at least 6 months based upon past experience. Loss would severely impact the Navy's TACAIR EW readiness. The facility has also been used for U.S. Air Force support systems development.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Constructed on site in 1988 by Government/Contractor efforts

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Air Vehicles - Avionics

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

1989	1990	1991	1992	1993
100	100	100	100	100

12. Provide the projected utilization data out to FY 1997.

1994	1995	1996	1997
100	100	100	100

13. What is the approximate number of personnel used to operate the facility/equipment?

50

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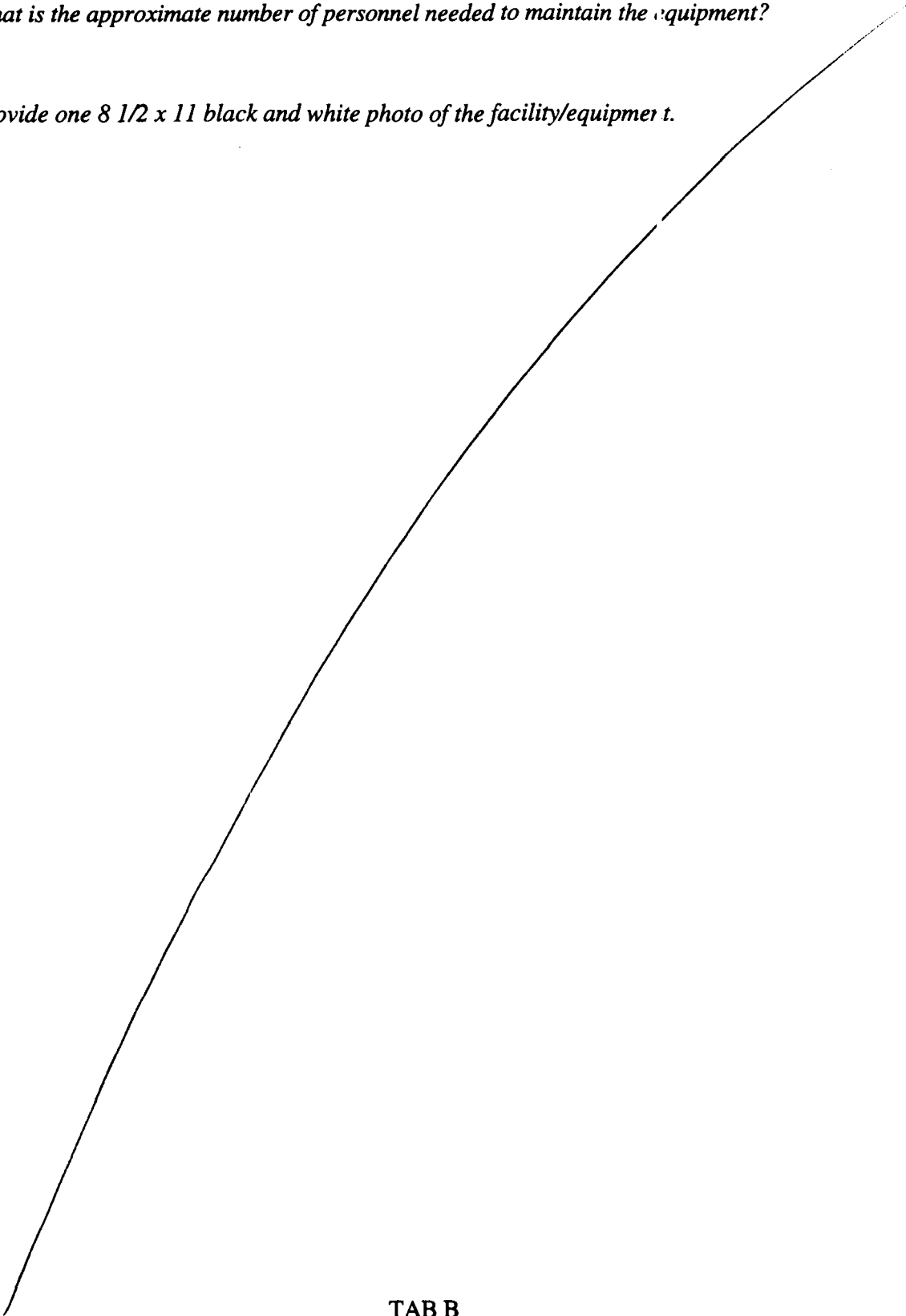
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14. What is the approximate number of personnel needed to maintain the equipment?

4

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.





EW Radar Support Equipment

TAB B
35

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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	9. EA-6B Systems

1. State the primary purpose(s) of the facility/equipment.

The EA-6B Systems Facility is a systems engineering center for the development and Fleet support of assigned Navy and Marine Corps Electronic Warfare and Intelligence support systems. This facility is responsible for utilizing advanced technologies and techniques to provide these engineering services and has been assigned by COMNAVAIRSYSCOM as the Systems Weapons System Support Activity for the EA-6B Tactical Jamming System. The facility is responsible for providing engineering services for these systems in specific areas, including the definition and specification of new and improved systems in response to user and sponsor requirements or intelligence updates; the development of both hardware and software systems for support jamming, mission planning, mission analysis and support, and intelligence support; and the production support, testing, quality assurance, and in-service engineering for these systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

The following specialized facilities support the development and in-service engineering efforts within the EA-6B Systems facility: EA-6B Weapons System Support Laboratory (WSSL)- moveable, EA-6B Electronic Warfare Data Support (EWDS) Laboratory- moveable, Jammer Technique Optimization (JATO) Mobile Test Vehicles (MTV)- portable, and EA-6B Advanced Development Laboratory (ADL)- moveable. The facility contains class 2 equipment, and supports an EA-6B Weapons System Support Activity (WSSA), containing aircraft avionics and digital stimulations and simulations as well as threat simulations.

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(30 August 1994)

NAWCWPNS Change
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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	9. EA-6B Systems

1. State the primary purpose(s) of the facility/equipment.

The EA-6B Systems Facility is a systems engineering center for the development and Fleet support of assigned Navy and Marine Corps Electronic Warfare and Intelligence support systems. This facility is responsible for utilizing advanced technologies and techniques to provide these engineering services and has been assigned by COMNAVAIRSYSCOM as the Systems Weapons System Support Activity for the EA-6B Tactical Jamming System. The facility is responsible for providing engineering services for these systems in specific areas, including the definition and specification of new and improved systems in response to user and sponsor requirements or intelligence updates; the development of both hardware and software systems for support jamming, mission planning, mission analysis and support, and intelligence support; and the production support, testing, quality assurance, and in-service engineering for these systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The following specialized facilities support the development and in-service engineering efforts within the EA-6B Systems facility: EA-6B Weapons System Support Laboratory (WSSL) - movable, EA-6B Electronic Warfare Data Support (EWDS) Laboratory - movable, Jammer Technique Optimization (JATO) Mobile Test Vehicles (MTV) - portable, and EA-6B Advanced Development Laboratory (ADL) - movable. The facility contains class 2 equipment, and supports an EA-6B Weapons System Support Activity (WSSA), containing aircraft avionics and digital stimulations and simulations as well as threat simulations.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$60 million

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	9. EA-6B Systems

1. State the primary purpose(s) of the facility/equipment.

The EA-6B Systems Facility is a systems engineering center for the development and Fleet support of assigned Navy and Marine Corps Electronic Warfare and Intelligence support systems. This facility is responsible for utilizing advanced technologies and techniques to provide these engineering services and has been assigned by COMNAVAIRSYSCOM as the Systems Weapons System Support Activity for the EA-6B Tactical Jamming System. The facility is responsible for providing engineering services for these systems in specific areas, including the definition and specification of new and improved systems in response to user and sponsor requirements or intelligence updates; the development of both hardware and software systems for support jamming, mission planning, mission analysis and support, and intelligence support; and the production support, testing, quality assurance, and in-service engineering for these systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$60 million

TAB B

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3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$60 million

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(30 August 1994)

4. Provide the gross weight and cube of the facility/equipment.

59.02 tons 6,421 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Electrical power: three-phase, 400-Hz (300 amps); three-phase, 60-Hz (450 amps)
Forced chill air
Raised flooring
Air conditioning (humidity and temperature control)

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Tempest Shielding
Intrusion Detection/Security Monitoring
R1 Combination Lock

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Control over humidity and temperature, and independent light control

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Currently, Point Mugu has the only facility that can function as the EA-6B WSSA. These roles and capabilities are unique in DoD. It is unclear whether the support supplied by EA-6B WSSA and Intelligence support work could be duplicated in the long term in the industrial base.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The original EA-6B Weapons Systems Support Laboratory (WSSL) was constructed at Point Mugu in 1973. The most recent significant upgrade impacting over 80% of the avionics was completed in 1987. The construction of the entire facility was performed at Point Mugu.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Countermeasures
Functional support is Electronic Combat.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of full utilization based on a 40-hour workweek

<i>1989</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>	<i>1993</i>
120%	200%	125%	125%	125%

12. Provide the projected utilization data out to FY 1997.

<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>
125%	125%	125%	125%

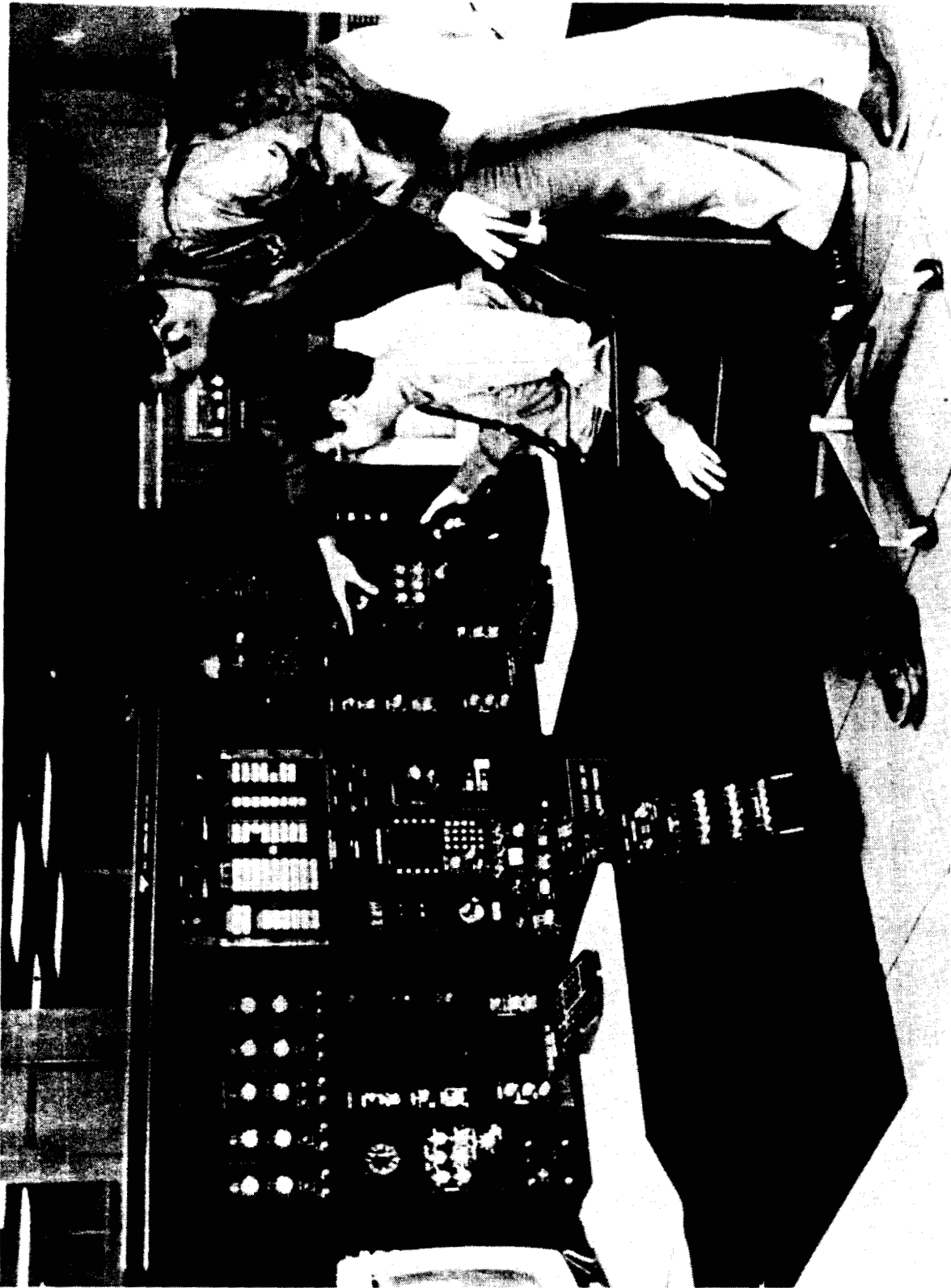
13. What is the approximate number of personnel used to operate the facility/equipment?

83

14. What is the approximate number of personnel needed to maintain the equipment?

8

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



EA-6B Systems

Revised page

SPECIAL FACILITIES AND EQUIPMENT FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	10. Information Warfare Systems Lab

1. State the primary purpose(s) of the facility/equipment.

The Mission of the Information Warfare Systems Laboratory Complex is to conceive, develop, and deploy software and hardware products that result in the seamless integration of automated mission planning and intelligence systems in a common operating environment. This complex provides full support for the design, development, integration, training, rapid prototyping, and life cycle support of the new fully open architecture Tactical Aircraft Mission Planning System (TAMPS) version 6.0 and beyond, and the Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES). Personnel define and specify new and improved systems in response to Fleet requirements and intelligence data.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All systems are class 3 or moveable class 2.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$4.4 million

4. Provide the gross weight and cube of the facility/equipment.

68.5 tons 33,000 cubic feet

AS

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Secure communication lines with fiber links and T1 lines
Tactical Receive Equipment (TRE) antenna structure
Access to secure networks
Three-phase 400-Hz power

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Maintenance of RF and acoustically shielded enclosures

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Air conditioning and humidity control

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Loss of this facility would cause a severe impact to Fleet readiness in the areas of mission planning and intelligence processing as this is the only site currently capable of developing the next generation version of these systems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The IWS Lab Complex was developed over the past 21 years at the Point Mugu site, with significant improvement and upgrade occurring in the last 3 years.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

The IWS Lab Complex supports all of the C4I Common Support Areas, including Airborne, Fixed Ground-Based, and Ground Mobile.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of full utilization based on a 40-hour workweek

1989	1990	1991	1992	1993
150	200	150	150	250

12. Provide the projected utilization data out to FY 1997.

<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>
150	200	200	200

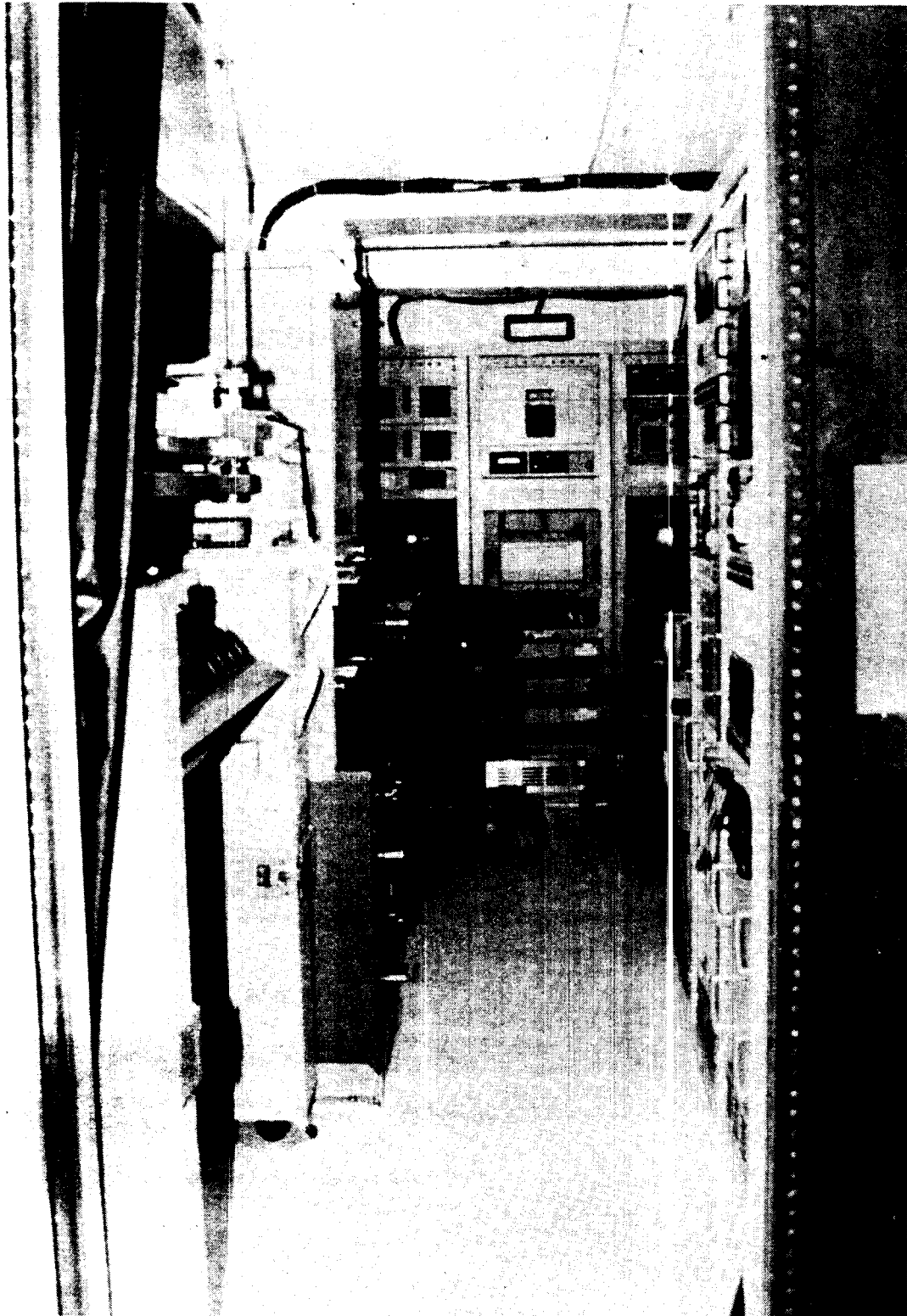
13. What is the approximate number of personnel used to operate the facility/equipment?

50

14. What is the approximate number of personnel needed to maintain the equipment?

3

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Information Warfare Systems Lab

TAB B

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SPECIAL FACILITIES AND EQUIPMENT FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	11. Laser and Stabilized Optics

1. State the primary purpose(s) of the facility/equipment.

The Laser and Stabilized Optics Facility provides two technologically related support capabilities. The Advanced Training capability provides direct Fleet support for training in the delivery of laser guided and imaging weapons systems, including design, fabrication, test, installation, and life cycle support of hardware and software installed at Navy Tactical Training Ranges and deployed Battle Groups worldwide. The Stabilized Optics capability provides direct Fleet support for acquiring high resolution imagery from moving platforms, including design, fabrication, test, installation, and life cycle support of hardware and software operating as platform integrated optical data collection systems. The facility provides computer aided hardware design, software design, electronic and optical test (Class IV laser), configuration management, depot level electro-optical repair, and deployable support.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All systems are class 3 or moveable class 2.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$3.64 million

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	11. Laser and Stabilized Optics

1. State the primary purpose(s) of the facility/equipment.

The Laser and Stabilized Optics Facility provides two technologically related support capabilities. The Advanced Training capability provides direct Fleet support for training in the delivery of laser guided and imaging weapons systems, including design, fabrication, test, installation, and life cycle support of hardware and software installed at Navy Tactical Training Ranges and deployed Battle Groups worldwide. The Stabilized Optics capability provides direct Fleet support for acquiring high resolution imagery from moving platforms, including design, fabrication, test, installation, and life cycle support of hardware and software operating as platform integrated optical data collection systems. The facility provides computer aided hardware design, software design, electronic and optical test (Class IV laser), configuration management, depot level electro-optical repair, and deployable support.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$3.64 million

R

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	11. Laser and Stabilized Optics

1. State the primary purpose(s) of the facility/equipment.

The Laser and Stabilized Optics Facility provides two technologically related support capabilities. The Advanced Training capability provides direct Fleet support for training in the delivery of laser guided and imaging weapons systems, including design, fabrication, test, installation, and life cycle support of hardware and software installed at Navy Tactical Training Ranges and deployed Battle Groups worldwide. The Stabilized Optics capability provides direct Fleet support for acquiring high resolution imagery from moving platforms, including design, fabrication, test, installation, and life cycle support of hardware and software operating as platform integrated optical data collection systems. The facility provides computer aided hardware design, software design, electronic and optical test (Class IV laser), configuration management, depot level electro-optical repair, and deployable support.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

All systems are class 3 or moveable class 2.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$3.64 million

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9/20/91

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4. Provide the gross weight and cube of the facility/equipment.

10 tons 15,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

3-phase power

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

RF shielding is required to isolate test operations from the outside environment and to partition within the ECSEL. The 2-axis rate table that is part of the semi-active missile simulation requires extra foundation support.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Temperature and humidity control, positive pressure air filtration

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Commonly available within and outside of government

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

MILCON/Planned improvements since 1963

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

5.3 Special Sensors

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of full utilization based on a 40-hour workweek

1989	1990	1991	1992	1993
100%	100%	100%	100%	75%

12. Provide the projected utilization data out to FY 1997.

1994	1995	1996	1997
100%	100%	100%	100%

13. What is the approximate number of personnel used to operate the facility/equipment?

22

14. What is the approximate number of personnel needed to maintain the equipment?

4

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

R

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	10. Information Warfare Systems Lab

1. State the primary purpose(s) of the facility/equipment.

The Mission of the Information Warfare Systems Laboratory Complex is to conceive, develop, and deploy software and hardware products that result in the seamless integration of automated mission planning and intelligence systems in a common operating environment. This complex provides full support for the design, development, integration, training, rapid prototyping, and life cycle support of the new fully open architecture Tactical Aircraft Mission Planning System (TAMPS) version 6.0 and beyond, and the Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES). Personnel define and specify new and improved systems in response to Fleet requirements and intelligence data.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land. Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

All systems are class 3 or moveable class 2.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$4.4 million

4. Provide the gross weight and cube of the facility/equipment.

68.5 tons 33,000 cubic feet

NAWC HQ Chang
LWS NAWC-21
9/20/91

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Laser and Stabilized Optics

TAB B

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5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Secure communication lines with fiber links and T1 lines
Tactical Receive Equipment (TRE) antenna structure
Access to secure networks
Three-phase 400-Hz power

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Maintenance of RF and acoustically shielded enclosures

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Air conditioning and humidity control

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Loss of this facility would cause a severe impact to Fleet readiness in the areas of mission planning and intelligence processing as this is the only site currently capable of developing the next generation version of these systems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The IWS Lab Complex was developed over the past 21 years at the Point Mugu site, with significant improvement and upgrade occurring in the last 3 years.

NAWCWC Change
IWS NAWC-21
9/26 94

TAB B
48R
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R

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	12. Airborne Infrared Measurements Capability

1. State the primary purpose(s) of the facility/equipment.

This facility tests effectiveness of decoy flares in protecting U.S. aircraft from infrared-guided missiles, performs lot acceptance testing of Navy flares, performs aircraft store separation photo analysis, and performs tests and evaluations of ground support equipment and software for aircraft electronic warfare systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

All systems are class 3 or moveable class 2.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$15 million

4. Provide the gross weight and cube of the facility/equipment.

119 tons 100,000 cubic feet

NAWCWPNS Change
CWS NAWC-21
9/20/91

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	12. Airborne Infrared Measurements Capability

1. State the primary purpose(s) of the facility/equipment.

This facility tests effectiveness of decoy flares in protecting U.S. aircraft from infrared-guided missiles, performs lot acceptance testing of Navy flares, performs aircraft store separation photo analysis, and performs tests and evaluations of ground support equipment and software for aircraft electronic warfare systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

All systems are class 3 or moveable class 2.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$15 million

4. Provide the gross weight and cube of the facility/equipment.

119 tons 100,000 cubic feet

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	12. Airborne Infrared Measurements Capability

1. State the primary purpose(s) of the facility/equipment.

This facility tests effectiveness of decoy flares in protecting U.S. air craft from infrared-guided missiles, performs lot acceptance testing of Navy flares, performs air craft store separation photo analysis, and performs tests and evaluations of ground support equipment and software for aircraft electronic warfare systems.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$15 million

4. Provide the gross weight and cube of the facility/equipment.

119 tons 100,000 cubic feet

R.

BRAC 95 DATA CALL #5

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ACTIVITY UIC: 63126

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TAB B
56/2
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*NAWC Change
anus NAWC-21
11/20/94*

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

This facility requires three F-4 aircraft, aircraft maintenance, and airfield facilities to support airborne missions, and two Sgt. York air defense vehicles to support ground based missions.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

None

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Computer and photo analysis systems require a temperature and humidity controlled environment

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The expertise and experience of the engineers and technicians. Loss of this capability would cause increased or unknown vulnerability of US. aircraft to threat anti-aircraft missiles.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

All facility systems were constructed on site by government and military personnel.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

8.2 Countermeasures (CM)

8.3 Electronic Warfare (EW) Systems

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of full utilization based on a 40-hour workweek

1989	1990	1991	1992	1993
100	100	100	100	100

12. Provide the projected utilization data out to FY 1997.

1994	1995	1996	1997
100	100	100	100

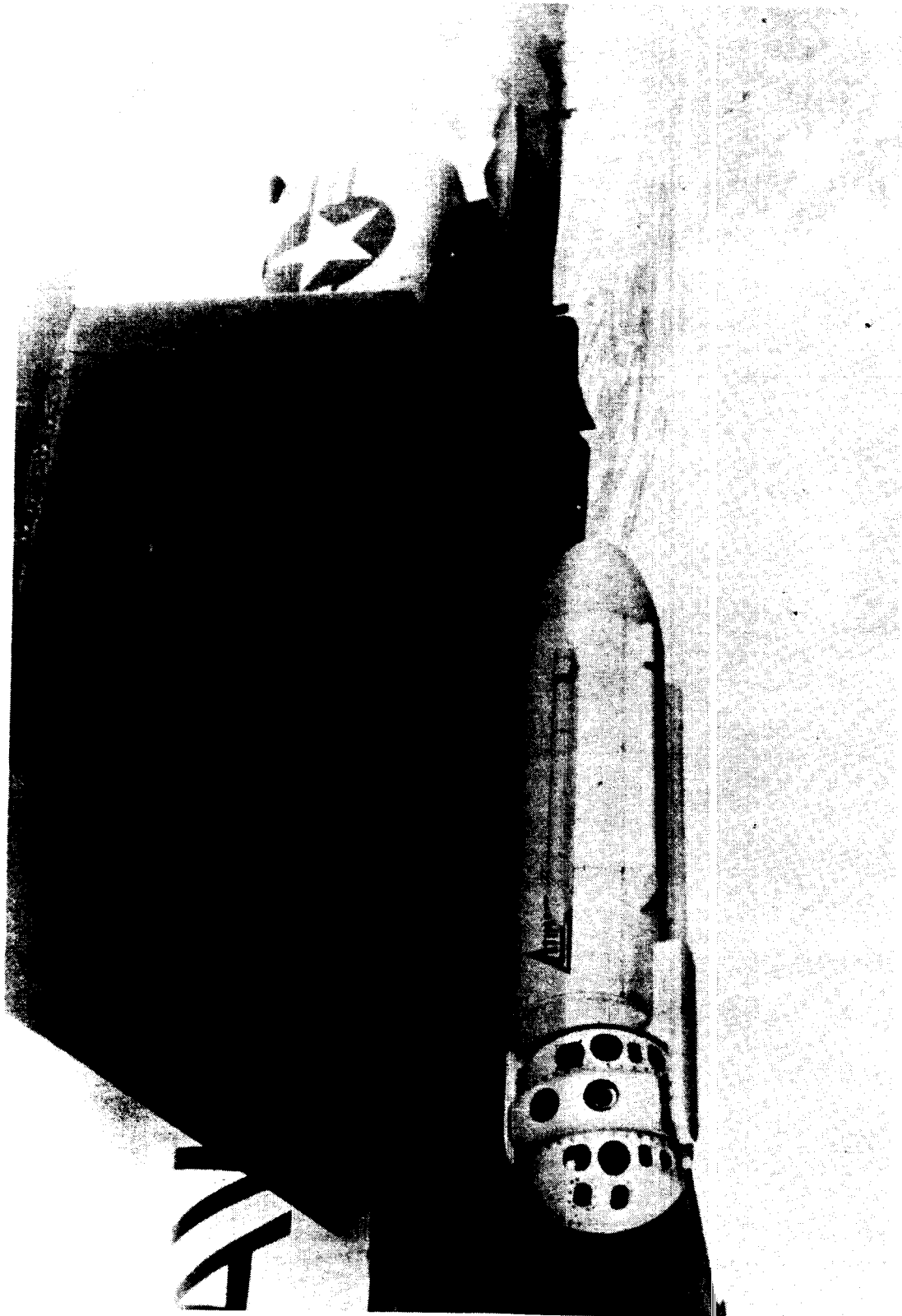
13. What is the approximate number of personnel used to operate the facility/equipment?

12

14. What is the approximate number of personnel needed to maintain the equipment?

12

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Airborne Infrared Measurements Capability

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	13. Electronic Combat Simulation and Evaluation Laboratory (ECSEL)

1. State the primary purpose(s) of the facility/equipment.

The ECSEL is the Department of Navy's principal laboratory complex for research and development and in-service engineering support of Naval airborne electronic warfare equipment. This modern, secure laboratory facility develops, operates, and maintains simulations that replicate the functional characteristics and performance of threat weapon systems. The ECSEL's Advanced Multiple Environment Simulator family of open-loop simulations provides a dense electromagnetic environment of land-based, naval, and airborne threat weapon systems. Frequency coverage is from 100 KHz to 96 GHz. Specific closed-loop simulators include a modern threat surface-to-air missile system, the Radar Equipment Simulator, the Semi-Active Test System, and the Early Warning/Acquisition System. EW systems workstations provide prime power, avionics, computer, and simulator interfaces for Naval aircraft radar warning receivers and jammers. Research and development testing of developmental EW equipment, software support for systems currently in the Fleet, integration support, and techniques development and optimization are routinely performed in the ECSEL.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B. This HWIL facility consists of the following resources (each item has a replacement value of over \$500,000):

TAB B

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- Open Loop RF Environment Generators
AMES I, AMES II, and Micro-AMES simulators
Communications Environment Generator
Programmable Signal Generator
Moveable
Moveable
Moveable
- Closed Loop RF Threat Simulators
Naval Medium and Long Range SAM systems
Naval Early Warning Radar
Semi-Active Missiles
Moveable
Moveable
Fixed
- EW System Workstations
Reconfigurable Aircraft Station
F-18A/C F-14A/B A-6 EA-6B
Component Stations
ALR-67 ALQ-126B ALQ-165 ALQ-162 ALE-47 APR-39/AVR-2/AAR-47
Moveable
Moveable

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$57 million

4. Provide the gross weight and cube of the facility/equipment.

16 tons 1,500 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

The facility requires 400-Hz, three-phase power and high pressure air to operate certain EW systems. An uninterruptable power supply is required to maintain facility operations in emergencies. Hydraulic power is required for the semi-active missile simulator.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

RF shielding is required to isolate test operations from the outside environment as to partition within the ECSEL. The 2-axis rate table that is part of the semi-active missile simulation requires extra foundation support.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Temperature and humidity must be maintained at proper levels for computer operation.

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

Loss of this facility would slow or halt the development and support of critical Navy Electronic Warfare Systems.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

Equipment within the facility has been developed both in house and at contractor sites. When constructed at the contractor site, equipment was shipped via truck to ECSEL.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

8.2 Countermeasures (CM)

8.3 Electronic Warfare (EW) Systems

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

Percent of full utilization based on a 40-hour workweek

1989	1990	1991	1992	1993
120	140	200	140	100

12. *Provide the projected utilization data out to FY 1997.*

1994	1995	1996	1997
87%	87%	87%	87%

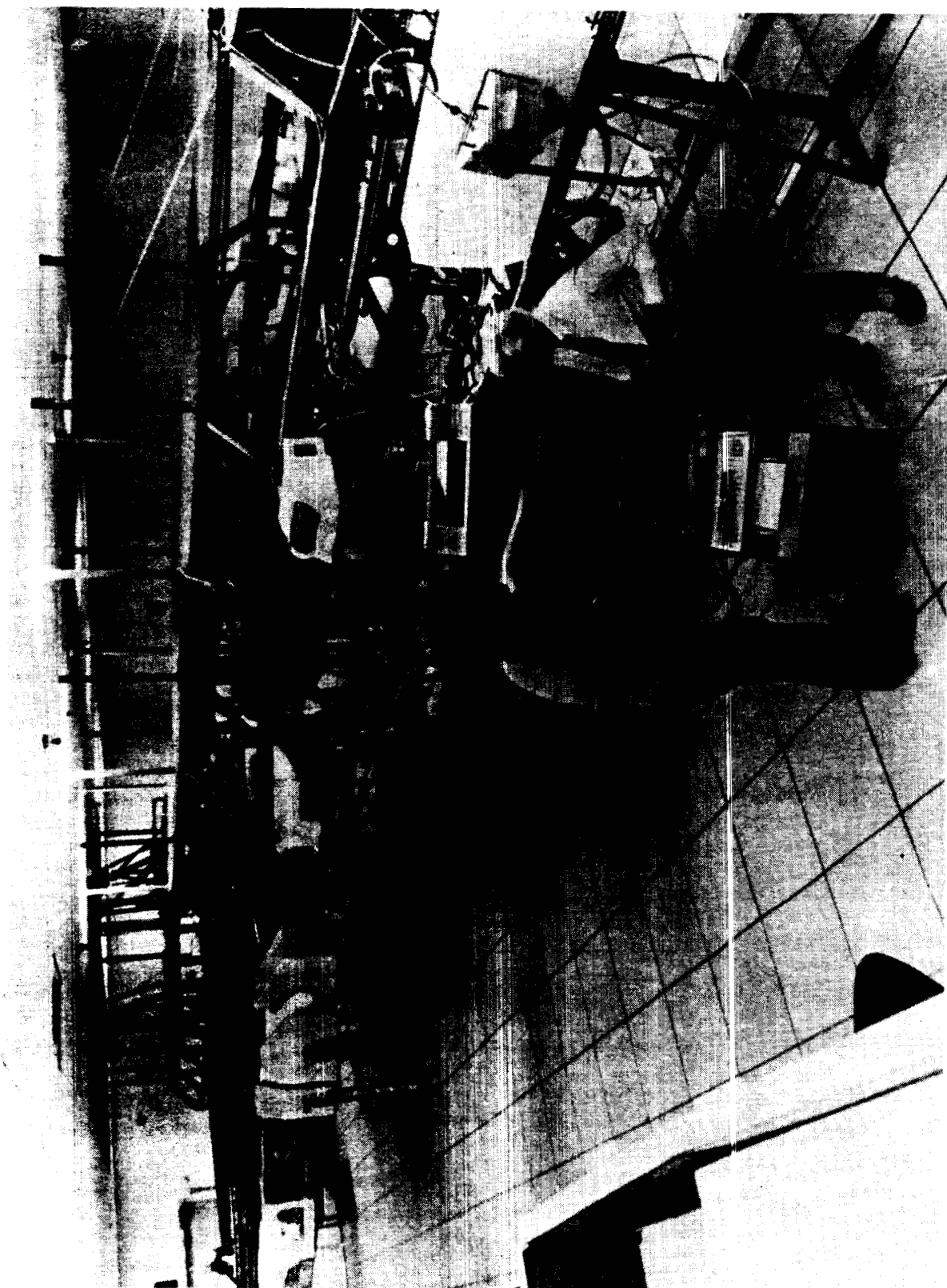
13. *What is the approximate number of personnel used to operate the facility/equipment?*

22

14. *What is the approximate number of personnel needed to maintain the equipment?*

4

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*



Electronic Combat Simulation and Evaluation Laboratory (ECSEL)

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	14. Target Operations

1. State the primary purpose(s) of the facility/equipment.

The Target Systems Department is a unique facility/capability that exists nowhere else in the world. It is a one-stop shopping center for targets. It provides for Tri-Service needs in development, acquisition, and production of all missile, subscale, and surface/seaborne targets and life cycle support management of all target systems within the Navy. Operational services are provided locally and deployed worldwide. The inventory of targets, both in number and types, is unmatched anywhere and includes full-scale, subscale, missile, seaborne, and land targets as well as target control systems. The facility is unique in that it has the personnel resources, geography, air space, and open ocean available to operate any target contained within its inventory at a single site. It has deep-water harbor facilities for its seaborne targets at Port Hueneme, 125,000 square miles of instrumented sea range and air space to conduct test and evaluation (T&E), and aircraft runway facilities both at Point Mugu and San Nicolas Island, as well as target ground and air launch facilities.

The Department consists of 400 technical, professional, and administrative personnel with 30 buildings providing 279,525 square feet of administrative, operational, and covered storage space and 10,650 square feet of outside storage space. These are located at Point Mugu, Port Hueneme, and San Nicolas Island. The core mission of the Target Systems Department is managing the life cycle support of target systems and subsystems; providing systems engineering for development, test, and evaluation and in-service engineering of target and related systems; and operating, maintaining, and providing airborne and surface/seaborne target services.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The facilities are not portable or moveable but are fixed, permanent construction. As this T&E center was developed, these facilities were specifically located to provide for co-utilization. Typical of these facilities are: operational target maintenance bays, target engineering laboratories, target hangars, target revetments, target administration and project offices, range facilities (target tracking and control, target telemetry, target launching, target recovery), air operations/air traffic control (ATC), aircraft runways, and specifically for surface targets, a Navy-owned and controlled deep water harbor with adequate dockside berthing. Other related facilities include: anechoic chamber, hardware-in-the-loop (HWIL) laboratories, environmental laboratories and simulation/emulation laboratories. There is no single piece of equipment used to support target operations at this site with a replacement value of \$500,000 or greater.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$41,970,000

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4. Provide the gross weight and cube of the facility/equipment.

345.9 tons 700,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

115V/400 Hz; 220/440V three-phase power, high-/low-pressure pneumatics; high-pressure aircraft starting systems; 3000 psi hydraulic systems; grounding systems for explosive cads and fueled air vehicles; jet fuel servicing tanks; overhead cranes (10 klb); special security systems including communications filters and alarms; fire suppression systems sufficient for fueled vehicles and explosives

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

None

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

High-pressure air system oil/water separators and air conditioning and dehumidification

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility/equipment would be impossible to replicate at or relocate to another site. The facility is unique in that it has the personnel resources, geography, air space, and open ocean available to operate any target contained within its inventory at a single site. It has deep-water harbor facilities for its seaborne targets at Port Hueneme; 125,000 square miles of instrumented sea range and air space to conduct T&E; aircraft runway facilities both at Point Mugu and San Nicolas Island; and target ground and air launch facilities. Targets are integral to the test mission of the Point Mugu Range. If targets did not exist, the ability of the range to provide T&E of air-to-air, surface-to-air, and surface-to-surface weapons would be irreparably harmed. The test missions for specific activities such as OPTEVFOR, the Weapons Systems Evaluation Directorate, and the Aircraft Systems Directorate require the use of targets to accomplish their tasking. Additionally, systems engineering, logistics management, and deployed operational services are critical to the missions of the Pacific Missile Range Facility, Hawaii; the Atlantic Fleet Weapons Training Facility, Puerto Rico; NAWCWPNS China Lake; White Sands Missile Range, New Mexico; and the NAVSEA ship trials in the Gulf of Maine. The facility provides target services that are critical to the operational readiness and effectiveness of the Fleet. The T&E capability to support intra- and inter-service as well as foreign material sales (FMS) customers would be irreparably harmed without this facility. Specifically, this facility supports the Fleet, NAVAIR, NAVSEA, Marines, Army, Air Force, Japanese Navy, German Navy and Air Force, and other FMS and industry customers. Urgent national defense requirements, such as Operation Desert Storm, requiring specific target services unique to this facility would be irreparably damaged if the facility did not exist.

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9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The original targets facilities date back to approximately 1953. The initial development was carried out based on needs of the programs and sponsors supported. As the Base Facilities Requirements process became more formalized throughout DoD, the Center's development took on a more systematic approach, giving more thought to future developmental impact on the mission and operations at the Center. With the Master Planning process implemented in the early 1970s, the Center's development has become a very formal, long-ranged planning process. The realization of the facilities are validated by the Naval Facilities Engineering Command's processes for Military Construction (MILCON), minor construction, and modernization and upgrading. The equipment installed into these facilities was either acquired as part of the construction or installed at a later date to accommodate a customer need—expanding or improving our capability to provide the necessary target products and services.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

- 1.2 Aircraft
- 1.3 Surface Ship
- 2.2 Guided Missiles
- 3.4 Multiplatform

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of utilization based on a 40-hour workweek

1989	1990	1991	1992	1993
100%	100%	100%	100%	100%

12. Provide the projected utilization data out to FY 1997.

1994	1995	1996	1997
100%	100%	100%	100%

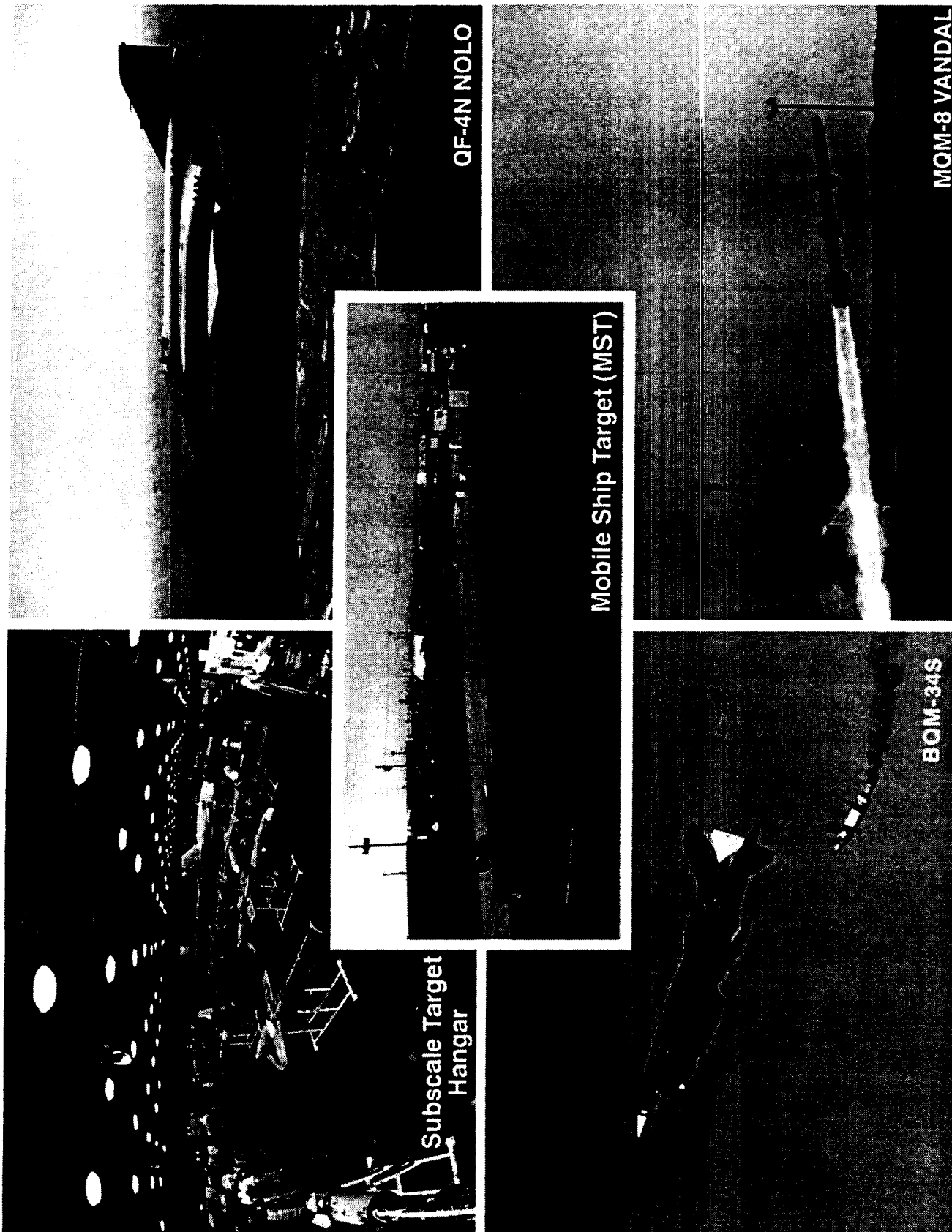
13. What is the approximate number of personnel used to operate the facility/equipment?

360

14. What is the approximate number of personnel needed to maintain the equipment?

40

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	15. Strike Weapons Evaluation Facility

1. State the primary purpose(s) of the facility/equipment.

Complete life cycle test and evaluation of current and advanced weapon systems associated with the strike mission. This facility is used to support flight test planning, data analysis and display, weapon performance prediction and evaluation, weapon flight control and mission logic evaluation, and pre- and post-flight test data comparisons.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Facilities - Will include such things as rocket firing bays, towing tanks, anechoic chambers, hypervelocity gun ranges, hyperbaric chambers, wind tunnels, simulation/emulation laboratories, etc. Include buildings that are integral to the facility/equipment. Do not include major outdoor ranges or land.

Also, describe modeling and simulation capabilities, hardware in-the-loop facilities and analysis or wargaming capabilities.

Equipment - Resources used to support the operation of the site with a replacement value of \$500,000 or greater. Do not include land or buildings in this category. In reporting equipment, provide information to indicate the degree of portability of the equipment. Class 3 Personal Property items ("plan equipment" or "equipment in place") by definition are highly portable and can be moved easily. Some class 2 Installed Equipment, such as Mainframe computers, test stands and small hyperbaric chambers, require more extensive utilities support and assembly of components, but can be relocated without damage to the facility or equipment, and therefore are considered "moveable" assets. Other class 2 items are so large and/or integral to the facility that houses them that major demolition and construction would be required to relocate them, and therefore are considered "fixed" assets. Where appropriate, pieces of equipment can be aggregated for the purposes of completing Tab B.

Strike Weapons Evaluation Capability The Strike Weapons Evaluation Capability at NAWCWPNS Point Mugu consists of the fully integrated resources of several unique laboratories focused on hardware subsystem test and evaluation of radar seekers, weapon data link pods, and missile flight computers, combined with specialized modeling, simulation, and computational capabilities and a civilian and military workforce with product and mission unique knowledge.

The Seeker Evaluation Laboratory is in Building 761 and directly overlooking the Pacific Ocean and the inner Sea Test Range. The laboratory has 2,400 square feet of floor space and allows for seeker operation at an altitude 27 feet above sea level. This location permits a seeker under test to be presented with real targets and countermeasures in the presence of a sea environment. This laboratory provides a unique facility to the NAVY that is not duplicated at any other activity.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$5 million

4. Provide the gross weight and cube of the facility/equipment.

170 tons 20,300 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Three-phase power

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

TEMPEST shielded secure computing and analysis environment

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

None

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

There is no other facility with the unique set of target generation equipment and instrumentation in proximity to a real test environment representative of the Navy's future "sea-air-land" littoral operations. Recent tests conducted jointly with the Army provide the perfect example of a surface action group using this facility's Tomahawk Land Attack Missile. Without this facility, the Navy would lose a strike weapons asset that could play an even greater role in future littoral warfare evaluation needs.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The Strike Weapons Evaluation Facility grew out of early test and evaluation of cruise missiles in the late 1970s through the early 1980s. The original "fixed" assets were installed in 1986. The facility's product specific systems engineering knowledge expanded to accommodate updated versions of those and other strike weapons and UAVs throughout the late 1980s. Currently the facility is configured to support Joint Services weapons testing as well as mission planning systems evaluation.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Weapons Systems

Guided Missiles & Weapons Data Links 85%

Platforms

Aircraft: Unmanned Aerial Vehicles 15%

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of full utilization based on a 40-hour workweek

1989	1990	1991	1992	1993
85	85	85	85	85

12. Provide the projected utilization data out to FY 1997.

1994	1995	1996	1997
86	87	88	88

13. What is the approximate number of personnel used to operate the facility/equipment?

120

14. What is the approximate number of personnel needed to maintain the equipment?

33

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

An adjunct to this facility is a mobile seeker evaluation laboratory that is completely self contained within a 2.5-ton truck. This mobile capability permits a seeker under test to be exposed to a variety of targets, backgrounds, and environmental conditions that are unavailable at a fixed site location.

Additionally, a remote facility on SNI has 320 square feet of floor area and is located 150 feet above sea level overlooking the inner Sea Test Range and the Santa Cruz Acoustic Range. The proximity of this site to the Santa Cruz Radar Imaging Facility (SCRIF) provides cost effective access to targets being tested at the SCRIF.

The Weapon Data Link Laboratory provides for the laboratory evaluation and pre-flight check out of weapon data links and pods used with strike weapons.

Evaluation of missile flight computers takes place in a limited HWIL facility. This facility primarily evaluates the hardware associated with Anti-ship Tomahawk and the Harpoon/SLAM family of missiles.

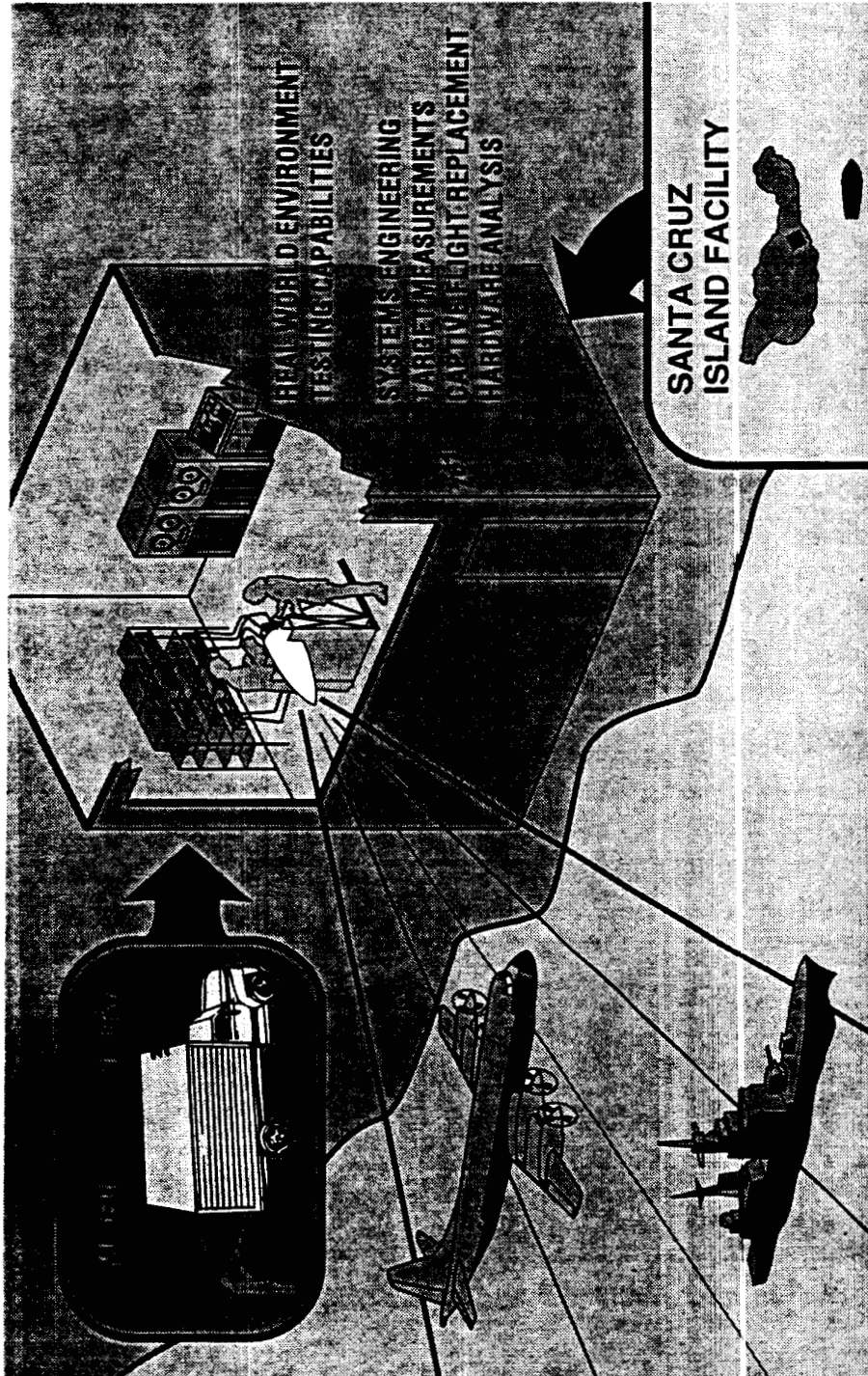
The computational capability includes multiprocessing services for up to 48 interactive terminal users simultaneously. Interactive users may be running any mix of simulation, flight test analysis, database management, or program development applications. Each user may also have as many as 8 simultaneous interactive terminal sessions in progress at one time and an unlimited number of batch jobs running concurrently in the background (i.e., one Harpoon engineer on one terminal can interactively examine and compare the data from 4 different flight tests while interactively using the simulation to generate scenario plans for 4 future flight tests while another engineer could be engaged in exactly the same process on a system other than Harpoon (such as SLAM).

Collocation of project computational resources provides an analyst with nearly every tool required to support test and evaluation. This can include a TAMPS, GPS receiver hardware, and a Zenith-based MIU to plan and generate missions; a high-fidelity 6-DOF SLAM simulation to carry out planned missions; all the interactive graphics and analysis software necessary to immediately examine the results of a simulation run or flight test; and for comparison purposes, immediate on-line access to all the data from every previous SLAM flight test as well as data from previously archived simulation runs.

Similar capabilities exist to support a lesser number of users in a completely TEMPEST shielded secure environment for projects requiring up to TOP SECRET Special Access levels of security.

The workforce consists of a balanced mix of civil service, military, and contractor personnel with varying educational disciplines who perform the engineering management, planning, test, and analysis for the projects supported. Included in this resource are those support personnel required to execute the administrative needs of the technical workforce. Experience level ranges from a low of 5 years to a high of 25 years associated with Strike Weapons Systems. The average experience is about 12 years.

Major skills of this group are technical management of T&E projects, product specific engineering knowledge, simulation development, software evaluation including IV & V, performance analysis and evaluation, test planning and execution, currency in tactical Naval aircraft, data reduction, and analysis.



Strike Weapons Evaluation Facility

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	16. Sea Level Climatic Chamber

1. State the primary purpose(s) of the facility/equipment.

Within our Sea Level Climatic Chamber, various combinations of temperature, humidity, rain, snow, and wind environments can be established and controlled. In this fashion we can test the largest military fighter aircraft, guided missile systems, and ground combat vehicles in climatic extremes including arid desert, monsoon rains, and arctic chills. Systems may be fully operational while testing is under way to validate operations while exposed to various climatic extremes. Sliding walls permit the Sea Level Chamber to be compartmented and operated as three independent chambers simultaneously with entirely different climatic environments.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$16.3 million

4. Provide the gross weight and cube of the facility/equipment.

30.7 tons 90,729 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

208 three-phase 400-cycle electric, 400-HP refrigeration units, steam boilers

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Stainless-steel sheating on all walls, moveable walls to make smaller chambers

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Extreme high and low temperatures, humidity, rain, snow, and solar radiation capability

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

Loss of the sea level climatic chamber would leave DoD without this capability. Because the chamber at McKinley Laboratory at Eglin AFB is down for renovation no other climatic chamber exists in DoD at this time. Closure of this chamber would eliminate the capability to run climatic tests on weapons, aircraft, and ground vehicles.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The facility was constructed on site in 1964.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

- 1.2 Aircraft
- 1.5 Ground Vehicles
- 2.1 Gun Systems
- 2.2 Guided Missiles
- 5.2 Radar Systems
- 5.4 Space Sensors

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

25% based on a 40-hour workweek (based on refurbishment before McKinley laboratory closed)

12. *Provide the projected utilization data out to FY 1997.*

100% based on a 40-hour workweek

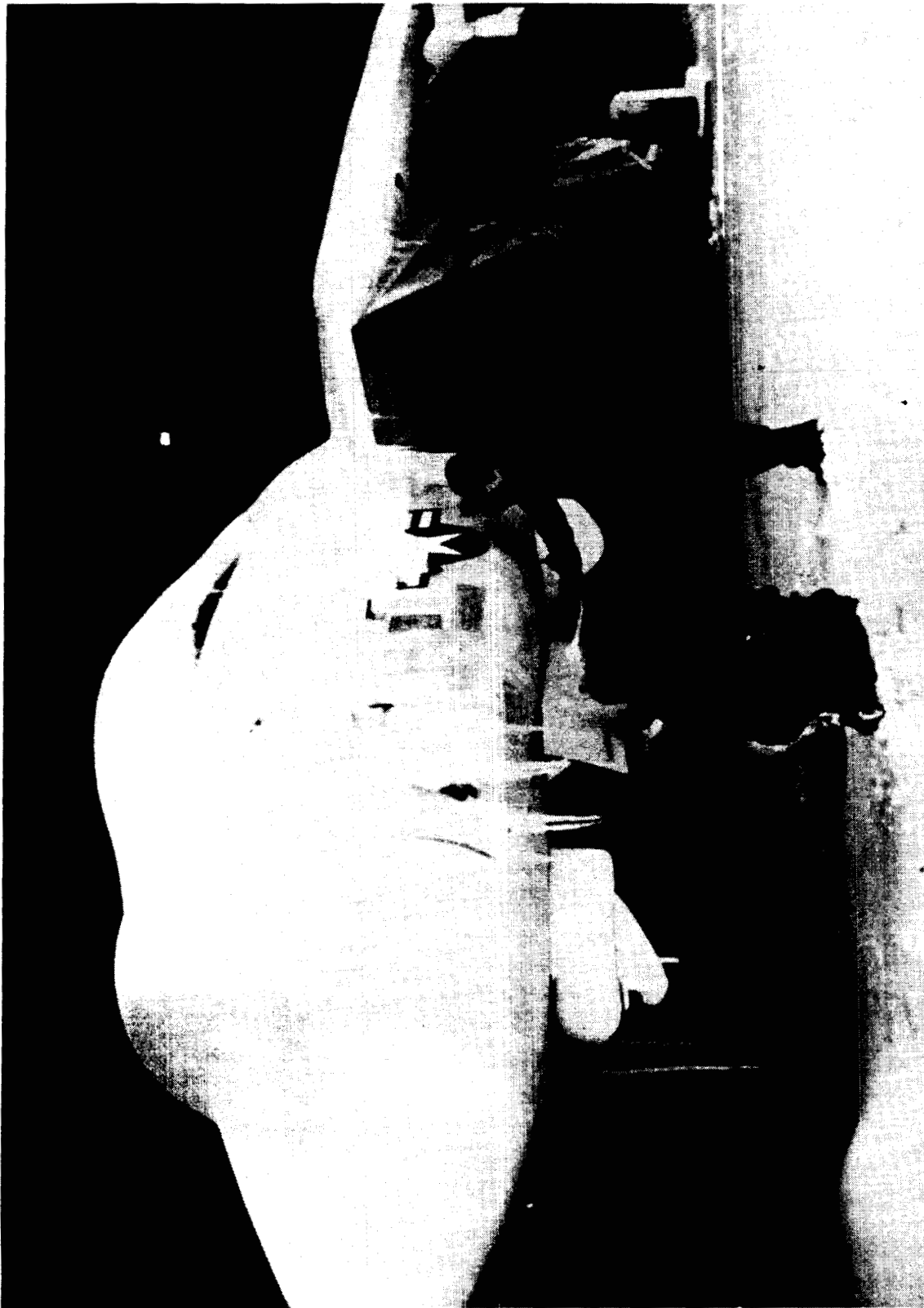
13. *What is the approximate number of personnel used to operate the facility/equipment?*

6 manyears

14. *What is the approximate number of personnel needed to maintain the equipment?*

1.5 manyears

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*



Climatic Sea Level Chamber

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	17. Antenna Measurement Anechoic Chamber

1. State the primary purpose(s) of the facility/equipment.

To take antenna radiation measurements for airborne telemetry subsystems and systems

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is fixed due to the complexity and precision of its surroundings and equipment.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Facility - \$1.5 million
Equipment - \$300,000
Total - \$1.8 million

4. Provide the gross weight and cube of the facility/equipment.

4 tons 141,600 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

220/400V electricity

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special sound absorption cone-like material

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal environmental controls

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

This facility can be replaced/replicated at any other site. The impact of the loss of this facility would be grave. The Department of Navy would not be able to provide telemetry systems for present and future weapons systems.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The anechoic chamber has been in operation since 1968, with the equipment in place since that time.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

1. Platforms

1.3 Surface Ship

1.5 Ground Vehicles

2. Weapons Systems

2.2 Guided Missiles

3. Combat System Integration

3.2 Air

8. Defense Systems

8.1 Ballistic Missile Defense

8.3 Electronic Warfare (EW) Systems

11. Generic Technology Base

11.1 Computers

11.2 Software

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

The utilization has been 100% for the past 5 years (unit of measure: a Navy weapon and support system).

12. *Provide the projected utilization data out to FY 1997.*

We will continue to use this facility 100% from now through 1997 and beyond.

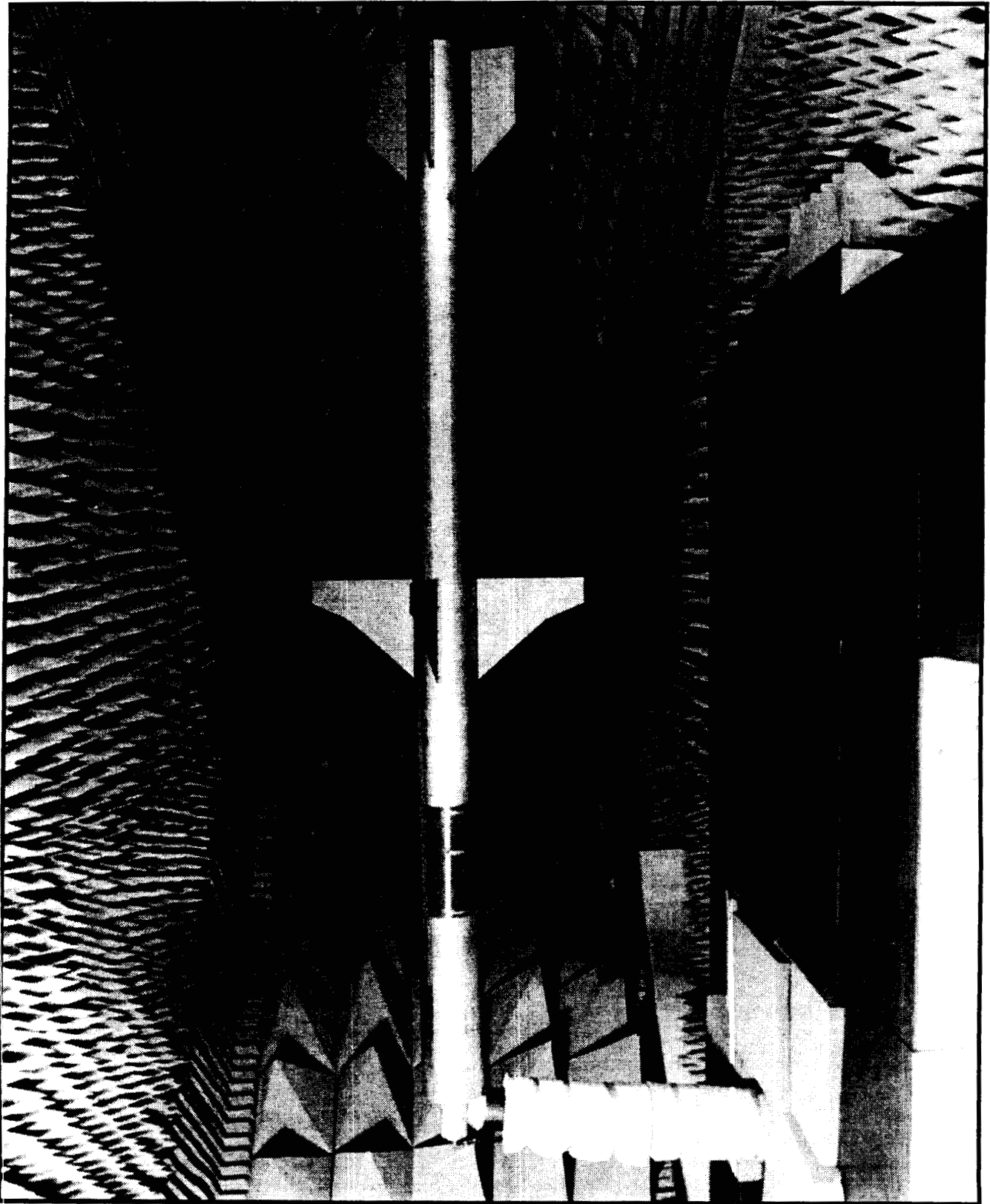
13. *What is the approximate number of personnel used to operate the facility/equipment?*

4

14. What is the approximate number of personnel needed to maintain the equipment?

1

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Antenna Measurement Anechoic Chamber

TAB B
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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	18. Multilateration Systems Remote Site Equipment

1. State the primary purpose(s) of the facility/equipment.

The primary purposes of this equipment are to provide precision tracking of many participants (50), to provide control of targets (drone), and to perform these functions at locations that would be over the horizon from land based instrumentation. The general area of coverage ranges along the California coast from Mexico to San Francisco and up to 750 miles at sea from San Nicolas Island. The system includes a master station at Point Mugu plus a number of other remote stations and a wide range of equipment that is mounted on the vehicles and articles being tracked and controlled. This response does not address the master stations (see Tab C, Range Resources).

2. Indicate whether the facility/equipment is portable, movable or fixed as defined by paragraph 6, page 12 of this data call.

Most of the equipment is movable; however there are some remote sites with large array antennas that should be considered fixed.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Ground stations: \$2,300,000 for equipment (\$300,000 for structures)
GPS pods: \$13,400,000 for equipment
EATS pods: \$40,000,000 for equipment

4. Provide the gross weight and cube of the facility/equipment.

132,000 pounds 33,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Some remote sites use solar power.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Certain pods require special handling and control for security reasons.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Selected remote stations require air conditioning.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

If these systems were moved to another location, the major loss to the Navy would be a high likelihood that the equipment would be nearly unusable. The systems were designed to use the mountainous terrain along the California coast and offshore islands to maximum advantage in providing a very large area offshore for test and evaluation exercises involving Fleet missile defense and long range tactical missiles. In addition the frequency of operation (141 MHz) was chosen specifically to allow maximum freedom for testing in electronic warfare environments. The system may be very limited or totally ineffective in other areas.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Facility/equipment was built in the 1970s and 1980s by contractors and delivered and installed at the site.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

The facility is used 75 hours per week to track objects. This utilization has remained relatively constant over the past 5 years.

12. Provide the projected utilization data out to FY 1997.

No change in workload is anticipated.

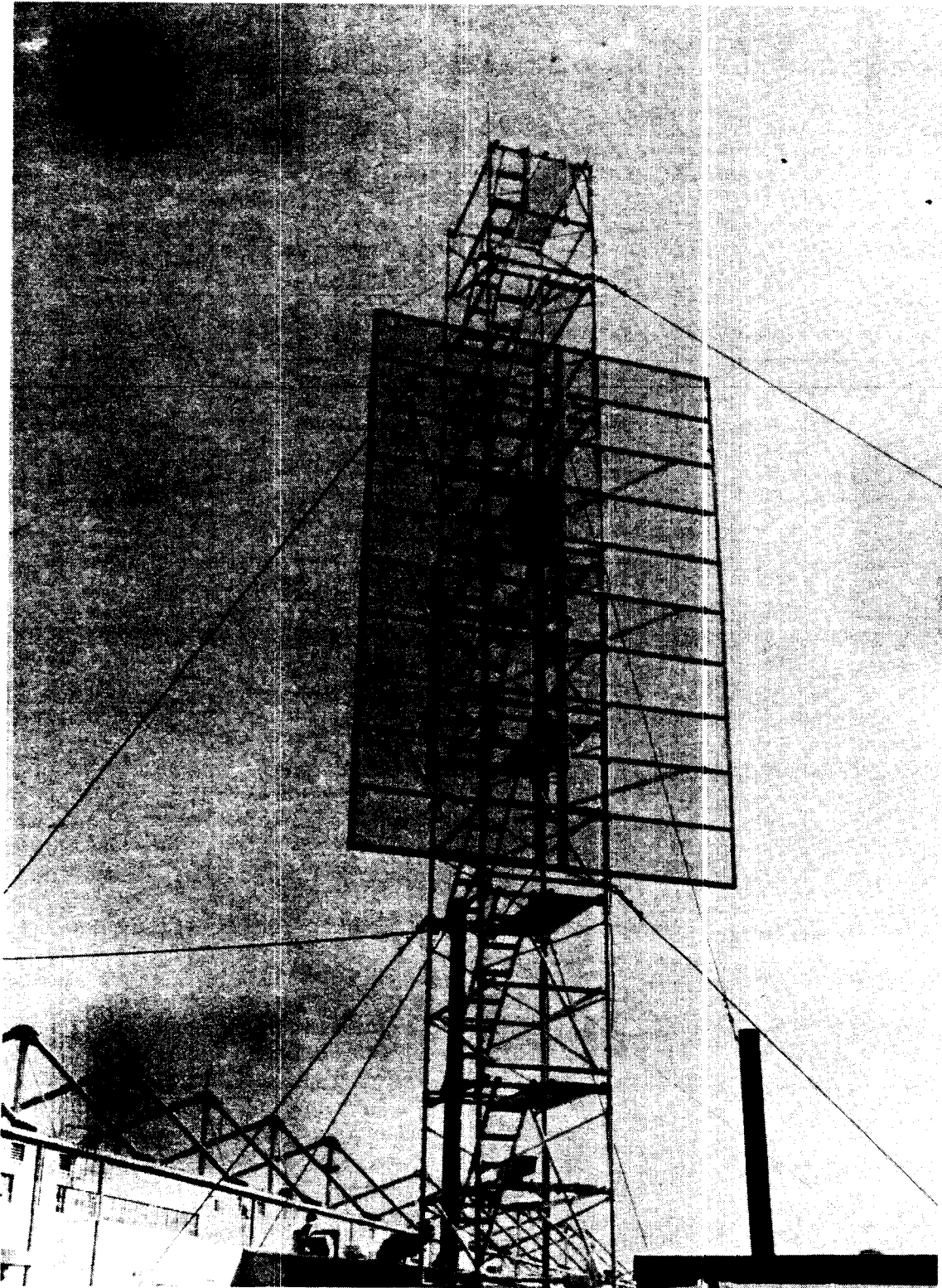
13. What is the approximate number of personnel used to operate the facility/equipment?

10, the majority of which are involved in the maintenance and support of the transponder systems. These are the same 10 personnel identified in #14.

14. What is the approximate number of personnel needed to maintain the equipment?

10, the majority of which are involved in the maintenance and support of the transponder systems.

15. Provide one 8 1/2 X 11 black and white photo of the facility/equipment.



Multilateration Systems Remote Site Equipment

TAB B

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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	19. AN/FPS-16 and AN/FPS-10 Metric Tracking Radars

1. State the primary purposes of the facility/equipment.

The AN/FPS-16 Metric Radars are used to track objects on the Sea Test Range. These radars provide precision position location measurement to 20 arc seconds in azimuth and elevation and 3 yards in range. Typically these radars can provide position location within 30 feet at a range of 20 miles from each radar. At a range of 130 miles from a radar this accuracy is to 200 feet. The radars can track objects that do not have any transponder on them or they can use a small transponder for greater tracking range or to pinpoint the track to a particular spot on the object being tracked. These radars provide dynamic motion data on objects moving at multiples of the speed of sound and accelerating at high rates. Typical objects include ship launched missiles, ballistic missiles, space objects, aircraft, and ships. Nearly all operations on the Sea Range are supported by these radars. Example weapon and other projects supported include: Titan, Space Shuttle, Navy LEAP, Harpoon, Tomahawk, Sidewinder, Rolling Airframe Missile, AMRAAM, Standard Missile 2 Block 3 and 4, Fleet exercises, AEGIS, Close In Weapon System, Norwegian Surface to Air Missile System, Japanese Defense Force, F-14 Software Upgrades, F-18/Aim-7, Hawk, SETT, Vandal, Project West, and Project 23.

There are four AN/FPS-16 Radars at Point Mugu and three on San Nicolas Island. There is also an AN/FPS-10 Radar on San Nicolas Island that can provide similar performance to the AN/FPS-16 Radars.

Not part of the Naval Air Warfare Center, but interconnected to the computer center at Point Mugu, are two AN/FPS-16 Radars at Vandenberg AFB that overlook the Sea Range. These radars are also used for Sea Range operations. Three additional radars are located at Vandenberg AFB, one of which can provide four simultaneous tracks of Sea Range objects above about three degrees from the radar to the Point Mugu computer center. Currently four tracks from these sources at Vandenberg AFB can be provided to the Sea Range from Vandenberg AFB.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Each of the AN/FPS-16 Radars are located in a two-story concrete block building with steel reinforced frame and with an integral concrete antenna pedestal at the Point Mugu and San Nicolas Island sites. The radars are fixed. The radars also have four boresight towers, two at Point Mugu and two on San Nicolas Island. The boresight towers have small associated buildings housing the radio frequency emitters for radar calibration. The radars cannot be moved while retaining the current accuracy without construction of a structurally equivalent antenna support pedestal.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

The radar electronics exclusive of the antenna, its pedestal, and motors can be currently purchased for \$4 million each, including the three-megawatt transmitter and pulse doppler systems. The antenna and pedestal, with the associated large precision ground bearings, are not currently in production. If a new antenna and pedestal were bought, the estimated price for one is \$2.5 million. A new boresight tower and equipment would cost \$250,000. Construction of a new site and building, including hook up to data lines and power, would cost \$1.2 million. Also \$2.4 million of logistics items for long term support would be required. The total cost per radar is \$10.35 million.

Total valued replacement cost for equipment in an equivalent operational support configuration is \$62.3 million and for the facility is \$10.15 million.

4. Provide the gross weight and cube of the facility/equipment.

The weight of the electronics equipment for each radar including the antenna is 30,650 pounds. Each boresight tower system weighs 2,300 pounds. The total weight for eight radars and four boresight towers is 254,600 pounds.

The volume of the electronics equipment for each radar including the antenna is 5,030 cubic feet. Each boresight tower system has a volume of 3,260 cubic feet. The total volume for eight radars and four boresight systems is 53,280 cubic feet.

The facility air conditioning/heating equipment and ducting weighs 13,500 pounds. The volume of the air conditioning/heating equipment is 900 cubic feet. The total air conditioning/heating weight for eight radars is 108,000 pounds. The total air conditioning/heating volume for the eight radars 7,200 cubic feet.

The facility consists of a reinforced concrete block two-story building with a special solid two-story 8- by 8-foot vertical concrete column to support the antenna and reduce the vibration of the antenna to preserve the 20-arc-second accuracy of the radar. The volume of the facility is 44,500 cubic feet. Each boresight tower associated building has a volume of 1,336 cubic feet.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

For each radar we need water for bathrooms, 40-ton air conditioning, and 150 KVA utility power and 75 KVA electrical power. The San Nicolas Island radars have back up power generators located in small buildings next to the radar buildings. The generator building numbers are 166, 168, 170, and 172. The Point Mugu radars have an auxiliary building (number 848) that houses the timing system used to time-tag the radar data in real time. This building also has a work area for repair of radar subsystems. The mainland radars use two boresight towers and their associated small equipment buildings (building numbers 854 and 855). The island radars also have two boresight tower facilities (building numbers 174 and 175).

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

To preserve the angular stability of the foundation that the antenna rests on, which assures the 20-arc-second accuracy of the radar, a special foundation is required. This consists of a poured concrete pedestal (8-inch-thick walls) of at least 8 by 8 feet by 30 feet tall, of which about 6 feet are in the ground. To provide 360-degree coverage for the antenna, the concrete pedestal must be taller than the structure that contains the radar. The estimated replacement cost for this concrete pedestal is \$250,000.

Another item that is unique to precision metric radars is the antenna azimuth and elevation bearings; they must be very smooth to preserve the angular accuracy of the radar. For the antenna pedestal that supports the 16-foot-diameter parabolic reflector used with the AN/FPS-16 Radars at Point Mugu and San Nicolas Island, the replacement cost is estimated to be \$1.2 million.

7. State any environmental control requirements for the facility/equipment (i.e. temperature, humidity, air scrubbing).

These radars employ air conditioning that controls the temperature of the equipment and reduces humidity. The building also incorporates a large 6- by 10-foot air input filter for the air conditioner to reduce dust. Both sites are within 1/4 mile of the ocean.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The main problem with replacing this equipment is the antenna pedestal and trunion assembly, which has bearings that support the 20-arc-second angular accuracy of the radar. The radar itself provides a unique capability in that it can provide position and motion data on objects that have no added transponder or other equipment. There is a new radar (AN/MPS-39) that also tracks 10 objects instead of just one at a time to the same accuracy as the AN/FPS-16 Radars. These AN/MPS-39 Radars are transportable and cost \$25 million each. Due to the limited field of view, a minimum of three such radars (\$75 million) would be required to replace all existing radars.

A large part of the value of the radars is that the sites at which they are located are next to the ocean and cover an area currently used for at-sea testing of weapons on Navy ships and aircraft in a controlled geographical area. The sites on San Nicolas Island are 60 miles westward of Southern California and the radars are at an elevation of 950 feet overlooking the Sea Range. New sites would have to be found that can overlook an equivalent ocean area. The area must also be controllable in terms of both commercial aircraft and surface vessels. No other current range can provide the advantageous geographic locations for over-the-water coverage that NAWC has at Point Mugu and San Nicolas Island.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The buildings housing the radars were first built, then the electronics equipment installed and the antenna mounted on the special concrete pillar that is located in an inside corner of the building. The San Nicolas Island radars were transported in pieces to the island by a Navy amphibious ship. It rolled ashore on a sandy beach on the southern end of the island. This method is still used today for large items for the island. Small items are transported by aircraft. The radars were part of a joint Army, Navy, and Air Force procurement. About 90 of these radars were bought and installed at various sites, some of which are Point Mugu/San Nicolas Island, White Sands Missile Range, Vandenberg AFB, Patrick AFB, Pacific Missile Range Facility, Hawaii, Wallops Island (NASA), and Edwards AFB. The first radar at Point Mugu, which was serial no. 2, was installed in 1958. The rest were in by 1960.

The radars at Point Mugu and on San Nicolas Island have been upgraded numerous times. The original electronics used synchros and vacuum tubes. Currently, solid state circuits and a computer are used. The last major upgrade was in 1988. Two of the AN/FPS-16 Radars have 3-million-watt transmitters and receivers that can do pulse doppler velocity tracking, one at Point Mugu and the other at San Nicolas Island. These two radars, in conjunction with one radar at Vandenberg AFB, can provide accurate target motion resolution tracking of ballistic missiles to support testing of anti-ballistic missiles.

*10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.***10.7 Major Range Development and Operation***11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

The hours the radars supported operations completed and scrubbed per year are provided below.

<i>FY 1989</i>	<i>FY 1990</i>	<i>FY 1991</i>	<i>FY 1992</i>	<i>FY 1993</i>	<i>Average</i>
5679	6226	5029	3235	3576	4740

12. Provide the projected utilization data out to FY-97.

The anticipated hours the radars will support for operations completed and scrubbed per year are provided below.

<i>FY 1994</i>	<i>FY 1995</i>	<i>FY 1996</i>	<i>FY 1997</i>
3500	3500	3200	3000

13. What is the approximate number of personnel used to operate the facility/equipment?

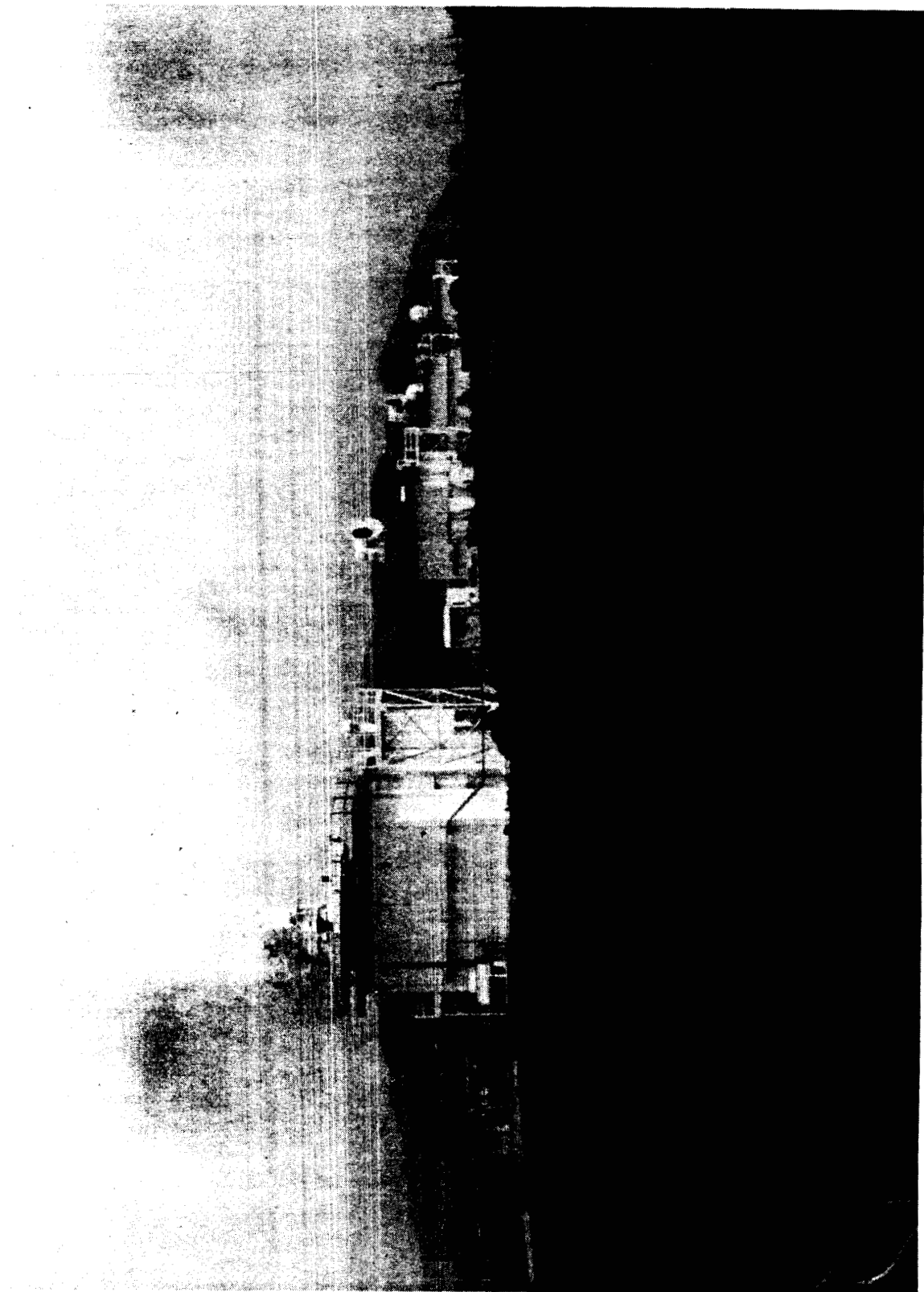
Each of the AN/FPS-16 Radars (and the AN/FPS-10 Radar) requires three people to operate the radar. For the two pulse doppler radars, a fourth person is required.

14. What is the approximate number of personnel needed to maintain the equipment?

Two people per radar are required for maintenance because of the need for the radars to be ready to support operations and for safety reasons, because of the high voltages used.

In addition, support personnel are needed for ordering parts, supervision, running calibrations, and overhauls. Five more people support this function. For long term usage, someone is required to determine upgrades and procure them. This requires two more people.

15. Provide one 8 1/2 X 11 black and white photo of the facility/equipment.



AN/FPS-16 Metric Tracking Radars

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	20. AN/FPS-114 Surveillance Radars

1. State the primary purposes of the facility/equipment.

The AN/FPS-114 Sea Surface Surveillance Radars are used to locate vessels on the ocean surface in the Sea Test Range. The ARSR-1 Air Route Surveillance Radar provides surveillance of aircraft for air traffic control in the Sea Test Range. The ARSR-1 Radar is also equipped with identify friend or foe to aid in detection and identification of airliners and other aircraft and many ships on the Sea Range. These radars provide detection of intruders into sea range operations on both the sea surface and in the air. Operations on the Sea Range cannot be cleared for safe operations without their continuous use whenever any operation is being carried out. The ARSR-1 Radar and at least one AN/FPS-114 Radar are used on non range hours to support the Coast Guard for at-sea rescue. All operations on the Sea Range are supported by this equipment.

Data from an ARSR-1 Radar at Vandenberg AFB and from an AN/FPS-93A Surveillance Radar on San Clemente Island are also used for range clearance and air traffic control.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

These radars are fixed.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

The replacement value of the ARSR-1 Radar is \$17 million, and the replacement value for the three AN/FPS-114 Radars is \$12 million. Facility replacement value is \$600,000.

4. Provide the gross weight and cube of the facility/equipment.

The weight of the ARSR-1 Radar is 45,000 pounds. The volume of the equipment is 48,000 cubic feet. This radar is installed in a concrete block building. The antenna is installed on a tower with a radome.

The weight of each AN/FPS-114 Radar is 9,000 pounds. The volume of each radar is 18,000 cubic feet. The AN/FPS-114 Radars are each installed in a metal shelter, which is located under its antenna tower. The whole system is inside a round building with a radome.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

None for the ARSR-1. The AN/FPS-114 Radars require 400-Hz power.

TAB B

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6. *Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).*

Both types of surveillance radar require a radome made of nonferrous material to protect the antennas.

7. *State any environmental control requirements for the facility/equipment (i.e. temperature, humidity, air scrubbing).*

These radars reside in air conditioned buildings.

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

These radars could be removed from their buildings and moved to new buildings. The existing radomes could be disassembled and moved to new buildings constructed to accommodate them. These radars provide sea surface surveillance. The ARSR-1 radar provides air surveillance.

A large part of the value of the radars is their location. They are next to the ocean and cover an area currently used for at-sea testing of weapons on Navy ships and aircraft in a controlled geographical area. The sites on San Nicolas Island cover the Sea Range for both air and surface surveillance. The sites at Santa Cruz Island and Laguna Peak provide additional sea surface surveillance for the Sea Range. These radars enable the range to clear an area over 120 miles across for safe operations without the use of surveillance aircraft because the sites are on hills overlooking the range. New sites would have to be found that can overlook an equivalent ocean area, and the area must also be controllable in terms of both commercial aircraft and surface vessels. No other current range can provide the advantageous geographic locations for over-the-water coverage that NAWCWPNS has at Point Mugu, San Nicolas Island, Santa Cruz Island, and Laguna Peak.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

Normal construction and radar installation. The AN/FPS-114 Radars were installed in the mid 1970s. The ARSR-1 was installed in 1962. These radars are used with an automatic detection system that presents all aircraft and surface vessels in the Sea Range on a combined display.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

10.7 Major Range Development and Operation

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

These radars are operated 24 hours a day, 7 days a week.

12. *Provide the projected utilization data out to FY-97.*

Same as question #11

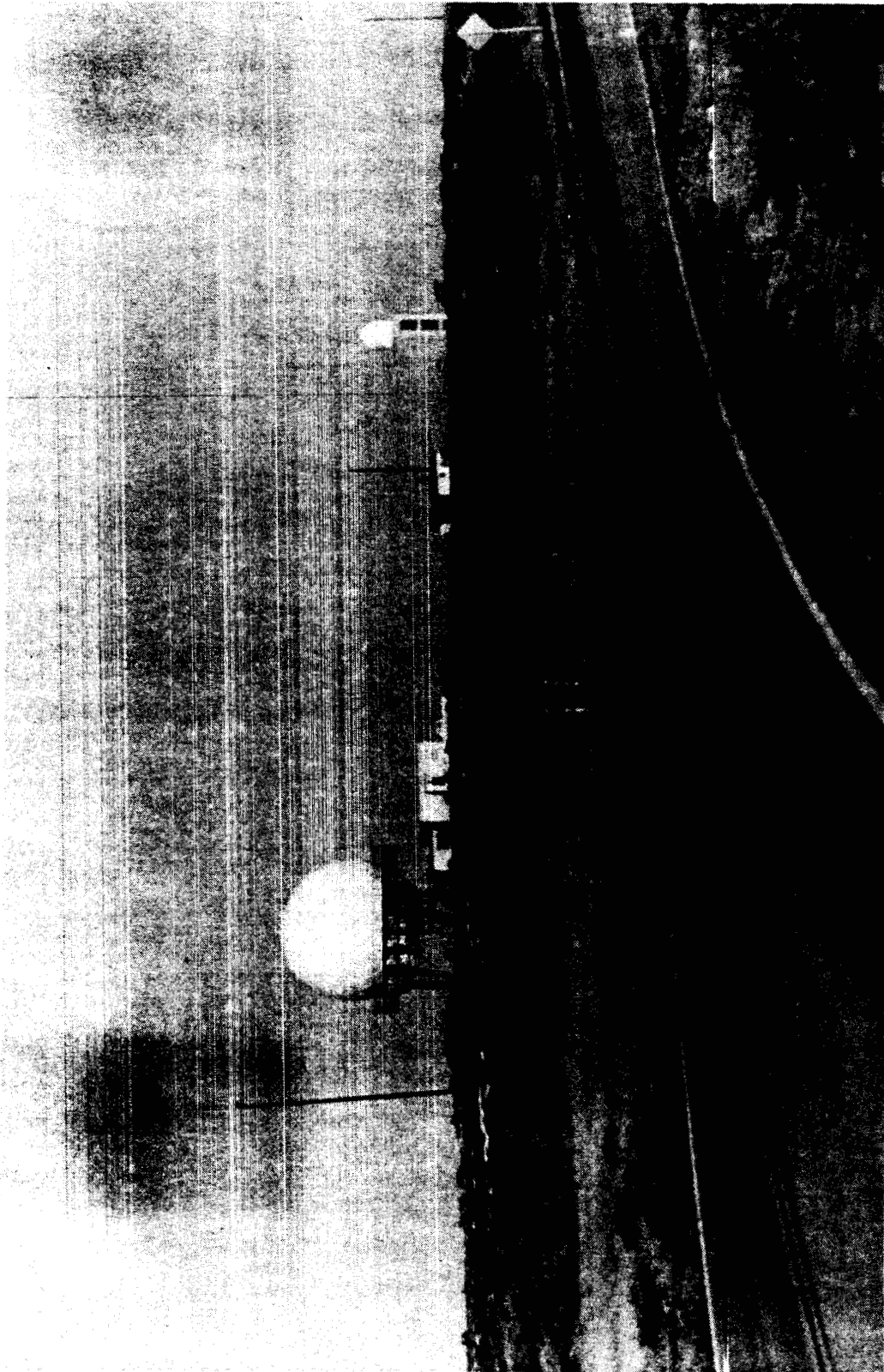
13. What is the approximate number of personnel used to operate the facility/equipment?

Three people support these radars. They have other duties because: the radars just run after activated.

14. What is the approximate number of personnel needed to maintain the equipment?

Same personnel as in question #13

15. Provide one 8 1/2 X 11 black and white photo of the facility/equipment.



AN/FPS-114 Surveillance Radars

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	21. Geophysics San Nicolas Island

1. State the primary purpose(s) of the facility/equipment.

The Geophysics Complex, which includes Building numbers 552, 556, and 544, supports all Geophysics support to the Range Operations and airfield observations and forecasts to all NAWC squadrons and personnel.

2. Indicate whether the facility/equipment is portable, movable or fixed as defined by paragraph 6, page 12 of this data call.

The buildings are fixed. Most of the equipment is portable; however equipment that is used for airfield weather support would be classified as movable because of cabling from airfield sensors to Building 552.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

It is estimated that new buildings to replace the Geophysics Complex would cost \$8 million. Replacement cost of the equipment/systems within the building is estimated at \$5 million.

4. Provide the gross weight and cube of the facility/equipment.

20,000 pounds

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Primary weather observational equipment requires "UPS". The rest of the equipment only requires normal electrical power.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

None

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

The areas with major weather observing and forecasting systems require air conditioning.

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

If this facility was moved to another Naval Air Station, approximately 25 to 33% of the weather observing and forecasting equipment would be available. If this facility/equipment is moved to another site that is not Naval Air Station, it would require major installations of numerous weather systems to obtain data from various sites.

This facility cannot be relocated or moved as long as the airfield is in an operational status. Weather observations are required for aircraft departures and landings.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

Facility/equipment was built in the early 1960s, with an addition in the early 1970s.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

10.7 Major Range Development and Operation

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

Fully used to support airfield and Range Operations 24 hours a day, 7 days a week until May 1993, then reduced to 20 hours a day (0400L until 2400L), 7 days a week to reduce the burden on a reduced workforce

Same as response to the previous question; some expanding requirements for real time support and new programs

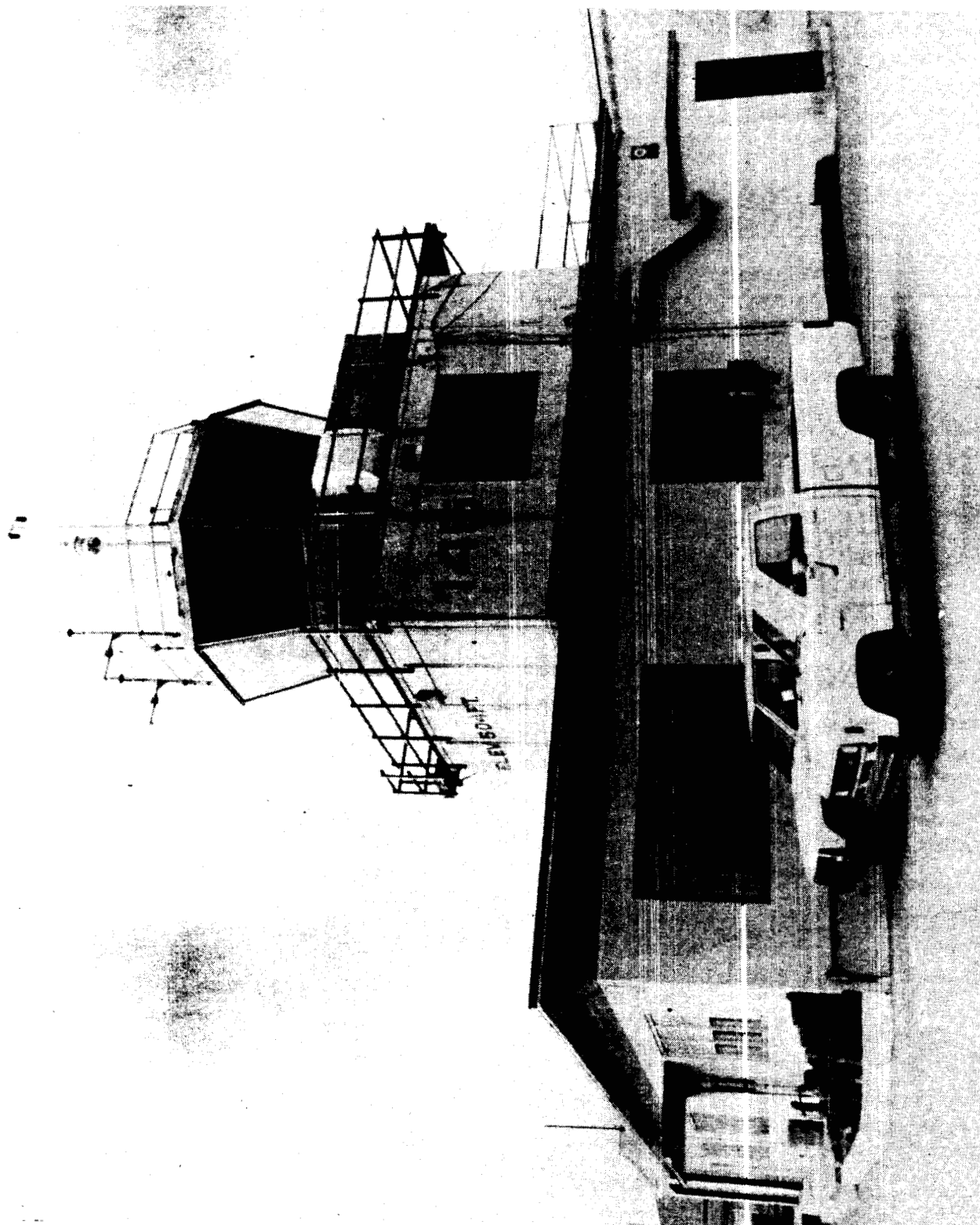
13. *What is the approximate number of personnel used to operate the facility/equipment?*

Approximately 25 people are required to support the airfield, measurements, Range Operations, and evaluation of meteorological data as they associate with specific weapon testing.

14. *What is the approximate number of personnel needed to maintain the equipment?*

Approximately 10 people are required for the maintenance, modification, engineering, and installation of current and expected new equipment, including all installation on San Nicolas Island, ships, and remote sites, and also geodetic field instrumentation.

15. *Provide one 8 1/2 X 11 black and white photo of the facility/equipment.*



Geophysics, San Nicolas Island

TAB B

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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	22. Geophysics Complex

1. State the primary purpose(s) of the facility/equipment.

The Geophysics Complex, which includes Building numbers 145, 98, and 279, supports Range Operations and airfield observation at San Nicolas Island.

2. Indicate whether the facility/equipment is portable, movable or fixed as defined by paragraph 6, page 12 of this data call.

The buildings are fixed. Most of the equipment is portable, however equipment that is used for airfield weather support would be classified as movable because of cabling from airfield sensors to Building number 145.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

It is estimated that new buildings to replace the Geophysics complex would cost \$500,000. Replacement cost of the equipment/systems within the building are estimated at \$200,000.

4. Provide the gross weight and cube of the facility/equipment.

4,000 pounds

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

The equipment only requires normal electrical power.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

None

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

None

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

This facility cannot be relocated or moved as long as the airfield is in an operational status. Weather observations are required for aircraft departures and landings.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

Facility/equipment was built in the mid 1950s, with an addition in the late 1970s.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

10.7 Major Range Development and Operation

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

Fully used to support airfield and range operations 10 hours a day, seven days a week

12. *Provide the projected utilization data out to FY 1997.*

Same as response to question #11.

13. *What is the approximate number of personnel used to operate the facility/equipment?*

Two people are required to support the airfield and range operations. All maintenance of equipment, consumable supply, and management is provided from the Geophysics Division at Point Mugu.

14. *What is the approximate number of personnel needed to maintain the equipment?*

None (as per answer to previous question)

15. *Provide one 8 1/2 X 11 black and white photo of the facility/equipment.*



Geophysics Complex

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	23. Telemetry Data Collection San Nicolas Island

1. State the primary purposes of the facility/equipment.

The Telemetry Collection Facility, Building number 182 and its associated antennas and remote equipment on San Nicolas Island (SNI), is responsible for the management, maintenance, and operation of range equipment and systems used for receiving, recording, and processing of real time telemetry data in support of weapon systems T&E and Fleet training exercises.

It provides telemetry data collection instrumentation resources and control of raw telemetry data collection and recording, including maintenance and operation of telemetry collection systems and equipment located at SNI. It relays telemetry data from operations conducted out of the reception area of the telemetry antennas located on the mainland and Laguna Peak to the Point Mugu mainland Telemetry Collection Facility (Building number 738) for further processing and distribution.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The SNI Telemetry Collection Facility systems include much equipment that is portable. However the critical elements of the facility (the large-diameter (20- and 32-foot) antenna assemblies) are fixed, and the equipment would be of little or no use without the antenna structures located in a position to receive the radio frequency signals from the vehicles being tested on the Sea Range.

Also, the microwave and fiber optic links carrying some of the telemetry data signals into and out of the facility are necessary for the facility to interface with other locations (both on and off the Sea Range) and to thereby perform the functions of telemetry data collection, recording, formatting, and relaying (to the Point Mugu mainland TM Collection Facility) for further processing.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$1,678,164 facility; \$17,400,000 equipment

4. Provide the gross weight and cube of the facility/equipment.

188.4 tons 4215 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

UPS or generators; uninterrupted power source required to prevent loss of data real time operating

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6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

COMSEC, physical security, and Level I

7. State any environmental control requirements for the facility/equipment (i.e. temperature, humidity, air scrubbing).

Antennas: 50% relative humidity
Temperature: 62 to 76° for sensitive (electronic) equipment

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The SNI Telemetry Collection Facility systems include much equipment that is commonly available wherever telemetry data are collected during testing. However the critical elements of the facility (the large-diameter (20- and 32-foot) antenna assemblies) are in very unique locations that are key to receiving the radio frequency signals from the vehicles being tested on the outer Sea Range, out of the reception area of the mainland TM antennas. There are very few, if any, sites in the country that have the environment and availability of the open ocean test area comparable to these systems/facilities. If this facility were lost, the government would be unable to obtain telemetry data that are critical to analyzing tests of systems and scenarios requiring the large scale ocean environment available at this location.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Facility was in the late 1960s; equipment was in 1989 through 1991

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
4034	3503	3192	2722	2635

These units are operational hours that the facility supported T&E operations conducted upon the Sea Range.

12. Provide the projected utilization data out to FY 1997.

FY 1994	FY 1995	FY 1996	FY 1997
1984	1900	1850	1800

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13. What is the approximate number of personnel used to operate the facility/equipment?

10 people

14. What is the approximate number of personnel needed to maintain the equipment?

2 people

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Telemetry Data Collection, San Nicolas Island

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	24. Telemetry Data Collection Complex

1. State the primary purposes of the facility/equipment.

The Telemetry Collection Facility is used for receiving, recording, and processing of real time telemetry data in support of weapon systems T&E and Fleet training exercises.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The Telemetry Collection Facility systems include much equipment that is portable. However the critical elements of the facility (the large-diameter (20- and 32-foot) antenna assemblies) are fixed, and the equipment would be of little or no use without the antenna structures located in a position to receive the radio frequency signals from the vehicles being tested on the Sea Range.

Also, the microwave and fiber optic links carrying some of the telemetry data signals into and out of the facility are necessary for the facility to interface with other locations (both on and off the Sea Range) and to thereby perform its function of telemetry data collection, recording, and formatting for further processing.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$4,001,800 facility; \$21,600,000 equipment

4. Provide the gross weight and cube of the facility/equipment.

223.7 tons 6265 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

UPS or generator required to prevent loss of data during real time operating

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

COMSEC, physical security, and Level I

7. State any environmental control requirements for the facility/equipment (i.e. temperature, humidity, air scrubbing).

Antennas: 50% for humidity

Temperature: 62 to 74°

Temperature and humidity control are required for proper performance of telemetry data collection equipment.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The Telemetry Collection Facility systems include much equipment that is commonly available wherever telemetry data are collected during testing. However the critical elements of the facility (the large-diameter (20- and 32-foot) antenna assemblies) are in very unique locations that are key to receiving the radio frequency signals from the vehicles being tested on the Sea Range. There are very few, if any, sites in the country that have the environment and aspects to a test area comparable to these systems/facilities. If this facility were lost, the government would be unable to obtain telemetry data that are critical to analyzing tests of systems and scenarios requiring the large scale ocean environment available at this location.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Facility built as part of late 1960s (MILCON); current equipment installed in the 1986 through 1991 time frame

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
4808	4150	3781	3204	3080

These units are operational hours during which the facility supported T&E operations conducted upon the Sea Range.

12. Provide the projected utilization data out to FY 1997.

FY 1994	FY 1995	FY 1996	FY 1997
2296	2000	1900	1800

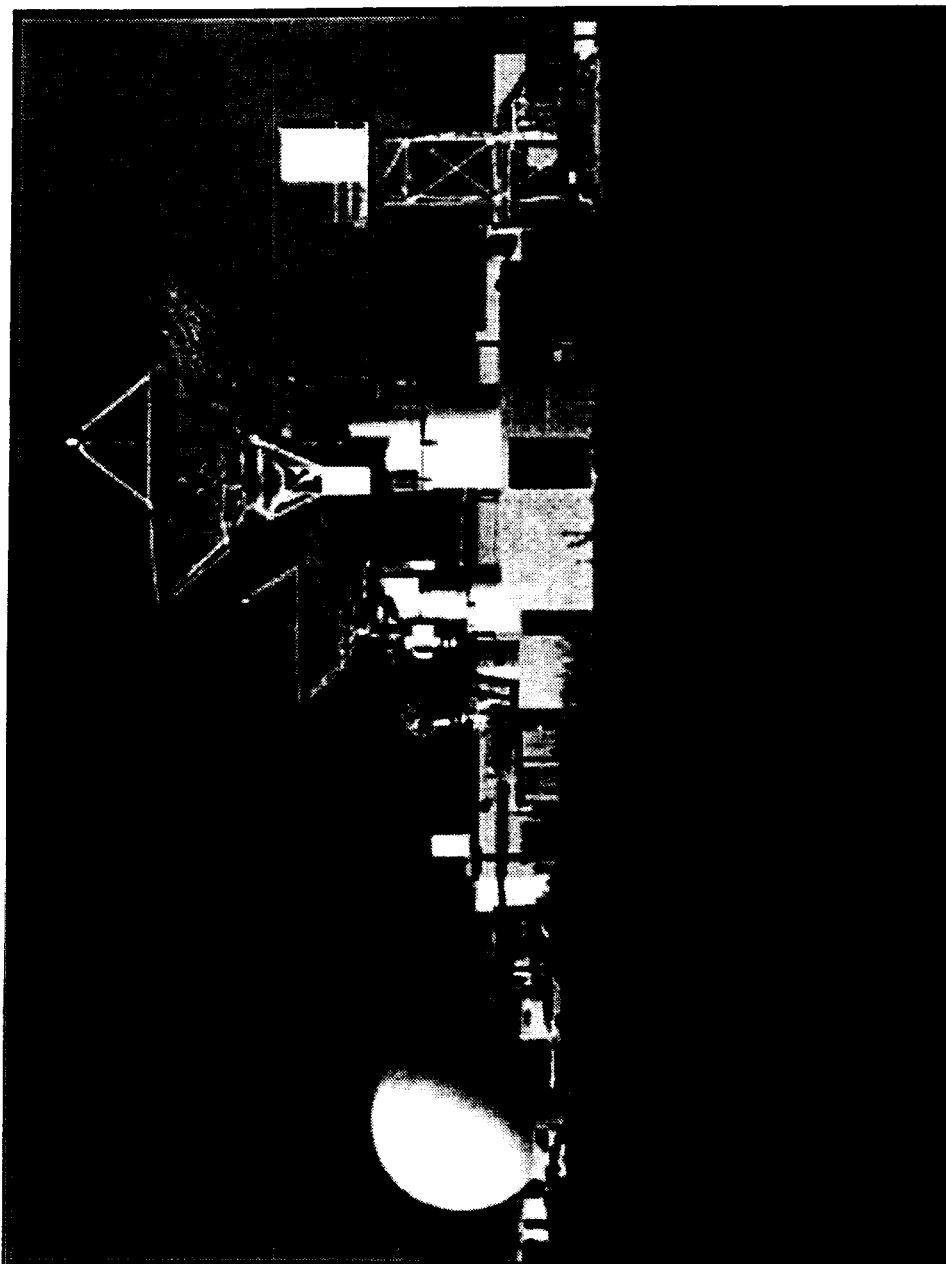
13. What is the approximate number of personnel used to operate the facility/equipment?

23 people

14. What is the approximate number of personnel needed to maintain the equipment?

3 people

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Telemetry Data Collection Complex

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	25. Range Operations Center

1. State the primary purposes of the facility/equipment.

The Range Operations Center is the key element in the Sea Range at Point Mugu. Comprised of four adjacent buildings containing a wide range of different functions, the real time end products of the Range become focused in this facility. Information and control for remote instrumentation sites along the California coast from San Diego to San Francisco flow to and from the Range Operations Center. Clearing the operating areas of intruders, ensuring the inflight safety of test articles and platforms, destruction or flight termination of errant missiles, monitoring of test weapons performance, introduction of drone vehicles, and directing of aircraft and ships are all functions that are controlled in and from this facility. In addition, the Range customer's personal interface with the Range is centralized in this facility. The major functional capabilities in the Center are as follows:

Range Display and Control supports management, planning, scheduling, coordinating, and conduct of Sea Range operations. Major facilities and equipment that support this function include Operations Control Rooms, the Battle Management Information Center, Air Traffic Control, Range Clearance and Control Center, NTDS/ACDS and Surveillance Radar Processing Systems, Range Scheduling System, and Target (Drone) Control Systems. This function also has office facilities for the technical staff who manage the operational workload, provide range clearance and range control, control operations, operate equipment and provide engineering and life cycle support for the operational systems within the building or at remote sites, and provide direct support and assistance to the Range customers in their interface with the Range.

Range Data Processing Systems include systems that primarily are the interface between the main processing systems, the external range instrumentation, and the display systems. Included in the interfacing systems are AN-UYK-43 real time computers, peripherals, communications, support equipment, the RIDE, and the Sensor Position and Readback System I/O Buffer. The main processing systems include the real time computers, peripherals, communications, and support equipment that perform the complex processing of test data for display and control during real time test and evaluation missions. The equipment consists of four CDC CYBER computers and peripherals and the Range Data System (RDS). The data processing systems are centrally located to allow for hundreds of vital connections to instrumentation, timing, other systems, and the Operational Control Rooms.

Telemetry Data Processing and Display. Telemetry data from weapons and other articles under test are received by remote instrumentation and routed to the Range Operations Center via the Range communication system. The telemetry data are then routed in the Range Operations Center to the Telemetry Data Center for processing and display, where the Range customer engineers and scientists observe the detailed performance of their test articles in real time. The Telemetry Data Center provides for the setup, processing, display, and recording of telemetry data in support of weapon systems T&E. The Center also provides post flight data reduction functions, with the capability of preparing digital magnetic tapes in formats that are compatible with the Center/User

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computer systems. Engineering and special processing/handling is provided for non-standard TM formats/synchronization strategies that preclude the use of commonly available TM ground station equipment.

Extended Area Test System simultaneously provides accurate TSPI for up to 100 participants and control of up to 12 target (drones). While the core of this system is located in the Range Operation Center, the system includes instrumentation at remote sites up and down the California coast, on the offshore islands, and on aircraft and ships. EATS can provide tracking data by both multilateration techniques and data determined using the GPS via the NAVSTAR GPS satellite network. EATS covers an area from Mexico to San Francisco and out 1000 nm from San Nicolas Island. The EATS functions are controlled by a state of the art computer suite housed in the EATS Master Operations Control Station (MOCS) of the Range Operations Center.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Most of the systems and equipment within the four buildings of the Range Operations Center would be defined as moveable or as class 2, relocatable. However, much of the equipment is cooled by chilled water and large quantities of wiring and cables are involved, some with critical lengths and characteristics. Security and strong room features and provisions have been integrated within the various processing and display areas. In addition, the new site might require a totally new system because of geological characteristics. For example, the EATS could not provide the same degree of coverage (for the same assets) in mountainous terrain that it does in the ideal geography offered by the Southern California coastline and offshore islands.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Equipment cost: \$106.8 million
Building/utilities cost: \$36.5 million

4. Provide the gross weight and cube of the facility/equipment.

511,095 pounds 33,816 cubic feet.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

The high cost of losing data from a weapon under test requires extraordinary reliability from the systems operating in the Range Operations Center. To ensure that the Range systems continue to operate even with failure of the main power to the base, the Center is supplied with 900,000 watts of uninterruptable power including both 60- and 400-Hz power. In addition, the systems in the Center require clean (salt free) and temperature and humidity controlled air. The environmental control systems provide 900 tons of controlled air and chilled water.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Data and communications interconnections within the building must meet security guidelines for separation of black/red cables. Secure cableways are required. Operation Control Spaces and other support areas within the building are built to strong room standards and require special construction to meet noise level and physical security requirements. The Telemetry spaces require compliance with COMSEC, physical security, and Level I. The MOCS facility has special RF shielding requirements.

7. State any environmental control requirements for the facility/equipment (i.e. temperature, humidity, air scrubbing).

The systems in the Range Operations Center require clean (salt and dust-free) and temperature and humidity controlled air. The environmental control systems provide 900 tons of controlled air and chilled water. Special controls are set up in each area to meet the needs of particular systems. Certain areas require clean room environments. Pure chilled water provides cooling for main frame computers.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

A number of key attributes cause the Range at Point Mugu to be extremely valuable and cost effective to the Navy. The Navy requires a large range capable of testing air and surface launched missiles with effective ranges of hundreds of miles. The Navy requires a range with enough over-the-ocean geographical expanse to allow many ships, aircraft, drones, and missiles to safely interact in a realistic test environment. The Navy requires a Range that does not require excessive costs for the flying hours and steaming time for test participants to arrive on station. (For example, adding 1 extra hour of flying time for each aircraft to reach the Range operating area would add approximately \$1 billion extra cost for conducting operations over a 25-year period.) The Navy needs a range where a minimum of tests are canceled or delayed by weather. The Navy needs a place near the range where it can stage its drone surface targets and target hulks. The coast of California and its offshore mountainous island chain provide an ideal geographic location for siting range instrumentation. The isolation provided by San Nicolas Island, some 60 miles offshore, provides extraordinary security for special programs. Port Hueneme, some 10 miles from Point Mugu, provides berthing and staging for range and targets surface craft. The weather is extraordinarily stable, which results in relatively few cancellations. Navy ship assets that can be called to support operations are within 120 miles of Point Mugu. Shore assault operations can be conducted at Camp Pendleton, some 70 miles south of Point Mugu. Strike warfare tests originating from ships in the Sea Test Range can be launched against the wide variety of different types of terrain and geography characteristic of California and the neighboring states. A wide range of Navy, Air Force, and Army aircraft are located within 150 miles of Point Mugu and could be called on to support critical test and evaluation operations. Other nearby Ranges such as Vandenberg AFB and NAWCWPNS China Lake are internetted with the Sea Range and routinely support each others' operations. Finally, with heavy duty runways at both Point Mugu and San Nicolas Island plus a wide variety of aircraft maintenance facilities at Point Mugu, the Range is able to offer support for many visiting test aircraft. There are several reasons for the Range Operations Center to remain close to the instrumentation and close to the aircraft recovery areas. The real time aspect of

the center's function imposes many critical timing constraints. To relay electronic signals a long distance requires additional converters and special equipment that, in turn, add delays. Real time functions require millisecond timing. Delays of hundreds of milliseconds to convert and move signals long distances would prevent proper operation of the range. Due to missile speeds, Range Safety needs accurate and timely information, not delayed information upon which to make decisions such as to destroy an errant missile. Just before and just after a significant mission it is prudent to conduct detailed briefs and reviews to ensure the success of the mission and to collect the maximum amount of data from the participants. The participants include the Project Manager and his technical people, and the Range pilots, operators, and customer support personnel. To locate the Range Operations Center to some remote location would almost ensure the loss of fresh memories from the participants. Further, there is less likelihood that range personnel could participate in the reviews because of the need to remain nearby to support the next operation.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The original Range Operations Center, Building 53, was built in 1953. A few years later an annex, designated Building 53A was added, followed by Building 53B in 1962, and 53C in 1980. A wide variety of methods was used to procure and implement Range systems into the Center. From the 1950s to the 1960s the trend was to procure individual systems and integrate them into the Center using in-house forces. However, later the tendency was to procure turn-key systems with the contractor responsible for design and integration. The more recent implementations have used both methods. The need for the Range to continually improve its capability to be ready for testing the most advanced weapons means that the systems in the Range Operations Center, as well as the Range in general, are constantly changing and evolving.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Because of the wide variety of systems in the Range Operations Center there is a wide variety of utilization. Examples are the following:

Extended Area Test System. The system's average utilization is approximately 75 hours per week. The units of measure are the actual time the system was scheduled and paid for by a Range customer.

Range Data Processing. The historical utilization average for the past 5 fiscal years is 24 hours a day, 5 days a week for the data processing interface systems and 24 hours a day, 7 days a week for the main processing center. The center is continuously manned and operational except for occasional shutdowns at the Christmas holiday.

Display and Control. Fully used throughout the normal core working hours (0600 to 1800) during the 5 weekdays. Also used by 25% of the workforce to support overtime operations 40 hours per week including Saturdays and Sundays.

12. Provide the projected utilization data out to FY 1997.

Extended Area Test System. Operational support projected out to FY 1997 is estimated to be consistent with past years, at an average of 75 hours per week. With the upgrade of the EATS system, its increased capabilities, and the augmentation with GPS, there is a strong potential for increased usage.

Data Processing Systems. The projected utilization data from now through FY 1997 is for continued 24-hour-a-day manning through FY 1997 and beyond.

Display and Control. The projected utilization data from now through FY 1997 is for continual manning through FY 1995 and 16 to 18 hours a day, 5 to 6 days a week; manning in FY 1996 and FY 1997. The projected utilization will depend upon the range workload.

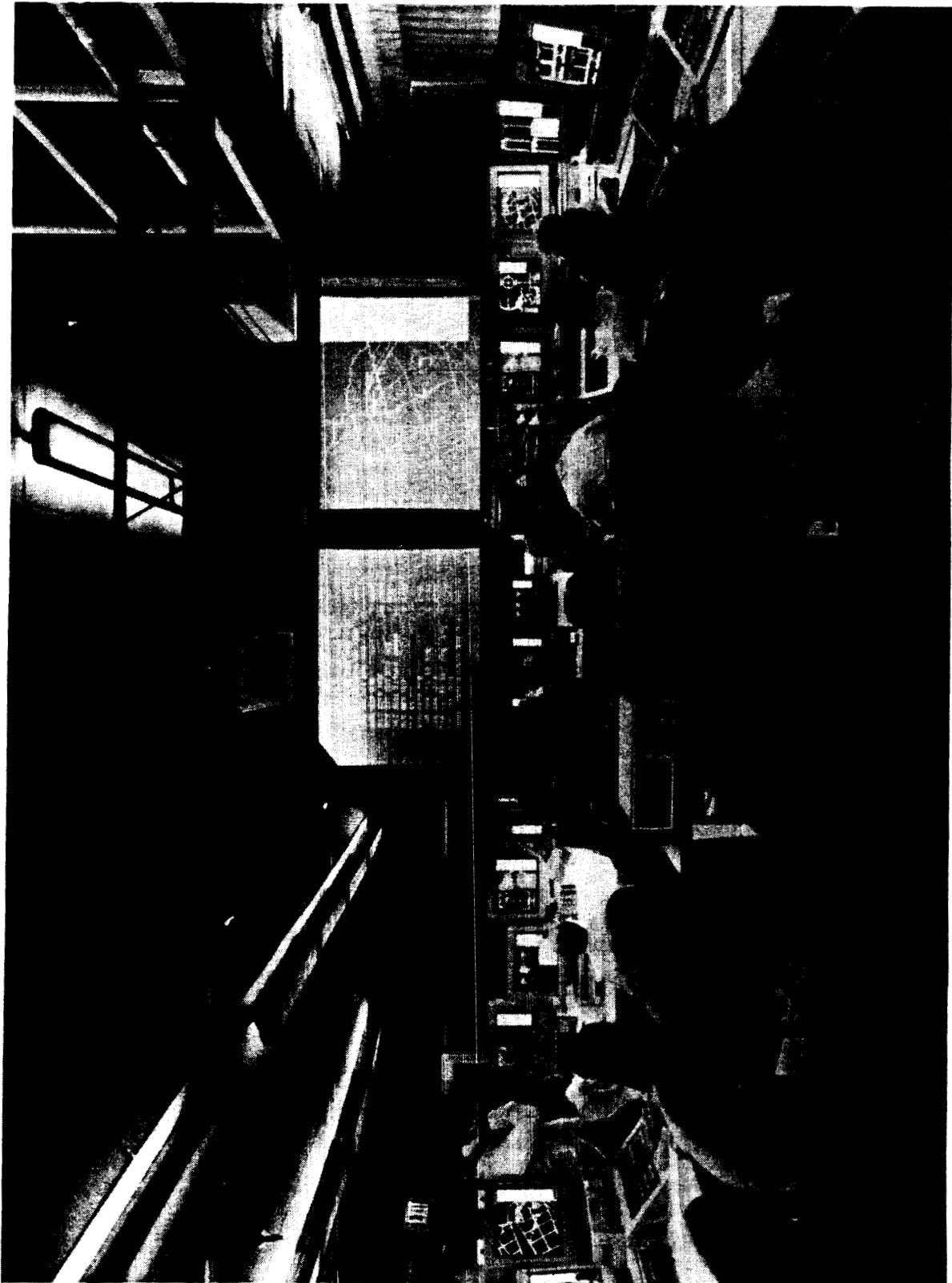
13. What is the approximate number of personnel used to operate the facility/equipment?

181 including 60 range customers

14. What is the approximate number of personnel needed to maintain the equipment?

83 (note that in many cases operators are also maintainers)

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Range Operations Center

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	26. Photographic Instrumentation

1. State the primary purpose(s) of the facility/equipment

Provides video/film documentary and video production of weapons systems or subsystems testing for reconstruction of weapon test, training, or documentation of descriptive material for project briefings. Computer graphics/animation can be performed to enhance production capability or graphics modeling to view weapon impact. Operational film and video data are gathered using high speed film and video remote cameras on the surface, in camera pods onboard target boats, or mounted on various Range aircraft. TSPI can be obtained along with photographic documentation utilizing the Section's network of 11 Askania cine-theodolite trackers. Cine-Sextant instrumentation mounts can also provide TSPI data as well as high speed film and video documentary coverage of operations. In addition, the Cast Glance airborne gyro-stabilized photographic instrumentation system installed in Range P-3 aircraft can provide long range, stand-off photographic coverage of weapon launch, impact, and object flight.

Provides complete processing and printing of still and motion picture photography. Motion picture services include 16 and 35mm film processing, print reductions, titles, step printing, contact printing, and the making of inter-negatives. Photographic lab services include on-location shooting, studio set-up, viewgraphs, slide/print duplicating, and aerial photographic documentation.

2. Indicate whether the facility/equipment is portable, movable or fixed as defined by paragraph 6, page 12 of this data call.

The Askania cine-theodolites are permanently fixed structures. The video editing facilities and the photographic laboratory facilities are also fixed but could be moved with considerable manpower and effort. The other photographic equipment in the Branch is all portable and is moved on a regular basis in support of the Branch mission of providing documentary coverage of Range operations.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Branch facilities replacement value is \$9.6 million and equipment replacement value is estimated at \$40 million.

4. Provide the gross weight and cube of the facility/equipment.

48,900 pounds 11,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

The Cast Glance systems require 28VDC and 110VAC at 400 Hz in addition to regular 110VAC at 60 Hz. Hardwired IRIG timing is supplied at all Askania cine-theodolite buildings and at some of the other locations for various camera systems.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.)

N/A

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

The Photographic Laboratory requires over 100 tons of air conditioning/handling to ensure that the chemistry utilized in processing is maintained at a stable temperature. The ambient air temperature must be maintained between 65 and 74°F.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The photographic equipment utilized in the Photographic Instrumentation Branch must provide complete optical support at Point Mugu and San Nicolas Island. The operations supported at this facility are designed around the geographic make-up of the Sea Range and the surrounding islands. Testing of many major weapons systems is performed at Point Mugu because of this unique geography. Many of the systems (such as Cast Glance) are unique and require special training to operate satisfactorily to gather the required film and video data. Many of the capabilities provided at this facility are not available at others facilities. Capabilities that are available at other facilities most probably will not provide the specific operational test scenarios inherent to the Point Mugu facility. A loss of the photographic instrumentation capability at Point Mugu would mean that project personnel would not be able to evaluate their operational test scenarios effectively without photographic documentation.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The Askania cine-theodolite buildings were constructed in the late 1950s. Most of the other buildings utilized in the Branch have been constructed since that time. Equipment utilized in these facilities has been acquired with project and institutional funds over the past 30 years.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

The Photo Instrumentation Branch provides operational support to all major Range development and operational test programs at NAWCWPNS.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

During 1989 through 1993, the Photo Instrumentation Branch's Photographic/Video Support Section supported an average of 40 scheduled operations per year. Each operation varies greatly in its makeup and involvement, ranging from support to a local (Point Mugu) operation involving remote cameras that might require 2 to 3 people for 2 days to a shipborne operation (e.g., Aegis support) involving 8 or 9 personnel for a period of 2 to 3 weeks. The Photographic Laboratory Section provides all photographic processing for the Range operation; supported by the Branch and also provides processing and printing for all NAWCWPN'S customers and other government/contractor facilities. The lab processes over 1,300 jobs per year, each job varying in size and ranging from processing of one roll of film and producing prints to large operational documentary jobs involving the production of 4,000 prints.

12. Provide the projected utilization data out to FY-97.

The projected workload for the Branch through FY 1997 is expected to increase as a result of new program support in FY 1995 through FY 1997. The workload should continue at above 40 operations per year.

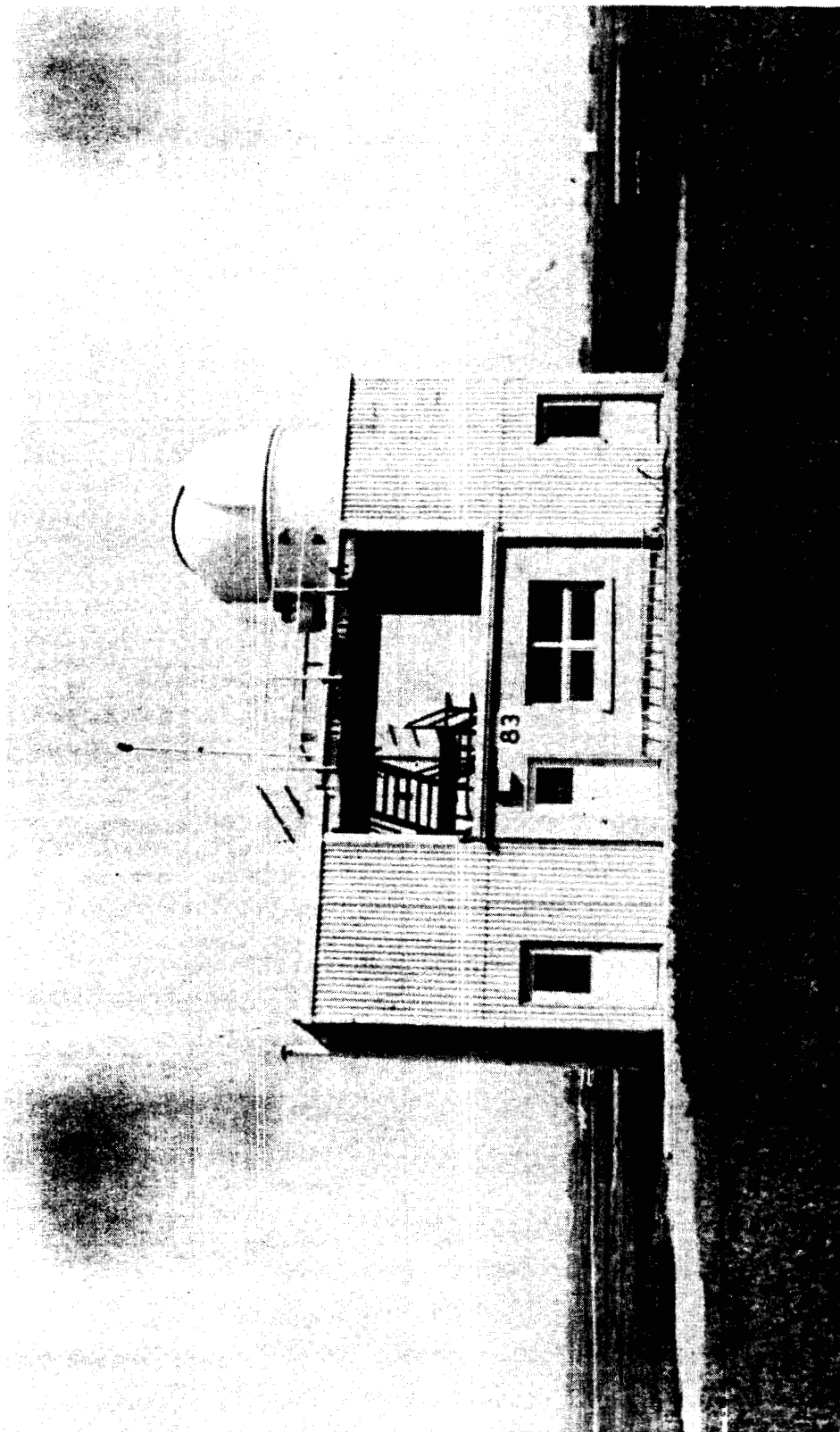
13. What is the approximate number of personnel used to operate the facility/equipment.

4 staff personnel, 9 photo lab personnel, and 23 photographic/video support personnel

14. What is the approximate number of personnel needed to maintain the equipment.

Approximately 2 manyears of effort by personnel in the Branch is expended on routine preventive and corrective maintenance. In addition, two lab maintenance contracts (total of \$40,000) are maintained for more involved preventive and corrective maintenance. A camera maintenance contract (\$45,000) is also utilized to obtain repair of complex camera systems.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Photographic Instrumentation

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	27. Remote Drone Launch Facility

1. State the primary purposes of the facility/equipment.

The Remote Drone Launch Facility on San Nicolas Island provides a means for target drones having limited range to be used in test and evaluation scenarios conducted west of San Nicolas Island. The remote launch facility is an economical alternative to air launch of drones when the scenario can be brought close enough to San Nicolas Island.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The structure is fixed. Launching equipment is considered fixed. Electronics equipment is moveable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$750,000 facility, \$1,000,000 equipment

4. Provide the gross weight and cube of the facility/equipment.

11,200 pounds 3,072 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

DC power is required at the site.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Fire deluge. Special fueling/defueling area. Special construction is required to survive the blast of launch.

7. State any environmental control requirements for the facility/equipment (i.e. temperature, humidity, air scrubbing).

Air is filtered to control salt air corrosion.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

It would be extremely costly to duplicate this facility at another site. The building is a block house constructed of solid concrete approximately 24 inches thick to afford protection to occupants in the launch control rooms. Launch pads and launchers are adjacent to the building. The launch control equipment in the control rooms was designed in house and fabricated by outside contractors more than 20 years ago.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The building was constructed by civilian contractors in 1968 and the initial equipment was installed shortly thereafter. Additional capability has been added over the years to accommodate different types of targets.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

The unit of measure is the number of annual launches supported from the facility. The average number of launches is 3 per week.

12. Provide the projected utilization data out to FY 1997.

The launches should remain relatively constant at 3 per week.

13. What is the approximate number of personnel used to operate the facility/equipment?

8

14. What is the approximate number of personnel needed to maintain the equipment?

1

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Remote Drone Launch Facility

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	28. Sea Range Communications

1. State the primary purposes of the facility/equipment.

Primary purpose of the Sea Range Communications Facility is to provide secure and non-secure voice, radio, data, and video communications and timing, command control, and frequency monitoring services to Sea Range customers. This communication facility provides all the communications between range instrumentation systems and range operations control facilities.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The facility consists of equipment located in 300 buildings and sites at Point Mugu, Laguna Peak, San Nicolas Island, and Santa Cruz Island. It provides an integrated Sea Range communications capability. These locations and the equipment in the buildings at these locations are interconnected via cable plants consisting of fiber optic, copper pair, and coaxial cables, and microwave. Primary inter-site connectivity is via fiber optic cables including an underwater fiber optic cable between Point Mugu and San Nicolas Island. Connectivity between buildings at each site is a combination of fiber and copper cables.

The cable plant is mostly underground and underwater and is integral to the physical sites of Point Mugu, Laguna Peak, San Nicolas Island, and Santa Cruz Island. Therefore, the cable plant and associated cable main distribution frames and primary building cables are considered fixed assets. The cable plant is 41.5% of the replacement value of the communication facility.

The radio antennas, associated cables, and mounting structures could not be reconstructed if moved; therefore they are considered fixed assets. This is 0.5% of the replacement value of the communications facility.

Fixed assets consisting of the cable, plant and radio antennas is 42% of the value of the communications facility.

The equipment consisting of systems located in buildings being serviced are considered moveable assets. This equipment is 58% of the replacement value of the communications facility.

Portable equipment consists of less than 1% of the replacement value of the communications facility.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

The replacement value of the Sea Range Communications Facilities is \$12.6 million and replacement value of the equipment is \$88.8 million. This does not include labor and material costs to remove, reinstall, integrate, test, document, and certify each system.

TAB B

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4. Provide the gross weight and cube of the facility/equipment.

812,688 pounds 90,226 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

The primary and ancillary communications centers at each location and each radio site require an uninterruptible power system integrated with an emergency electrical generator system.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

The equipment spaces of the primary communication centers at each location require the following:

1. A steel shell for protection from radio frequency interference
2. TEMPEST certification
3. Strong room certification for open storage of cryptographic materials and equipment
4. Cable vault connected to the cable duct system of the site

The equipment spaces at primary and ancillary communications centers at each location and each radio site require a master electrical grounding system.

7. State any environmental control requirements for the facility/equipment (i.e. temperature, humidity, air scrubbing).

The equipment spaces at primary and ancillary communications centers at each location and each radio site require temperature and humidity control with a filtered air system and a fire protection system.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The loss of the Sea Range Communications Facility would make the NAWCWPNS Point Mugu Sea Range useless, resulting in the loss of the Sea Range to the Department of Navy and the Department of Defense. The Sea Range Communications Facility is structured and designed to provide communications services to users of the Sea Range at Point Mugu. Therefore relocation to another site is of no value to the Department of Navy.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This communications facility has been built and modernized system by system and cable by cable over the last 40 years to keep pace with requirements for testing weapon systems.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Historically and currently the systems are in continuous daily use providing secure and non-secure voice, radio, data, and video communications, and timing, command, control, and frequency monitoring services to Sea Range customers and providing communications between all range instrumentation systems and range operations control facilities. This communications facility is utilized on every operation conducted on the Sea Range.

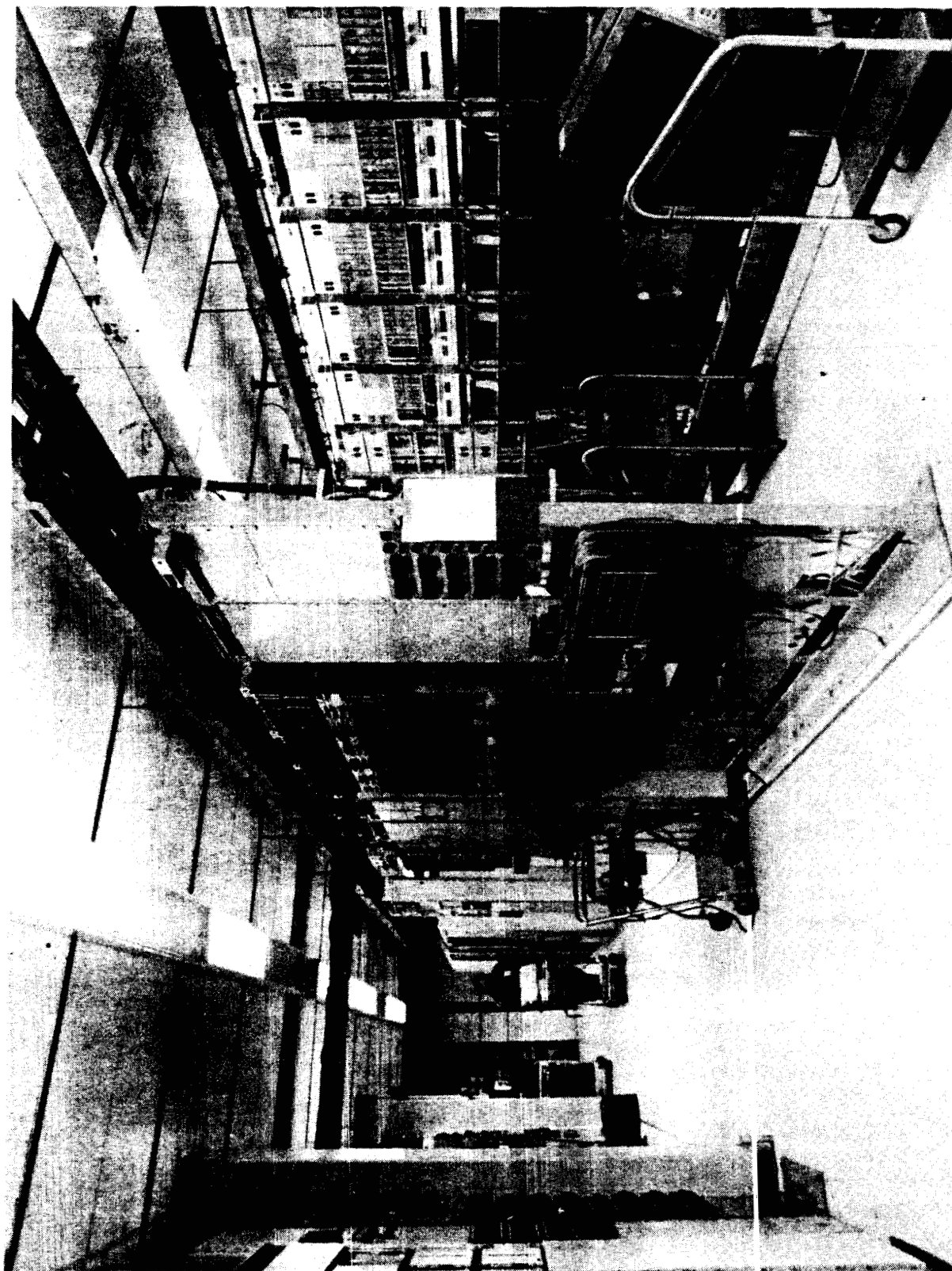
12. Provide the projected utilization data out to FY 1997.

It is projected that the systems will be in continuous daily use as long as a Sea Range exists at Point Mugu.

13/14. What is the approximate number of personnel used to operate the facility/equipment? What is the approximate number of personnel needed to maintain the equipment?

Approximately 88 personnel are required to operate and maintain the Sea Range Communications Facility with locations at Point Mugu, Laguna Peak, San Nicolas Island, and Santa Cruz Island. The same personnel perform both operations and maintenance functions; therefore separate numbers are not considered practical.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Sea Range Communications

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	29. Antenna Test Range

1. State the primary purpose(s) of the facility/equipment.

The antenna test facility provides the means to test and calibrate large, precision, tracking radar and telemetry antennas. This facility is needed to ensure that precision antennas used on the range provide the required accuracy in all aspects of use.

2. Indicate whether the facility/equipment is portable, movable or fixed as defined by paragraph 6, page 12 of this data call.

The building is fixed. The mechanical equipment that actually supports the antenna as it is being moved through various orientations depends on a substantial building foundation but is moveable. The precision equipment located inside the building is moveable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Building/foundation cost is estimated at \$500,000. Equipment cost is \$1,000,000.

4. Provide the gross weight and cube of the facility/equipment.

15,000 pounds 3,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

208 VAC three-phase

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

The antenna support mechanism requires a very stable support foundation.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Equipment requires air conditioning and clean air.

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

One of the unusual features of the lagoon at Point Mugu makes an antenna range at this location particularly effective. There is a 4,000-foot stretch of calm water between the antenna under test and a test target used to run the test. This allows a very controlled, predictable test environment. Such sites are relatively rare, which accounts for the use of the Antenna Test Facility by commercial firms as well as the Range.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The building with its massive foundation was constructed in 1973, and the equipment was installed shortly thereafter.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

10.7 Major Range Development and Operation

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

Preparations for and testing of antennas is conducted 40 hours per week on the average.

12. *Provide the projected utilization data out to FY 1997.*

Same as the response to question #11.

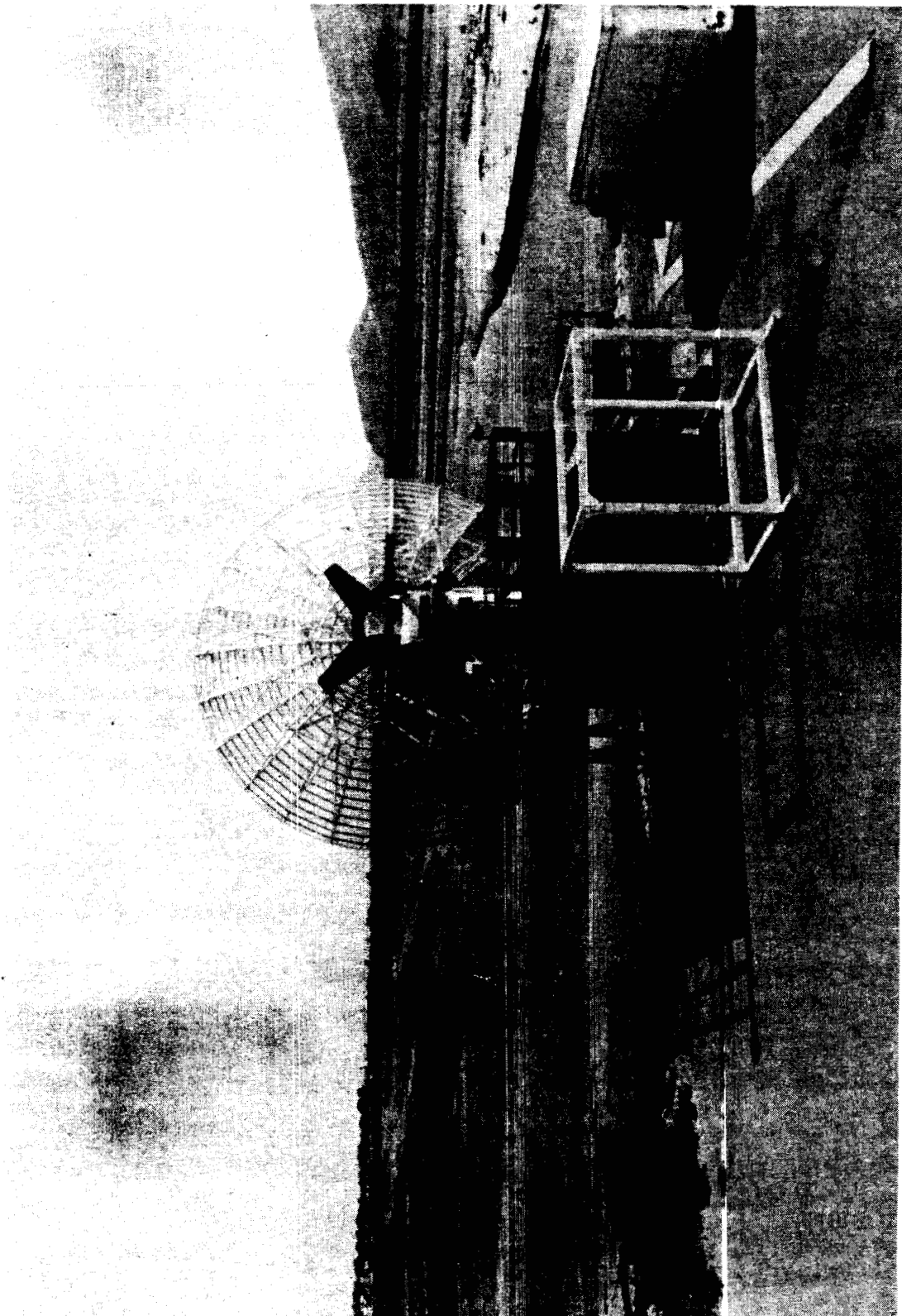
13. *What is the approximate number of personnel used to operate the facility/equipment?*

There are normally 2 operators assigned to the Range.

14. *What is the approximate number of personnel needed to maintain the equipment?*

The operators are also the maintainers.

15. *Provide one 8 1/2 X 11 black and white photo of the facility/equipment.*



Antenna Test Range

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	30. Main Launch Facility Bldg. 55

1. State the primary purposes of the facility/equipment.

Main surface launch complex at NAWCWPNS, Point Mugu

2. Indicate whether the facility/equipment is portable, moveable or fixed (as defined by paragraph 6, page 12 of this data call).

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$4,600,000 facility, \$800,000 equipment

4. Provide the gross weight and cube of the facility /equipment.

19,981 square feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

None

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Fire deluge; special fueling/defueling area

7. State any environmental control requirements for the facility/equipment (i.e. temperature, humidity, air scrubbing).

Air is filtered to control salt air corrosion.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

It would be extremely costly to duplicate this facility at another site. The building is a launch block house with launchers and launch pads on the roof. It is constructed of solid concrete approximately 24 inches thick to afford protection to occupants in the launch control rooms below. The launch control equipment in the control rooms was designed in house and fabricated by outside contractors at a cost of \$150,000 more than 20 years ago. It is apparent that equivalent launch control equipment would cost several times as much.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The building was constructed by civilian contractors in the late 1940s or early 1950s, probably between 1948 and 1952.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

The unit of measure is the number of annual launches supported from Building 55. The average number of launches is 150 per year.

12. Provide the projected utilization data out to FY 1997.

The launches should remain relatively constant at 150.

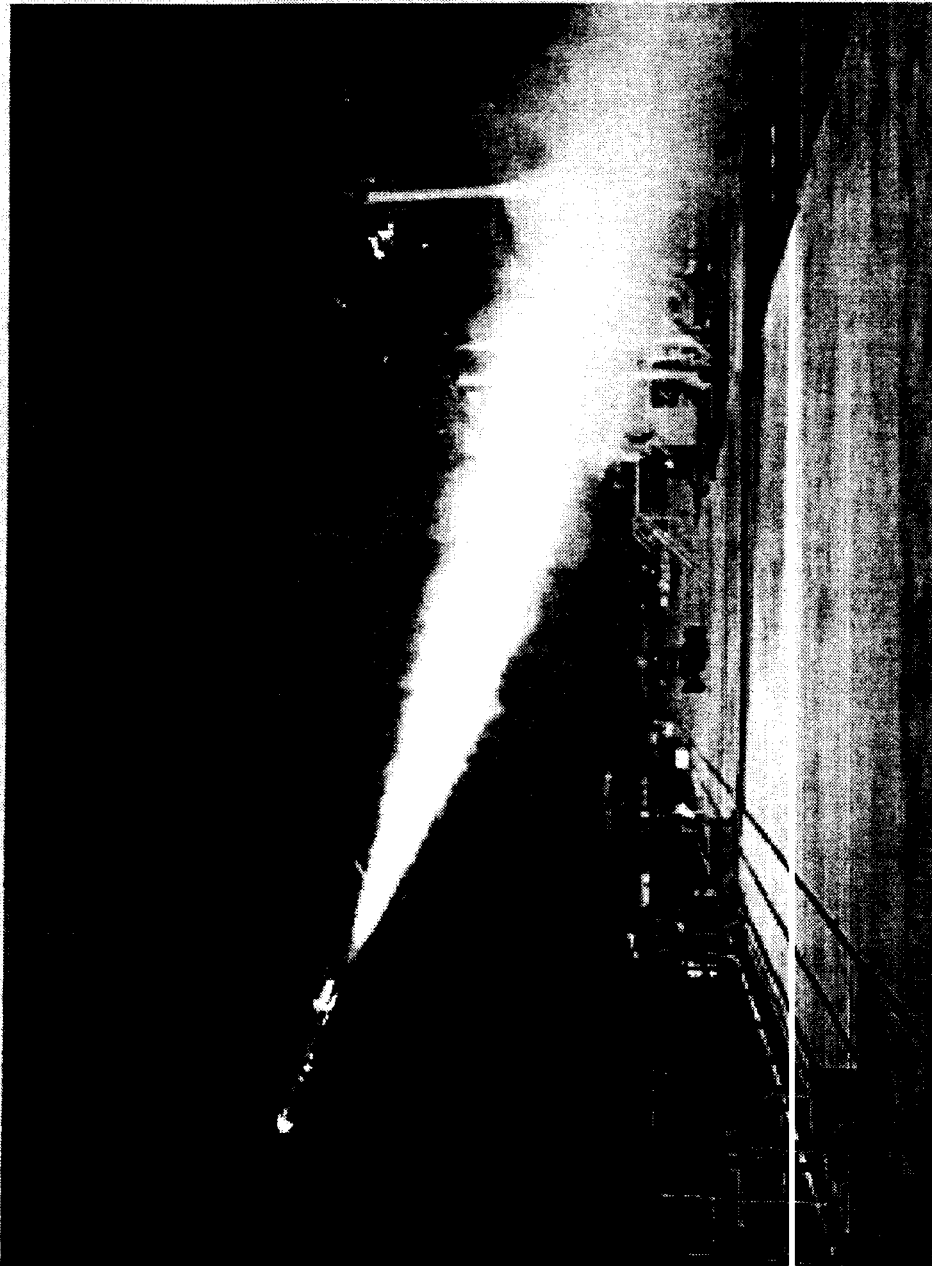
13. What is the approximate number of personnel used to operate the facility/equipment?

16

14. What is the approximate number of personnel needed to maintain the equipment?

13

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Main Launch Facility

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	31. Calibration Laboratory

1. State the primary purpose(s) of the facility/equipment.

This facility/equipment is a shore based Navy Type III calibration laboratory meeting the calibration facility requirements delineated in NAVAIR 17-35FR-02/NAVSEA OD 45842. The facility has Calibration Laboratory Areas for optical/dimensional, physical/mechanical, and electrical/electronic measurements. In addition, the facility/equipment has Special Purpose areas for oxygen-clean calibration and mercury handling.

The primary purpose of the facility/equipment is calibration, repair, and maintenance of particular Support Equipment (SE) and Test and Monitoring Systems (TAMS) required for NAWCWPNS organic, industrial, aircraft, flight test, and weapons test instrumentation and calibration laboratory support in accordance with NAWCWPNSINST 13640.1

2. Indicate whether the facility/equipment is portable, movable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed and facility designed equipment to meet and support range programs

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Facility: \$7,465,000
Equipment: \$18,914,180 (based on EMO records)

4. Provide the gross weight and cube of the facility/equipment.

612,000 pounds 40,500 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Special utilities and services in accordance with Section 3 of NAVAIR 17-35FR-02/NAVSEA OD 45842, Calibration Facility Requirements for Shore Based Navy Calibration Laboratories, 1 December 1990 (Attachment (1))

6. *Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).*

Shielding in accordance with Section 4 of NAVAIR 17-35FR-02/NAVSEA OD 45842, Calibration Facility Requirements for Shore Based Navy Calibration Laboratories, 1 December 1990 (Attachment (2))

Floor mounted isolation pads required for the optical calibrator, the balances room, and the shaker/vibration table to eliminate seismic movement

USGS measured gravitational location determination for the mercury manometer instrument

Special isolation flooring, walls, and tile ceiling for oxygen-clean calibration room in accordance with NAVSEA 4850.9 & 1330C.

7. *State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).*

Environmental control requirements in accordance with Section 4 of NAVAIR 17-35FR-02/NAVSEA OD 45842, Calibration Facility Requirements for Shore Based Navy Calibration Laboratories, 1 December 1990 (Attachment (2))

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

Replication or relocation would be extremely difficult to accomplish primarily because of the costly installation of "special" utility support, special foundations, shielding, and environmental control requirements. Loss of this facility/equipment would increase lead time for calibration services 600% (from 5 days to 30 days). This would force customers to acquire additional, backup equipment to meet mission requirements.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

This facility was constructed at the current site and the equipment used to support the calibration function was transported to the laboratory facility.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

10.7 Major Range Development and Operation

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

Historical utilization average: 8,660 items calibrated per year

12. Provide the projected utilization data out to FY 1997.

Projected Utilization Average (Items Calibrated per Year):

FY 1994	8,525
FY 1995	8,725
FY 1996	8,925
FY 1997	9,125

13. What is the approximate number of personnel used to operate the facility/equipment?

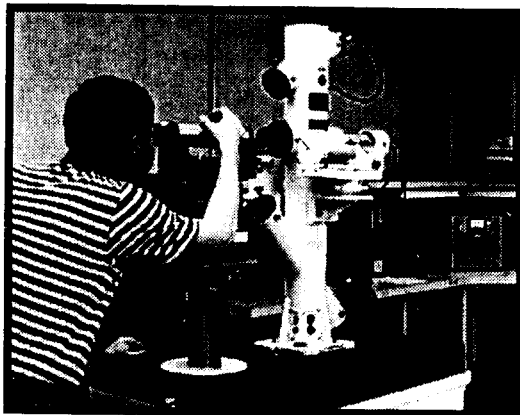
28 (includes all personnel in the Metrology Division that are not involved in maintenance and repair of the laboratory standards)

14. What is the approximate number of personnel needed to maintain the equipment?

2 (all personnel in the Metrology Division calibrating, maintaining, and repairing SE and TAMS)

15. Provide one 8 1/2 X 11 black and white photo of the facility/equipment.

OPTICAL CALIBRATION



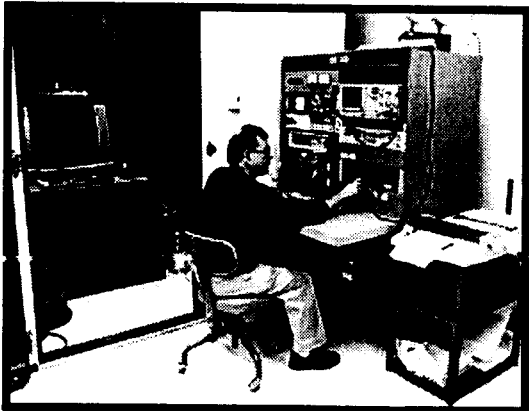
ELECTRICAL CALIBRATION



INDUCTION CENTER



PHYSICAL DIMENSIONAL



Calibration Laboratory

TABB
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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	32. Integrated Target Control System (ITCS) Remote Site Equipment

1. State the primary purpose(s) of the facility/equipment.

The use of targets (drones) is essential for test missions involving the live firing of missiles in dynamic scenarios. The ITCS is one of the systems used to control and monitor targets (drones) as they are presented in the weapons test and evaluation scenario in the Sea Range. Targets controlled include full scale aircraft, subscale aircraft, and surface targets. The ITCS consists of a master suite of equipment located in the Range Operations Center at Point Mugu plus remote site equipment at Laguna Peak and San Nicolas Island. This Tab addresses only the remote site equipment. The Master Suite is included in the Tab that addresses the Range Operations Center.

2. Indicate whether the facility/equipment is portable, movable or fixed as defined by paragraph 6, page 12 of this data call.

The buildings are fixed. The equipment is moveable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Building/foundation cost is estimated at \$300,000. Equipment cost is \$1.1 million.

4. Provide the gross weight and cube of the facility/equipment.

60,000 pounds 4300 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Because one or more expensive drones are likely to be lost if the remote trackers fail, uninterruptable power is required.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

The remote tracking antennas require stable foundations for tracking accuracy requirements.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Equipment requires air conditioning and clean air.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

There are two ITCS trackers on Laguna Peak that provide good coverage over the inner Sea Range and also allow checkout of the drones as they sit on the launch pads at Point Mugu. Four more ITCS trackers are located at San Nicolas Island. These four give good coverage of both the inner and outer Sea Test Range. Both sites are over 1,000 feet in altitude, allowing control of a drone launched at Point Mugu to distances of over 100 miles west of San Nicolas Island.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Facility/equipment was built in the mid 1950s using a turn key contract.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

At least one target drone is being controlled by ITCS 3 hours a day 5 days a week.

12. Provide the projected utilization data out to FY 1997.

Same as response to question #11.

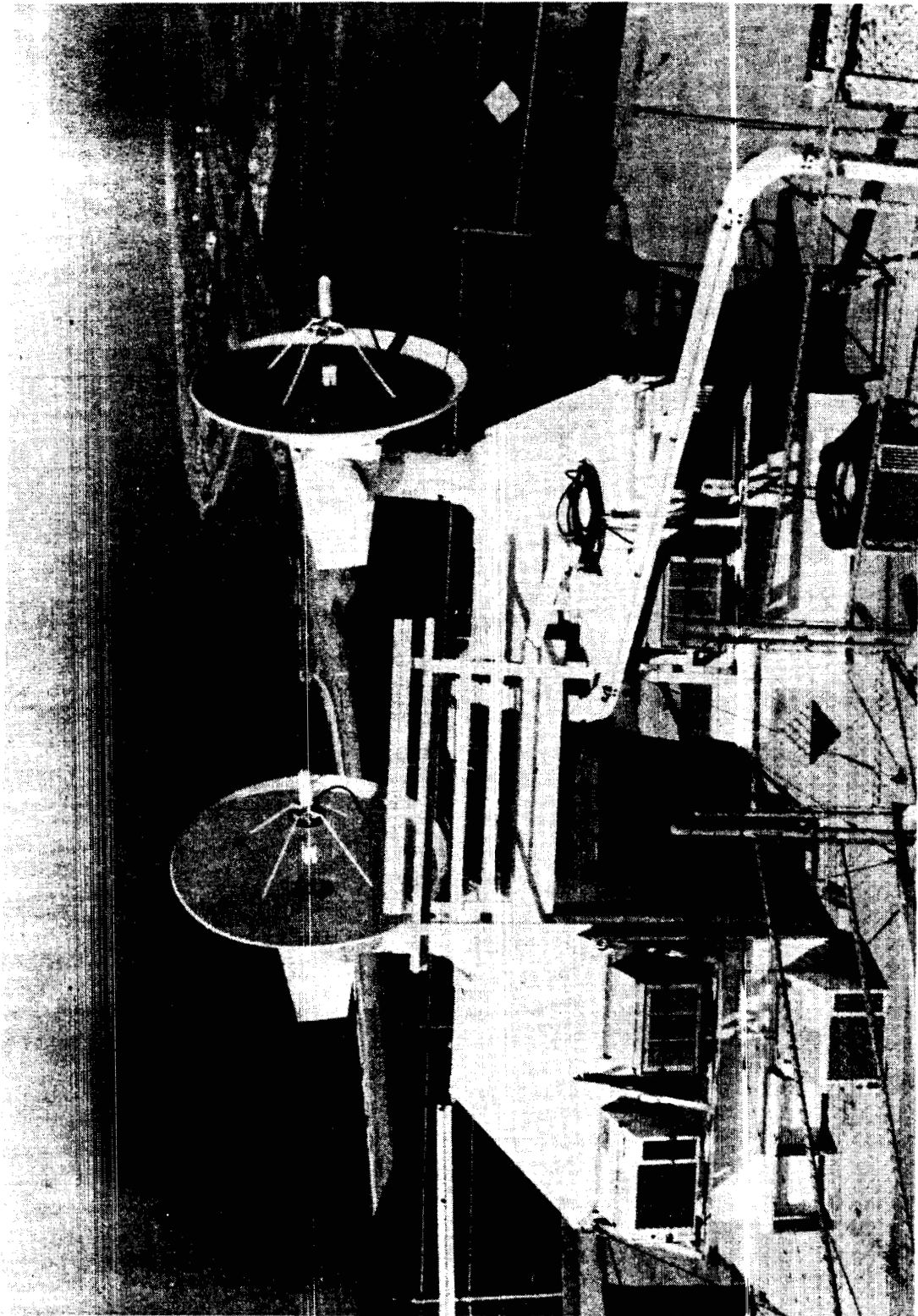
13. What is the approximate number of personnel used to operate the facility/equipment?

There are no operators for the remote site equipment.

14. What is the approximate number of personnel needed to maintain the equipment?

8 CSC personnel and two civil service personnel maintain and upgrade the equipment.

15. Provide one 8 1/2 X 11 black and white photo of the facility/equipment.



Integrated Target Control System (ITCS) Remote Site Equipment

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	33. Surface Craft Recovery Boats

1. State the primary purpose(s) of the facility/equipment.

Four Range Surface Craft are based at Port Hueneme Harbor, approximately 10 miles from Point Mugu. The craft are all 85-foot weapons retrieval boats. Their primary mission is to service Range and project equipment in the Sea Range, including recovery of drones and recovery test article debris, clearing the range of intruders, assisting Coast Guard search and rescue missions, and transporting men and equipment to and from the offshore islands and other vessels at sea.

2. Indicate whether the facility/equipment is portable, movable or fixed as defined by paragraph 6, page 12 of this data call.

The surface craft are moveable. The berthing and support facilities are fixed.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Building/foundation cost is estimated at \$300,000. Equipment cost is \$15 million.

4. Provide the gross weight and cube of the facility/equipment.

550,000 pounds 75 million cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Shore power is 440 VAC.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Hazardous waste disposal facilities for oils and contaminated water; engine repair facilities, welding facilities, and related support shops

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

None

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

These craft are essential to the efficient support of the Range Mission to support the test and evaluation of air and surface weapons.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The boats arrived at Port Hueneme after 1964.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

On the average there is at least one boat a day at sea conducting an 8-hour mission.

12. Provide the projected utilization data out to FY 1997.

Same utilization as question #11.

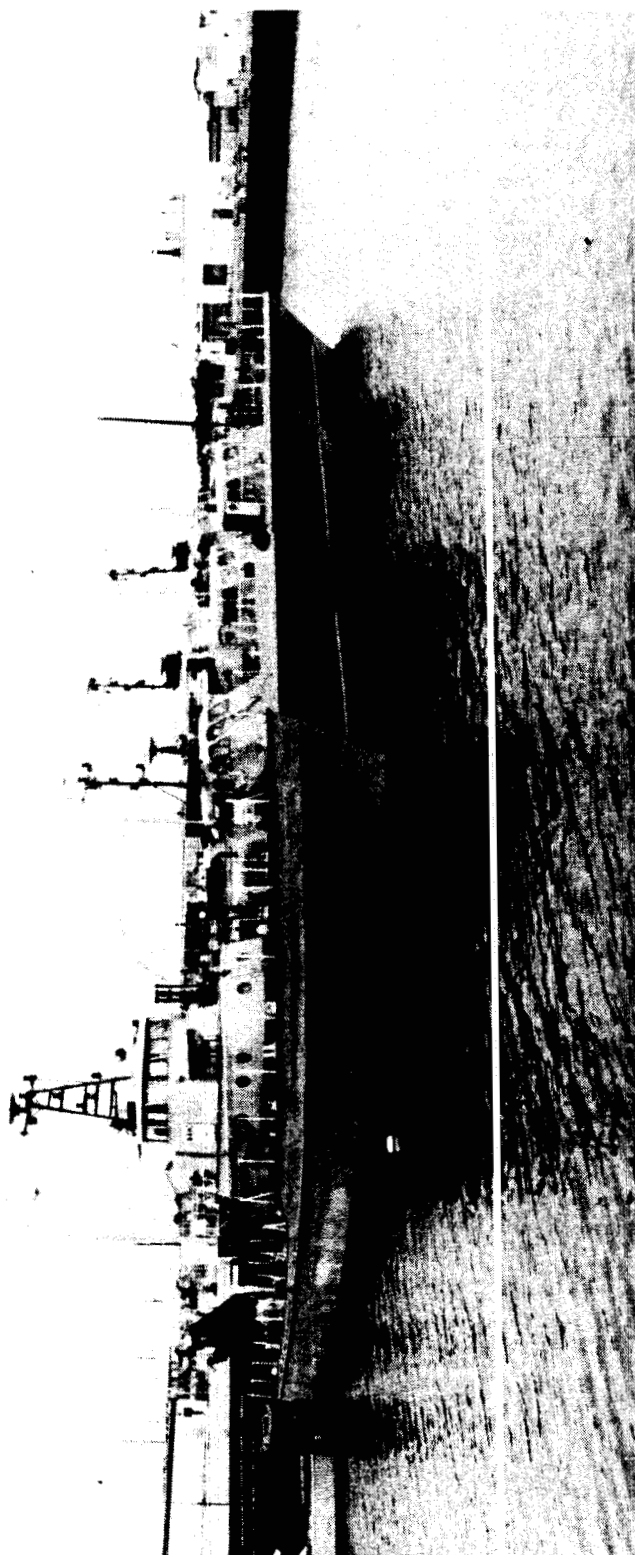
13. What is the approximate number of personnel used to operate the facility/equipment?

54 military personnel assigned to maintain and operate the craft

14. What is the approximate number of personnel needed to maintain the equipment?

See question #13.

15. Provide one 8 1/2 X 11 black and white photo of the facility/equipment.



Surface Craft Recovery Boats

TAB B

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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	34. P-3 Airborne Instrumentation

1. State the primary purpose(s) of the facility/equipment.

Five P-3 Orion aircraft have been modified to perform a wide range of functions essential to operation of the Sea Range. The aircraft perform a clearance function by transiting the thousands of square miles of the Sea Range to detect intruders and to direct the intruders off the range. Telemetry aboard the aircraft collects performance information from several test weapons simultaneously at distances of over 150 miles. Destruct and destruct relay features on the aircraft provide a means for terminating the flights of missiles that are over the horizon from land stations. Communications relay features provide over the horizon communications and target drone control between control centers at Point Mugu and participants at sea. Special photo/video equipment provide collection of information from air and surface test and evaluation exercises and the relay of that data in real time to mission control centers at Point Mugu.

2. Indicate whether the facility/equipment is portable, movable or fixed as defined by paragraph 6, page 12 of this data call.

Support buildings and hangers are fixed. The instrumentation on the aircraft can be removed but in many cases would not be usable on other craft.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$42.8 million

4. Provide the gross weight and cube of the facility/equipment.

350,000 pounds (total of 5 aircraft) 6,500 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Full aircraft support power is needed at the apron.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

A full range of facilities is required to support the aircraft as well as to support the test and calibration of the on board instrumentation.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Standard P-3 aircraft support facilities are required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

One of the key features of the range at Point Mugu is the full instrumentation coverage available over a large area. However before a range can be used for dangerous test missions (live firing), it is essential that there be a minimal chance of unintended property damage or of loss of life. The P-3s are sent out with their special radars to ensure that the Range is clear of all intruders. Incorporation of other instrumentation on the P-3s not only specifically responds to Navy weapons programs requirements but also ensures that they are efficiently used for other purposes when not being used for the range clearance mission. There are a wide range of aircraft supported at Point Mugu, which allows efficient buys for common equipment and some sharing of technical and creature facilities (fire department, security, health facilities, quarters).

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Facility/equipment was built up beginning in the late 1970s and modifications have kept the systems current.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.7 Major Range Development and Operation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

The P-3 aircraft are performing sea range missions 20 hours per week.

12. Provide the projected utilization data out to FY 1997.

Same as response to question #11.

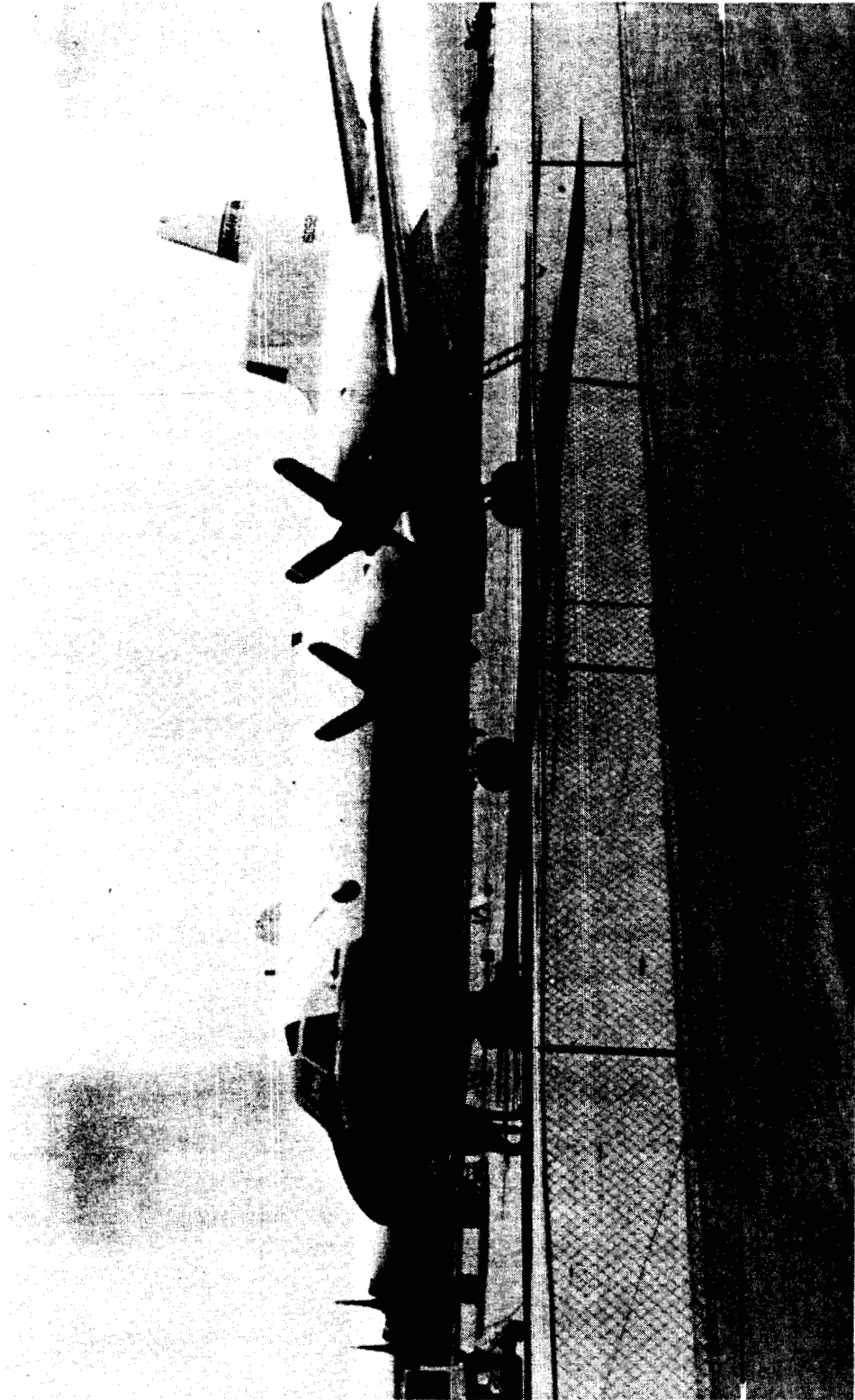
13. What is the approximate number of personnel used to operate the facility/equipment?

There are an average of 7 instrumentation operators.

14. What is the approximate number of personnel needed to maintain the equipment?

6 personnel support the maintenance of the P-3 instrumentation.

15. Provide one 8 1/2 X 11 black and white photo of the facility/equipment.



P-3 Airborne Instrumentation Stations

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	35. Ready Missile Test Facility (RMTF)

1. State the primary purpose(s) of the facility/equipment.

The RMTF consists of eight unique and specially constructed ordnance-certified cells used to perform functional, environmental, reliability testing, and preparation of all-up-round weapons systems. The facility performs Production Reliability Acceptance Testing (PRAT), Government Lot Acceptance Testing (GLAT), and Production Verification Testing (PVT).

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$12.2 million

4. Provide the gross weight and cube of the facility/equipment.

141 tons 147,807 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

4160 volts electrical power, 7,500 CFM air compressors, liquid nitrogen tanks, cooling towers

6. Indicate any special budget requirements for the facility/equipment: (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Eight concrete reinforced bunkers to shield the area from an explosion

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

High-volume air conditioners for the control rooms

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Loss of the capability to perform reliability testing and evaluation would leave the Navy without the ability to perform missile reliability tests per MIL-STD-810, Method 523.0. No other facilities or base of expertise exists that can support or execute these types of tests either in DoD or in private industry. The facilities are designed to test four to six missiles of a particular type simultaneously in the inert or all-up-round configuration.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Facility was constructed on site during 1978, 1979, 1980, and 1985.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

2.2 Guided Missiles, 2.3 Freefall Weapons/Rockets, 2.8 Launchers, 2.12 Weapons Propulsion

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

100% based on a 40-hour workweek

12. Provide the projected utilization data out to FY 1997.

100% based on a 40-hour workweek

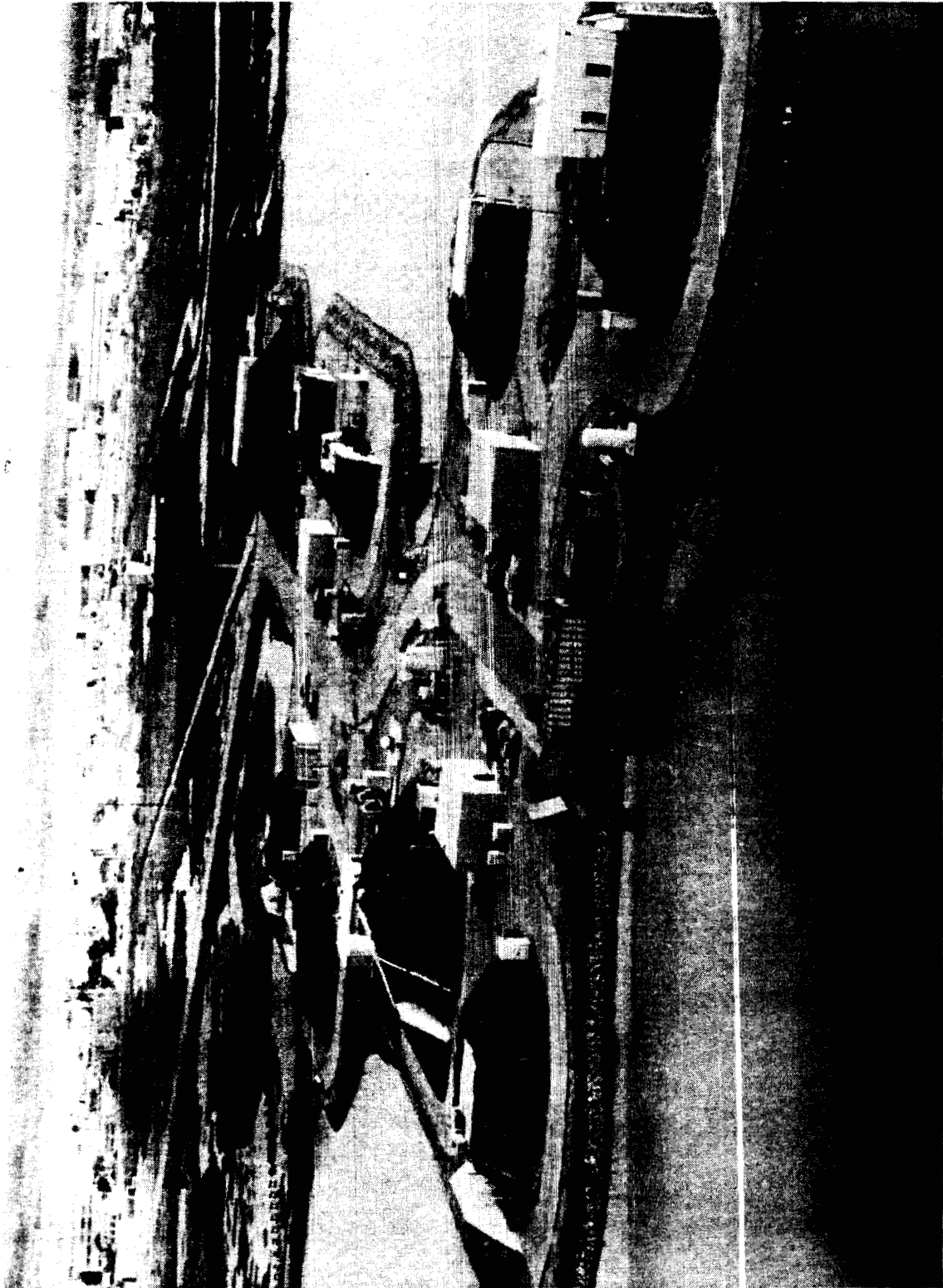
13. What is the approximate number of personnel used to operate the facility/equipment?

20 manyears based on a 40-hour workweek

14. What is the approximate number of personnel needed to maintain the equipment?

7.7 manyears based on a 40-hour workweek

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Ready Missile Test Facility (RMTF)

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	36.Advanced Packaging Facility

1. State the primary purpose(s) of the facility/equipment.

To design and develop unique electronic packaging for airborne telemetry subsystems and systems

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is fixed due to the complexity and precision of its equipment.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Equipment - \$1 million
Facility - \$2 million
Total - \$3 million

4. Provide the gross weight and cube of the facility/equipment.

302,568 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Hot/cold running water
Liquid nitrogen
220/440V electricity
Compressed air/vacuum
Hood vents
Water filter system
Deionized water
Special lighting/clean power for computers

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special foundation for machinery

7. *State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).*

Water filter system
Total environmental control: humidity, cool, heat, dust-free
Waste water treatment
Special filtered lighting
Antistatic floors
Bad water recovery system

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

The impact of the loss of this facility would be grave. The Department of Navy would not be able to provide telemetry systems for present and future weapon systems.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The Advanced Packaging capabilities were initiated in 1967 with make-do facilities. A dedicated facility was constructed (MILCON) in 1974 and then relocated in 1989.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

1. Platforms
 - 1.2 Aircraft
 - 1.3 Surface Ship
 - 1.5 Ground Vehicles
2. Weapons Systems
 - 2.1 Gun Systems
 - 2.2 Guided Missiles
 - 2.3 Free Fall Weapons and Rockets
 - 2.6 Directed Energy Systems
 - 2.8 Launchers
 - 2.10 Weapons Data Links
3. Combat System Integration
 - 3.2 Air
5. Sensors and Surveillance systems
 - 5.1 Sonar Systems
 - 5.3 Special Systems
7. Command, Control, Communications, and Intelligence
 - 7.6 Non-Tactical Data Systems

- 8. Defense Systems
 - 8.1 Ballistic Missile Defense
 - 8.2 Countermeasures
 - 8.3 Electronic Warfare (EW) Systems

- 10. General Mission Support
 - 10.7 Major Range Development and Operation

- 11. Generic Technology Base
 - 11.1 Computers
 - 11.2 Software
 - 11.8 Design Automation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

The utilization of this facility has been 100%. It has been used on Naval weapons systems and subsystems in the last 5 years, including Sparrow, Phoenix, AMRAAM, Standard Missile, SLAM, and many others.

Unit of measure: a Navy weapon and support system

12. Provide the projected utilization data out to FY 1997.

We will continue to use this facility 100% from now through 1997 and beyond.

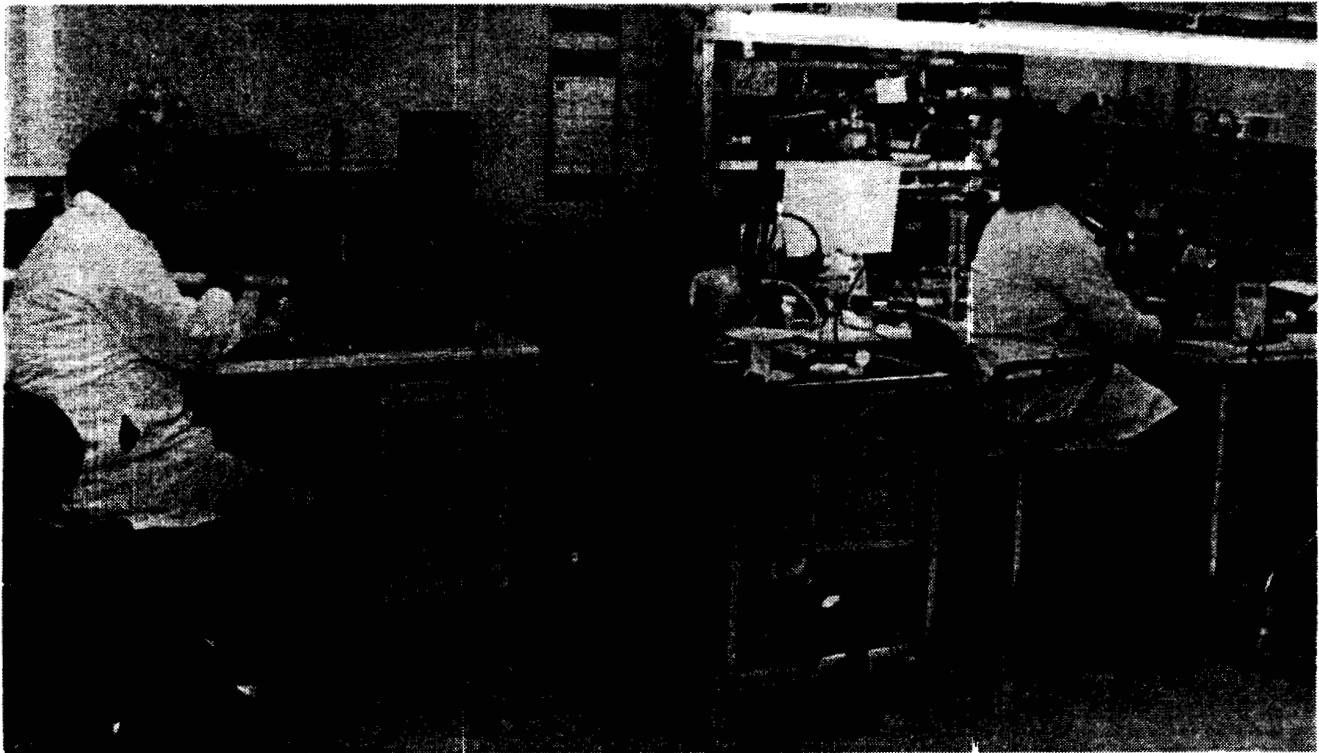
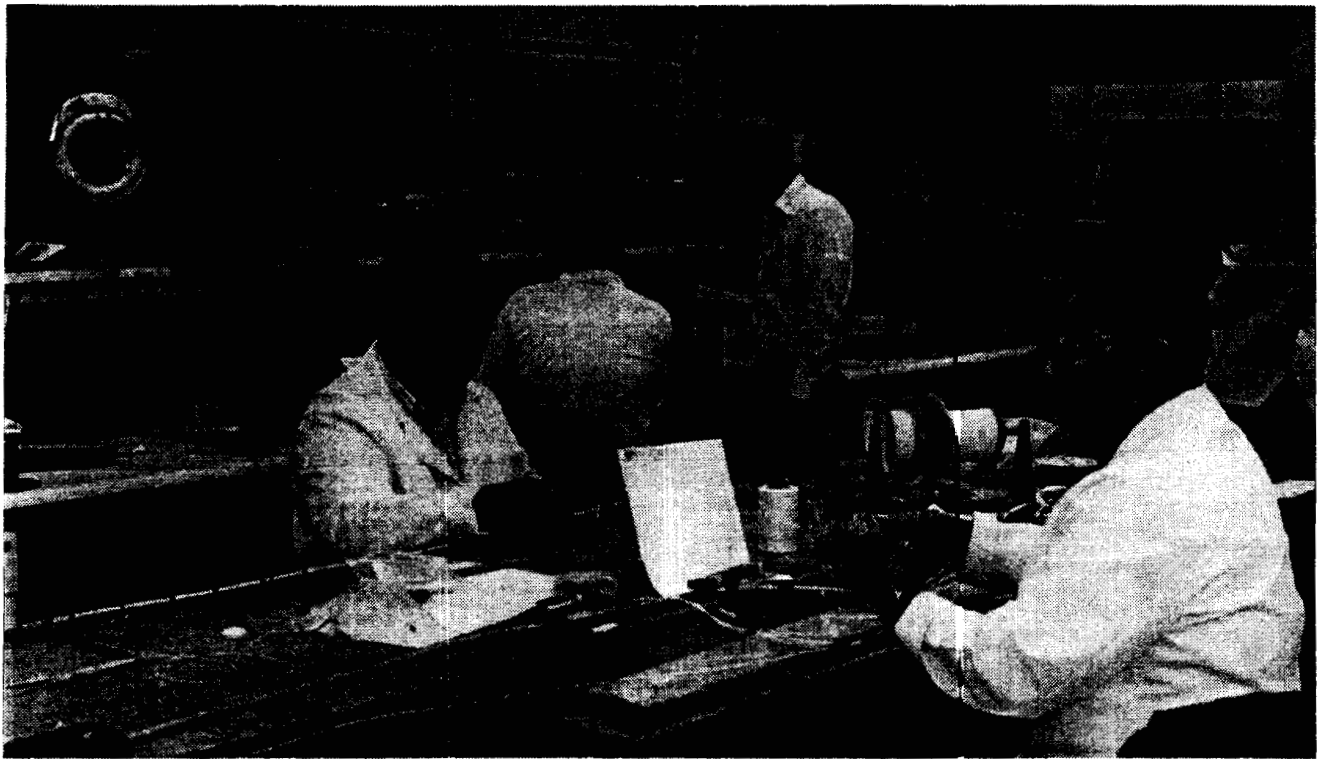
13. What is the approximate number of personnel used to operate the facility/equipment?

20

14. What is the approximate number of personnel needed to maintain the equipment?

2 plus various contractors

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Advanced Packaging Facility

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	37. Micro-Electronics

1. State the primary purpose(s) of the facility/equipment.

To design and develop unique microelectronics for airborne telemetry subsystems and systems

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is fixed due to the complexity and precision of its equipment.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Equipment - \$5 million
 Facility - \$2 million
 Total - \$7 million

4. Provide the gross weight and cube of the facility/equipment.

9.2 tons 109,308 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Class 10,000 clean room
 Helium
 Hot/cold running water
 220V electricity
 Liquid nitrogen
 Hood vents
 Water filter system
 Deionized water
 Special lighting/clean power

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special contracts for maintenance of deionized water systems, liquid nitrogen, wire bonder, and auto test equipment

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Total environmental control: heat, cool, humidity, dust-free
Antistatic floors
Bad water recovery system
Special filtered lighting
Waste water treatment
Water filter system

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

The impact of the loss of this facility would be grave. The Department of Navy would not be able to provide telemetry systems for present and future weapons systems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The Micro-Electronics Facility was placed in operation in 1967 with a dedicated laboratory constructed (MILCON) in 1974. The equipment for this facility was acquired as technology advanced.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

1. Platforms

- 1.4 Space Satellites
- 1.5 Ground Vehicles

2. Weapon Systems

- 2.1 Gun System
- 2.2 Guided Missiles
- 2.3 Freefall Weapons and Rockets
- 2.6 Directed Energy Systems

5. Sensors and Surveillance Systems

- 5.1 Sonar Systems
- 5.3 Special Sensors

6. Navigation

- 6.2 Aircraft Navigation

8. Defense System

- 8.1 Ballistic Missile Defense
- 8.3 Electronic Warfare (EW) Systems

- 11. Generic Technology Base
- 11.1 Computers
- 11.2 Software
- 11.4 Electronic Devices
- 11.5 Materials/Processes
- 11.8 Design Automation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

The utilization has been 100% for the past 5 years (unit of measure: a Navy weapon and support system).

12. Provide the projected utilization data out to FY 1997.

We will continue to use this facility 100% from now through 1997 and beyond.

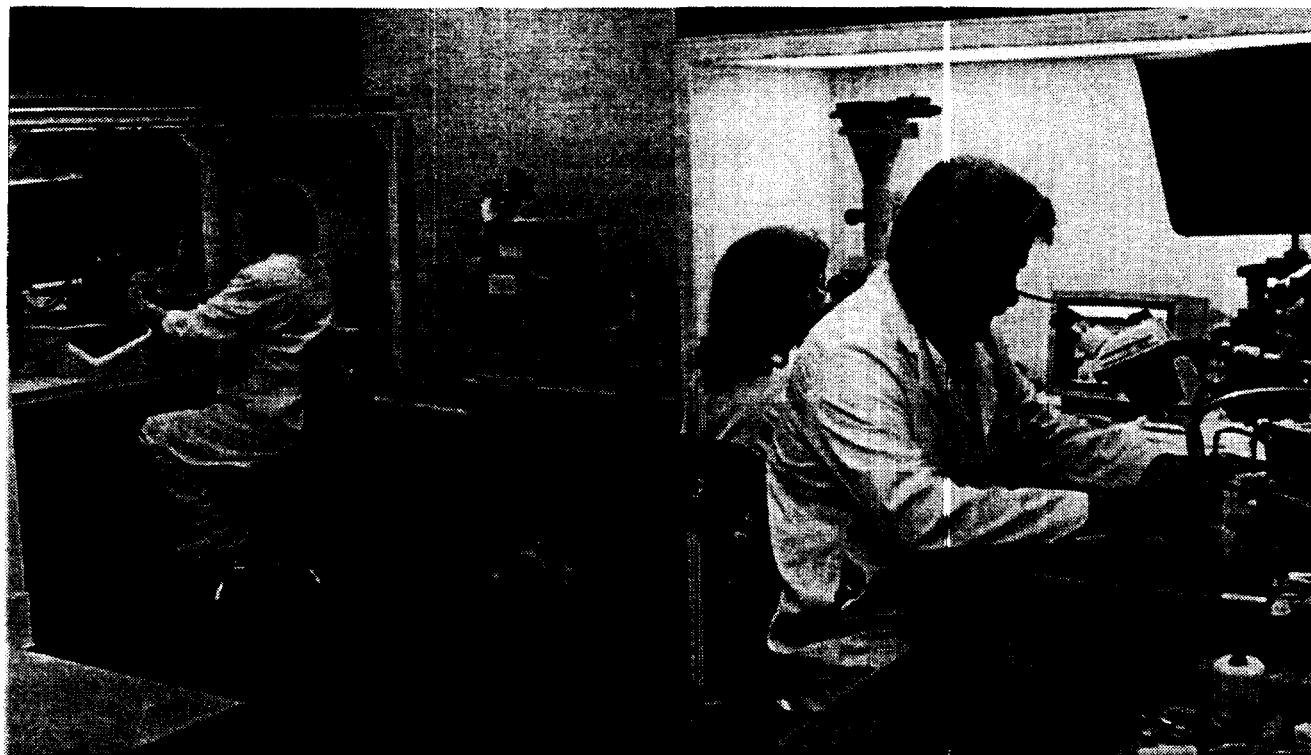
13. What is the approximate number of personnel used to operate the facility/equipment?

25

14. What is the approximate number of personnel needed to maintain the equipment?

Three plus various contractors

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Micro-Electronics Laboratory

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	38. Surface Mount Facility

1. State the primary purpose(s) of the facility/equipment.

To design and develop unique microelectronics for airborne telemetry subsystems and systems

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is fixed due to the complexity and precision of its equipment.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

The replacement costs are:

Equipment - \$300,000
Facility - \$200,000
Total - \$500,000

4. Provide the gross weight and cube of the facility/equipment.

3 tons 27,063 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

220-volt electricity
Liquid nitrogen
Compressed air
Hot/cold water
Flow hood
Water filter system

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special contracts for maintenance of liquid nitrogen

7. *State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).*

Total environmental control (heat, cool, humidity, dust-free)

Water treatment

Bad water recovery system

Antistatic floors

Filtered lighting and clean power

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

The impact of the loss of this facility would be grave. The Department of Navy would not be able to provide telemetry systems for present and future weapon systems.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The Surface Mount Facility was placed in operation in 1983. The equipment was acquired at the onset of the operation.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

1. Platforms

1.2 Aircraft

1.3 Surface Ship

1.4 Space Satellites

1.5 Ground Vehicles

2. Weapons Systems

2.1 Gun Systems

2.2 Guided Missiles

2.3 Freefall Weapons and Rockets

2.6 Directed Energy Systems

2.8 Launchers

2.10 Weapon Data Links

3. Combat System Integration

3.2 Air

5. Sensors and Surveillance systems

5.1 Sonar Systems

5.3 Special Sensors

7. Command, Control, Communication, and Intelligence

7.6 Non-Tactical Data Systems

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	40. Support Equipment Engineering Laboratory

1. State the primary purpose(s) of the facility/equipment.

The laboratory provides pre-launch test services for all NAWCWPNS operations at Point Mugu as well as the engineering and technical support to upgrade missile functional test equipment. The laboratory provides the critical link between actual engineering performance requirements of weapons systems and the Fleet's ability to determine weapons readiness in the field.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Moveable

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$50.1 million

4. Provide the gross weight and cube of the facility/equipment.

19.2 tons 320,110 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Liquid nitrogen pumping plant to support Sidewinder, 120 volts three-phase 400-Hz power

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Four each 3000-psi hydraulic pumps; special combination and key card locks

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

High volume air conditioners

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Loss of the capability to perform testing and evaluation would leave the Navy without the ability to identify and resolve performance and safety problems associated with these weapons systems.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Constructed on site in 1970

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

- 2.2 Guided Missiles
- 2.7 Explosives
- 5.2 Radar Systems

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

70% based on a 40-hour workweek

12. Provide the projected utilization data out to FY 1997.

70% based on a 40-hour workweek

13. What is the approximate number of personnel used to operate the facility/equipment?

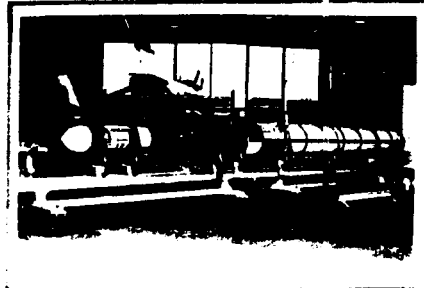
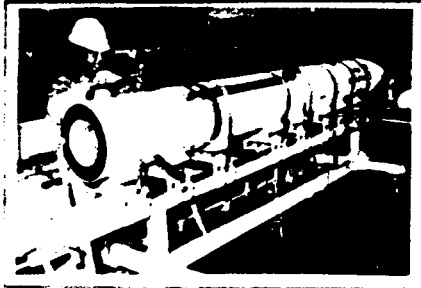
34 manyears at 40 hours per week

14. What is the approximate number of personnel needed to maintain the equipment?

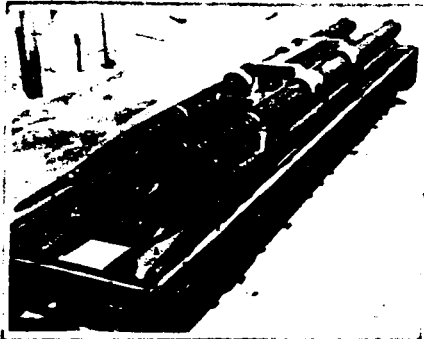
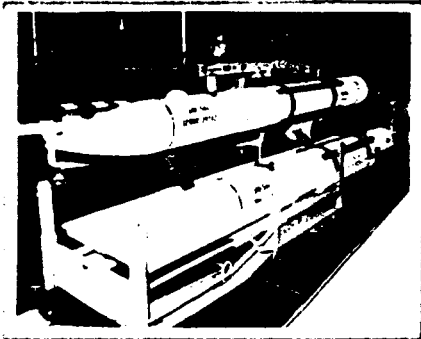
2.5 manyears at 40 hours per week

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

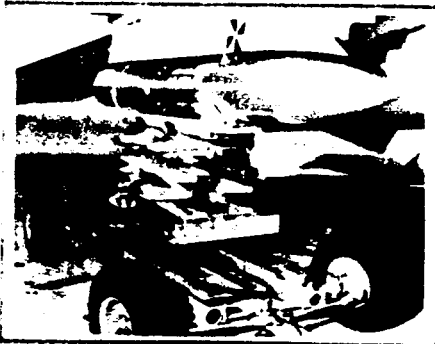
MAINTENANCE STANDS



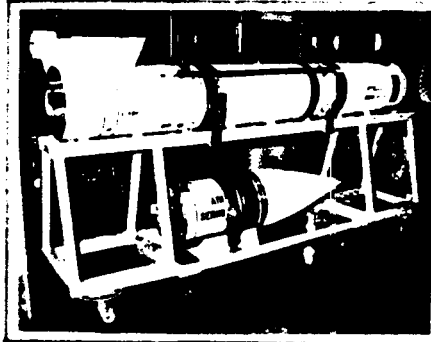
CONTAINERS/HOIST BEAMS



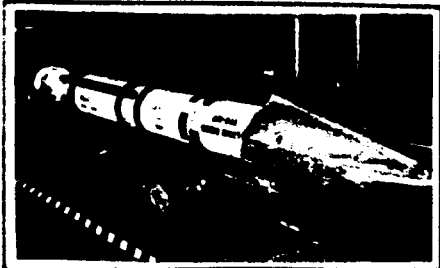
TRANSPORTERS/LOADERS/ADAPTERS



DEVICE-TEST SUPPORT



HANDLING/PROTECTIVE ADAPTERS



DEVICE-TEST RESTRAINT



Support Equipment Engineering Laboratory

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	41. Prototype Fabrication Facility

1. State the primary purpose(s) of the facility/equipment.

To provide support with design and prototype fabrication and installation for missiles, targets, radars, electronic warfare, and shipboard installation via metal shop activities of machining, sheet metal fabrication, and welding

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$2.8 million

4. Provide the gross weight and cube of the facility/equipment.

320 tons 875,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Compressed air

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Reinforced concrete pads

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

None

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

This facility can be replicated or replaced but the cost to move the equipment or buy new would be very high, especially under current funding reductions.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

This facility was constructed on site in 1965.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

- 1.2 Aircraft
- 1.3 Surface Ships
- 2.1 Gun Systems
- 2.2 Guided Missiles
- 2.8 Launchers
- 5.2 Radar Systems

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

100% based on a 40-hour workweek

12. *Provide the projected utilization data out to FY 1997.*

100% based on a 40-hour workweek

13. *What is the approximate number of personnel used to operate the facility/equipment?*

11 manyears

14. *What is the approximate number of personnel needed to maintain the equipment?*

0.5 manyear

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*



Prototype Fabrication Facility

- 8. Defense Systems
- 8.1 Ballistic Missile Defense
- 8.2 Countermeasures
- 8.3 Electronic Warfare (EW) Systems

- 10. General Support
- 10.7 Major Range Development and Operation

- 11. Generic Technology Base
- 11.1 Computers
- 11.2 Software
- 11.4 Electronic Devices
- 11.5 Material/Processes
- 11.8 Design Automation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

A Navy weapon and support system

12. Provide the projected utilization data out to FY 1997.

We will continue to use this facility 100% from now through 1997 and beyond.

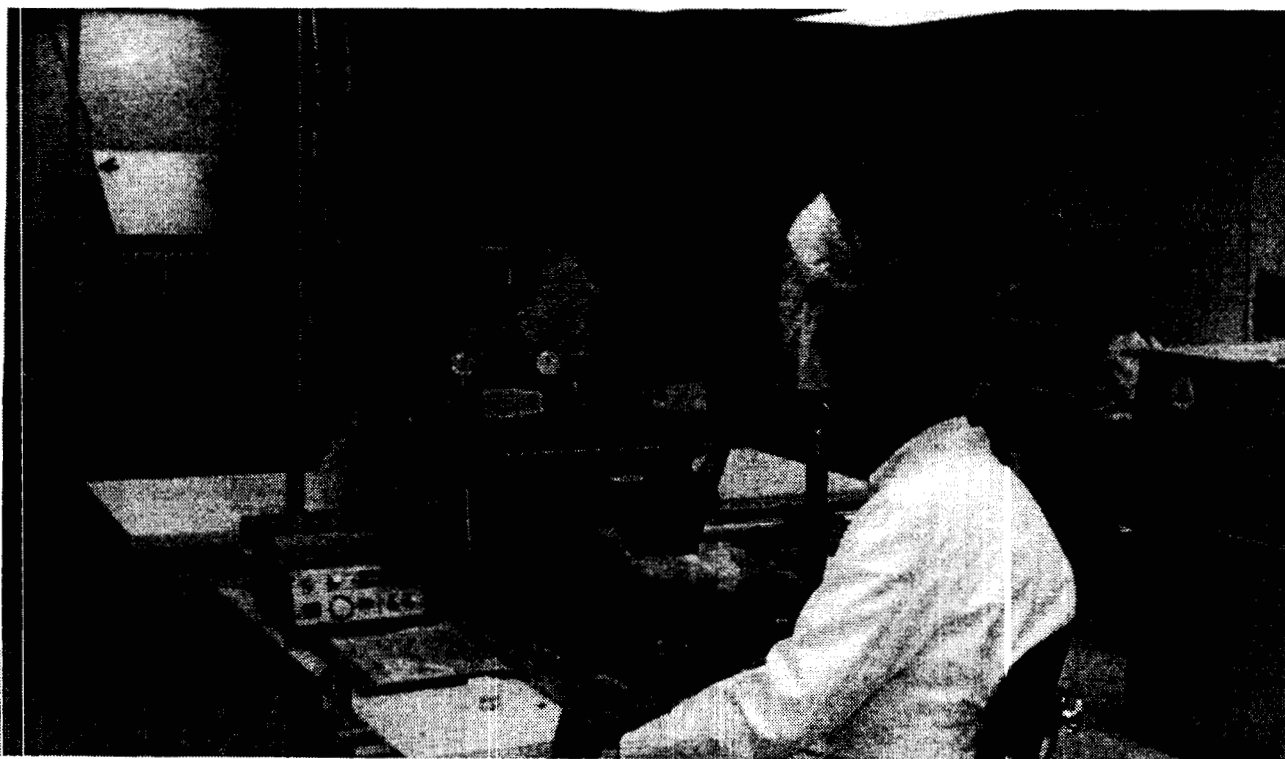
13. What is the approximate number of personnel used to operate the facility/equipment?

5

14. What is the approximate number of personnel needed to maintain the equipment?

One plus contractors

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Surface Mount Facility

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	39. Weapons and Launcher Integration Facility

1. State the primary purpose(s) of the facility/equipment.

Provides launcher tear down, inspection, instrumentation, failure analysis, functional testing, loads testing, and ejection dynamic parameter testing; provides engineering and technical support expertise to support weapon-to-aircraft physical integration, electrical integration, and design and development integration of new subassemblies into existing launchers

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$1.8 million

4. Provide the gross weight and cube of the facility/equipment.

4.8 tons 960,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

None

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

None

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

None

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

The loss of the facility would leave the Navy without the capability to perform RTD&E of new launchers, flight certification of existing launchers and weapons on noncertified aircraft stations, and integration of new subassemblies into current launchers. No other navy facility has this capability.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The facility was prefabricated and constructed on site in 1974.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

- 2.8 Launchers
- 3.2 Air Combat Systems

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

100% based on a 40-hour workweek

12. *Provide the projected utilization data out to FY 1997.*

100% based on a 40-hour workweek

13. *What is the approximate number of personnel used to operate the facility/equipment?*

5 manyears

14. *What is the approximate number of personnel needed to maintain the equipment?*

0.25 manyear

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*



Weapons and Launcher and Integration Facility

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	42. Electro-Magnetic Environmental Effects Section

1. State the primary purpose(s) of the facility/equipment.

This section provides engineering support and measurement capability to ensure that Naval weapons operate as expected in current and projected combat electromagnetic environments (EMEs). This section operates laboratory facilities to resolve issues concerning electromagnetic interference (EMI), electromagnetic compatibility (EMC), and electromagnetic vulnerability (EMV). The laboratories are accredited by the National Institute of Standards and Technology (NIST) for the performance of EMC and telecommunication testing, and the program support engineers are certified by the National Association of Radio and Telecommunication Engineers (NARTE) to ensure the highest level of performance.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

3.1 million

4. Provide the gross weight and cube of the facility/equipment.

4.5 tons 75,400 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

240 volts delta

6. Indicate any special budget requirements for the facility/equipment (i.e. special foundations, non-ferrous materials, shielding, hardening, etc.).

Electromagnetic shielding installed on all six sides of the building

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Air conditioning

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

This as a one-of-a-kind facility specifically designed to test and evaluate missiles and related systems for electromagnetic vulnerability. There is no other Navy or commercial activity that can duplicate this function.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

This facility was prefabricated and constructed on site in 1977.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

2.2 Guided Missiles

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

75% based on a 40-hour workweek

12. *Provide the projected utilization data out to FY 1997.*

80% based on a 40-hour workweek

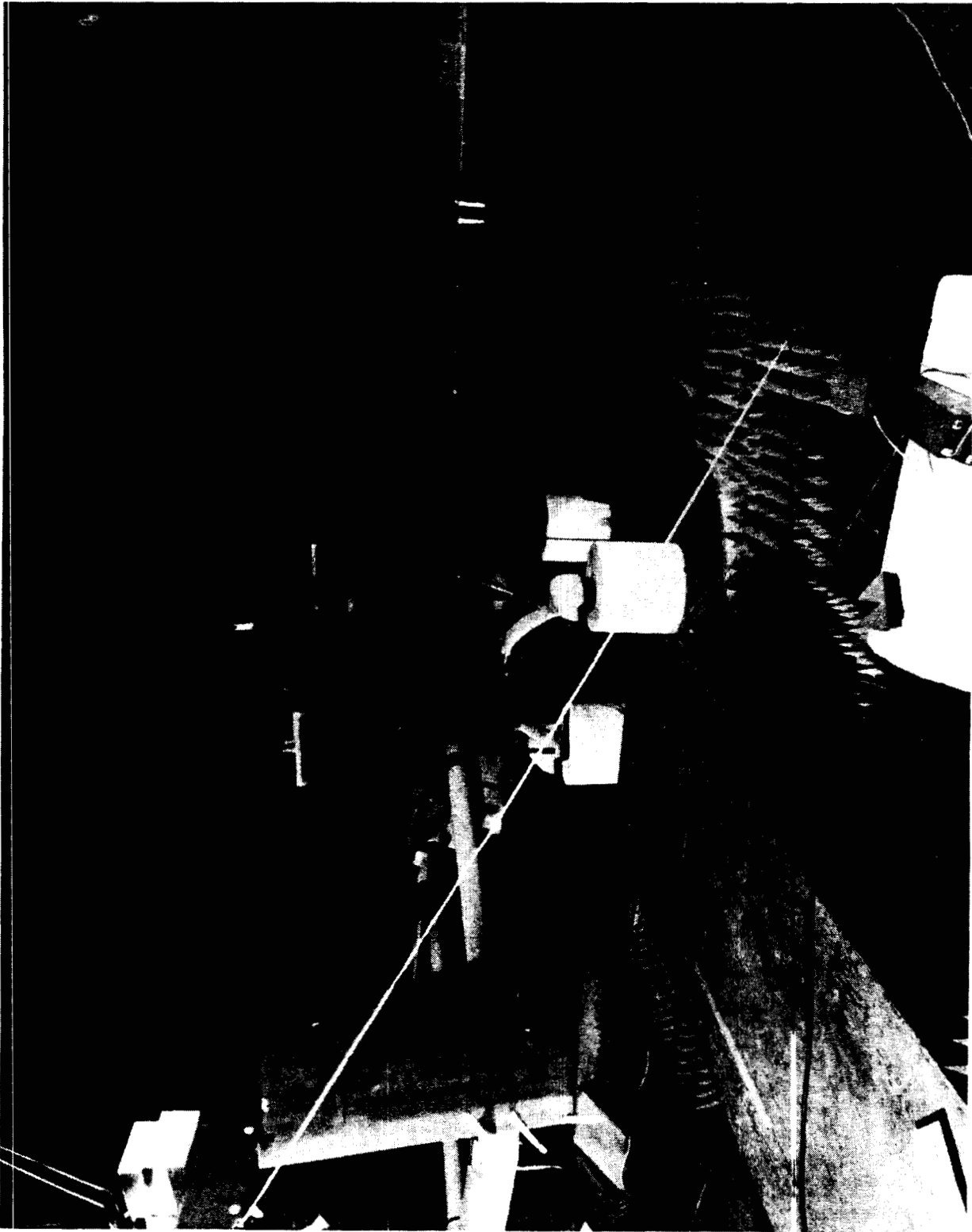
13. *What is the approximate number of personnel used to operate the facility/equipment?*

4 people

14. *What is the approximate number of personnel needed to maintain the equipment?*

0.14 manyear

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*



Electro-Magnetic Environmental Effects Section

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	43. Airborne Weapon Information System (AWIS)

1. State the primary purpose(s) of the facility/equipment.

The AIWS is a common communications network for existing NAVAIR weapons information systems and is built on the concept of downsizing from mainframe to PC-based technology. Components of the system are Airborne Weapons Analysis and Reporting System (AWARS), Management Action and Reporting System (MARS), and the Configuration and Data Management and Support System (CADMSS).

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$1,150,000

4. Provide the gross weight and cube of the facility/equipment.

10 tons 28,073 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Requires both filtered and conditioned power for the computer facility along with backup power; facility needs 110-440 volts three-phase power

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Computer flooring, RFI shielding

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Air conditioning from 65 to 68 degrees, dehumidification, and dust scrubbing

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

The basic computer facility can be duplicated. Impact if this function is lost is that the Navy would lose all maintenance production deficiency reporting databases of all air-launched weapon systems. History, condition status, and maintenance scheduling for all Navy missiles, guns, and freefall weapons would be lost.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

System is computer-based; equipment was moved by hand into the facility and assembled

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

- 2.1 Guns
- 2.2 Guided missiles
- 2.3 Freefall Weapons
- 2.8 Launchers
- 1.2 Aircraft

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

Access to AWIS is 24 hours per day, 7 days per week, with heaviest usage from 0400 to 1600 hours.

12. *Provide the projected utilization data out to FY 1997.*

In addition to current programs supported, the facility has been tasked to support the aircraft community, NADEPS, and NAVSEA. Systems availability will remain the same, and the number of users will increase.

13. *What is the approximate number of personnel used to operate the facility/equipment?*

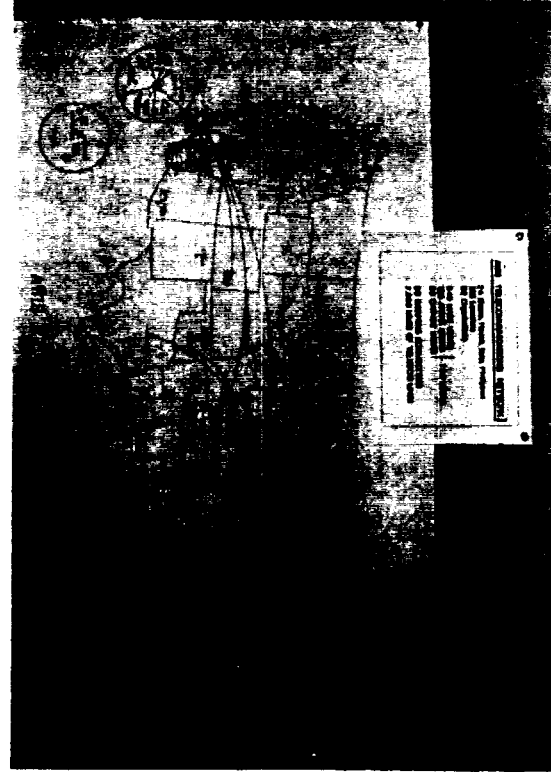
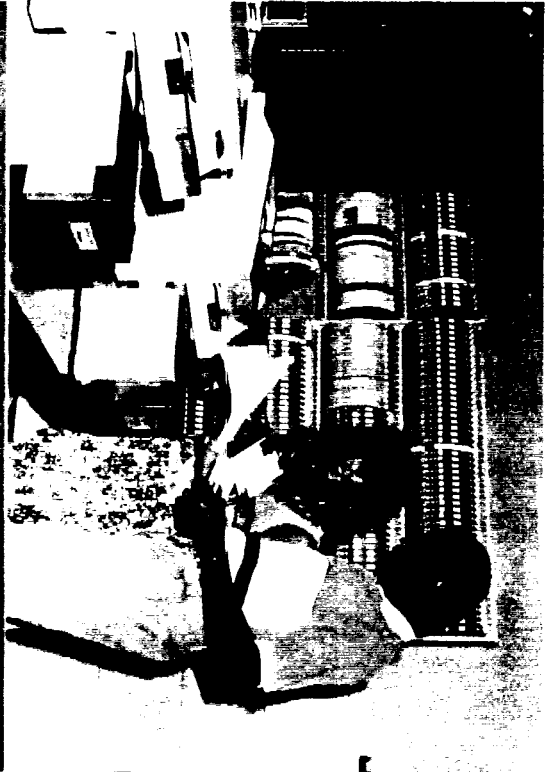
7 manyears based on a 40-hour workweek

14. *What is the approximate number of personnel needed to maintain the equipment?*

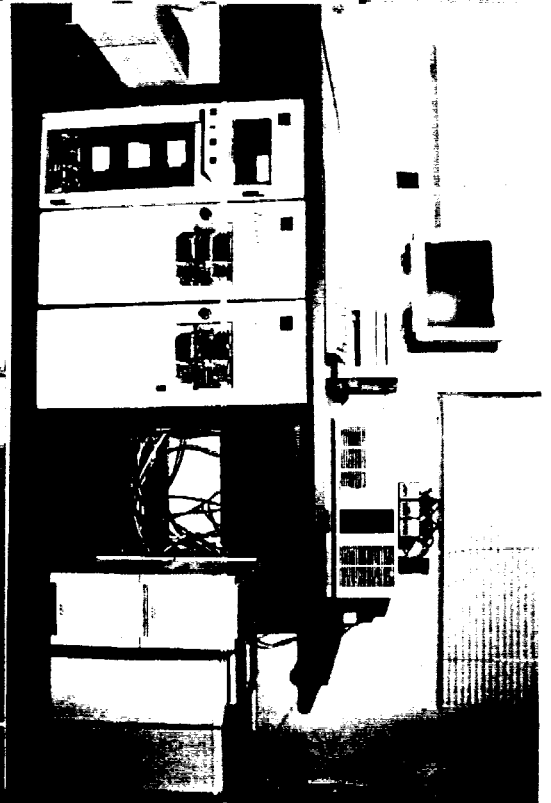
3.5 manyears

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*

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Airborne Weapon Information System (AWIS)



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ACTIVITY UIC: 63126

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	44. Maintenance Support Trainer Laboratory

1. State the primary purpose(s) of the facility/equipment.

The maintenance support trainer laboratory provides simulated flight/weapons training using computer-based trainers. The laboratory programs and installs part task trainers and computer based trainers for the Harpoon, SLAM, Maverick, and HARM Missile Systems, and the Airborne Multifunctional Electronic Warfare Trainer (AMEWT) that supports many weapons and airframes.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$600,000

4. Provide the gross weight and cube of the facility/equipment.

18 tons 144,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

None

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Requires secure facility with controlled access

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Air conditioning and filtered air

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8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

This facility is responsible for systems that provide weapon/platform interface training to Fleet aircrews and maintenance personnel. Loss of the facility would eliminate the capability for aircrews to have integrated aircraft/weapon simulation training before actual flight. It would eliminate the capability for maintenance personnel to have simulated weapons loading training before actual flight. Loss of the trainer capability would impact readiness due to lack of training and increased safety risk.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The facility was developed in FY 1991. Equipment required no special transportation and was assembled inside the facility.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

10.1.4 Weapons-Related Training Systems for weapons identified above

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

Entire facility usage, including classroom area, is 80%.

12. *Provide the projected utilization data out to FY 1997.*

Utilization rate is expected to continue at 80%.

13. *What is the approximate number of personnel used to operate the facility/equipment?*

22 manyears based on a 40-hour workweek

14. *What is the approximate number of personnel needed to maintain the equipment?*

1.5 manyears based on a 40-hour workweek

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

This facility is responsible for systems that provide weapon/platform interface training to Fleet aircrews and maintenance personnel. Loss of the facility would eliminate the capability for aircrews to have integrated aircraft/weapon simulation training before actual flight. It would eliminate the capability for maintenance personnel to have simulated weapons loading training before actual flight. Loss of the trainer capability would impact readiness due to lack of training and increased safety risks.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The facility was developed in FY 1991. Equipment required no special transportation and was assembled inside the facility.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

10.1.4 Weapons-Related Training Systems for weapons identified above

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

Entire facility usage, including classroom area, is 80%.

12. *Provide the projected utilization data out to FY 1997.*

Utilization rate is expected to continue at 80%.

13. *What is the approximate number of personnel used to operate the facility/equipment?*

22 manyears based on a 40-hour workweek

14. *What is the approximate number of personnel needed to maintain the equipment?*

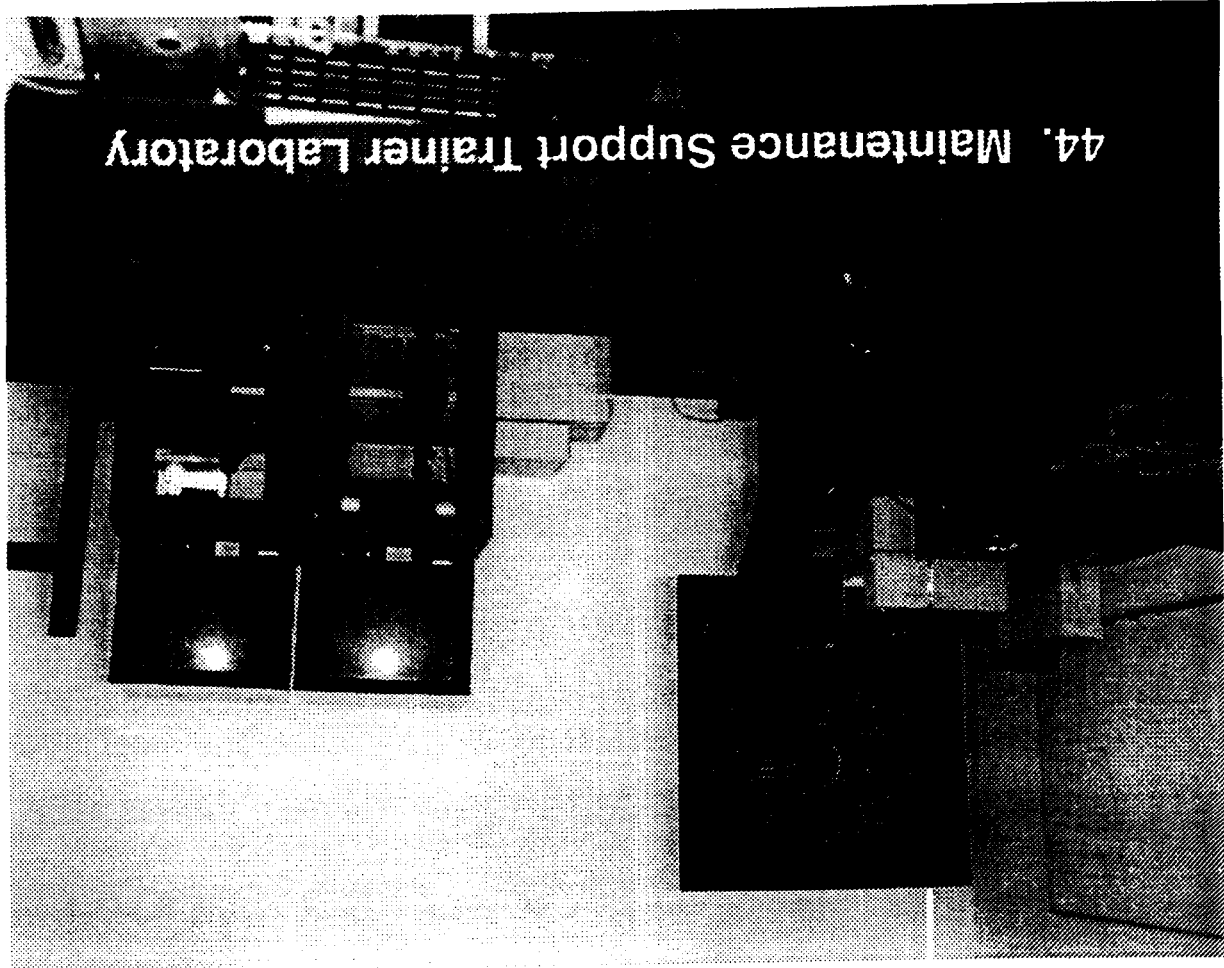
1.5 manyears based on a 40-hour workweek

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*

No photo is available.

NAWCHQ Change 1
5/24/94

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**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	45. Ship Installation Section

1. State the primary purpose(s) of the facility/equipment.

Support and participation in ship installation assurance tests and consolidation operability tests for armament support equipment, container design, and shipboard integration requirements

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Fixed

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$2.35 million

4. Provide the gross weight and cube of the facility/equipment.

11.75 tons 235,000 cubic feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

None

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Overhead hoists, universal deck for carrier simulation use

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

None

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

Configuration control on Fleet hardware, air-launched weapons, armament systems, and support equipment will be lost, substantially degrading the safety of weapons systems as they are being stored, shipped, maintained, and utilized. By checking prototype weapons and equipment against ship configuration, this facility eliminates loading and storage problems for weapons introduced into the Fleet.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

This facility was prefabricated and then installed on site.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

- 1.3 Surface Ships
- 2.1 Gun Systems
- 2.2 Guided Missiles
- 2.3 Freefall Weapons
- 2.4 Torpedoes
- 2.8 Launchers

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

100% based on a 40-hour workweek

12. *Provide the projected utilization data out to FY 1997.*

100% based on a 40-hour workweek

13. *What is the approximate number of personnel used to operate the facility/equipment?*

6 manyears

14. *What is the approximate number of personnel needed to maintain the equipment?*

0.15 manyear

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*



Ship Installation Section

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	46. CASS Missile Test Program Set Lab

1. State the primary purpose(s) of the facility/equipment.

The weapons/guided munitions Test Program Set (TPS) integrated and advanced test technology facility will be used by TPS developers to integrate and debug TPS hardware and software for use with the Consolidated Automated Support System (CASS) family of test equipment in accordance with Navy and DoD automated test systems acquisition strategies. This facility will support delivery of new TPSs to weapons depots, Naval Weapons Stations, and in some cases, Air Force quality engineering centers. The facility is being used to develop TPSs for the National Oceanic and Atmospheric Administration (NOAA) Next Generation Weather Radar (NEXRAD) for use at the National Weather Service Reconditioning Center.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

Moveable

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

\$4.5 million

4. Provide the gross weight and cube of the facility/equipment.

3 tons

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

208 volts three-phase 60-Hz high-volume air conditioners

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Electromagnetic shielding and acoustically dampening covering (carpet or tile) is used on all walls.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Air conditioning, air filtering

8. *Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.*

This facility will support TPS acquisition and development for all weapons and munitions. Although other facilities have similar capabilities, none has the unique weapon capability existing at Point Mugu. Substantial investment in buildings, people, and test cells would be required to relocate. In addition, we are embarked on a joint effort with NOAA developing TPSs for NEXRAD, and we will be the first activity to deliver CASS TPSs to other than a DoD agency.

9. *Indicate how and when the facility/equipment was transported and or constructed at the site.*

The facility was constructed on site in 1991.

10. *List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.*

- 2.2 Guided Missiles
- 2.3 Freefall Weapons and Rockets
- 2.4 Torpedoes
- 11.1 Computers
- 11.2 Software
- 11.10 Other Technology Based Weapons

11. *Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.*

100% based on two 40 man-hour workweeks

12. *Provide the projected utilization data out to FY 1997.*

100% based on a 40-hour workweek

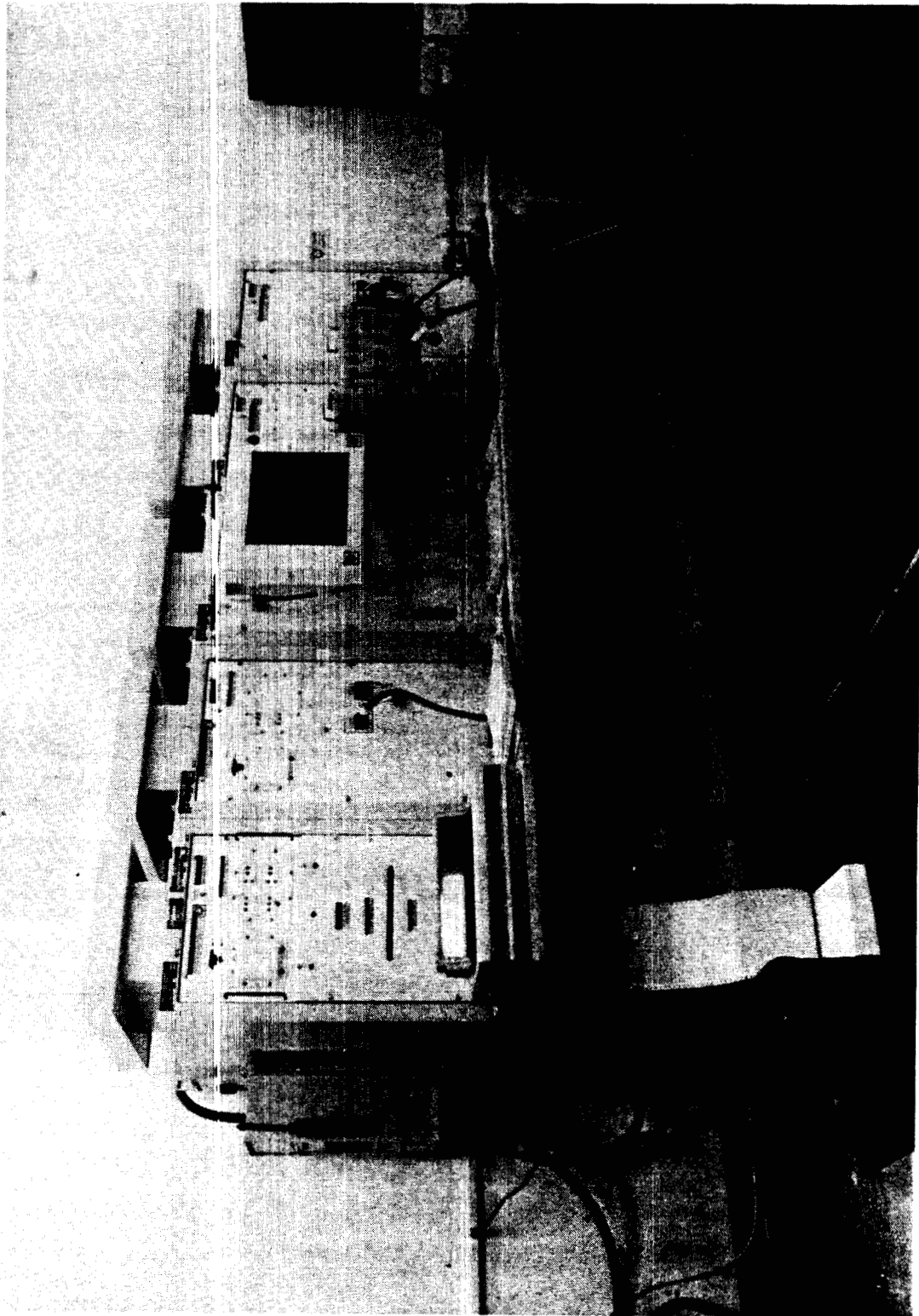
13. *What is the approximate number of personnel used to operate the facility/equipment?*

10 manyears

14. *What is the approximate number of personnel needed to maintain the equipment?*

2.5 manyears

15. *Provide one 8 1/2 x 11 black and white photo of the facility/equipment.*



CASS Missile Test Program Set Lab

**SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM**

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	47. Dynamic Displays Laboratory (DDL)

1. State the primary purpose(s) of the facility/equipment.

The DDL is dedicated to the design and development of dynamic display systems to support:

1. Modeling and simulation capabilities
2. Data fusion of radar and infrared sensed images
3. F-14/systems/subsystems software/hardware development, integration, and testing
4. F-14 Weapons System Integration Laboratory data processing and automation
5. Object-oriented database development and operator interaction
6. Evaluation of computer network and fighter-to-fighter datalink performance
7. Research and development of new display technologies with application to aircraft and missile systems

In addition, the DDL provides the F-14 community with a separate laboratory for the development of open architecture systems, providing links to other government facilities and academic institutions, without contention with WSSA operational laboratory resources. The DDL provides a gateway to many useful databases, including the Range assets database. DDL provides an anonymous file transfer protocol (FTP) connection for the sharing of nodes (notes) on open architecture systems and public domain software. Current projects supported by the DDL include:

Integrated Radar and Infrared Analysis and Modeling (IRIAM) System (Joint Services)
SPIRITS/EMAT; F-14/F-15/Patriot/AMRAAM and other weapons systems application
FY 1993 MSI, database interoperability
Range assets database development support
Synthetic Environment, Targets, and Instruments (SETI)
F-14 fighter-to-fighter datalink
JTIDS

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The Laboratory is a fixed facility with moveable and portable equipment.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Facility	\$770,000
Equipment	\$1,944,000

4. Provide the gross weight and cube of the facility/equipment.

4.5 tons 50,000 feet

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

None

6. Indicate any special budget requirements for the facility/equipment (i.e. special foundations, non-ferrous materials, shielding, hardening, etc.).

None

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Temperature: 68 ±4 degrees
Humidity: 50% (±20%)
Clean air

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

While all DDL facilities and equipment could be replicated or relocated, the DDL provides a capability that would be costly to duplicate. There is also considerable advantage in having it collocated with the F-14 WSIC within the Laboratories Division because of the types of functions and projects supported and the opportunities for modeling and simulation internetting and interoperability (I&I). We are currently participating with the Range and the M&S community in defining RDT&E I&I requirements, and a strategic plan for the NAWC/OPNAV/NUWC proposal for a "future range" infrastructure to support Fleet and Joint Forces test and training exercises. The Lab is optimally located for WSIC support and for internetting with Weapon Systems facilities and the BMIC. The loss of this facility would severely impact the Navy's future range capability, and their continuance as lead on major technology projects such as IRIAM.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

The DDL is a unique assemblage of subsystems and supporting equipment. It consists of a mix of new and old but serviceable equipment, some gathered as a result of elimination of function or reduction of personnel.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Functional areas supported:

1. Modeling and simulation
2. Design automation

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Percent of full utilization based on a 40-hour workweek

1993
100%

12. Provide the projected utilization data out to FY 1997.

1994	1995	1996	1997
100%	100%	100%	100%

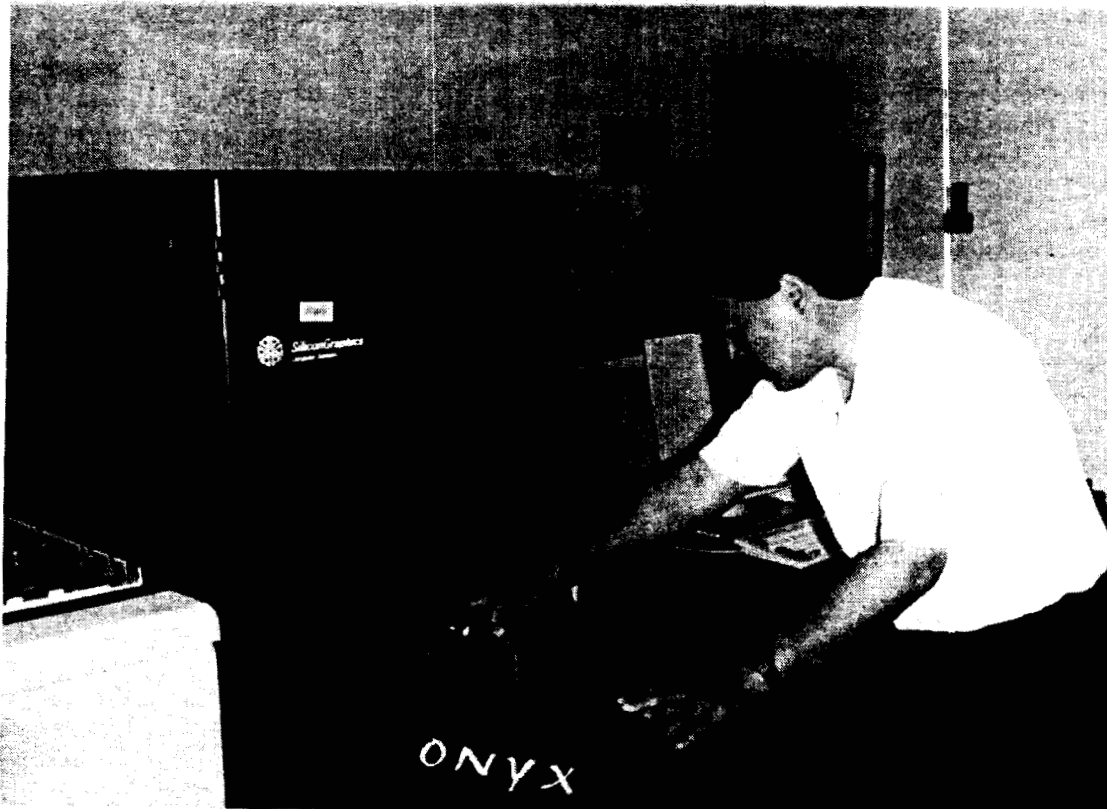
13. What is the approximate number of personnel used to operate the facility/equipment?

Government Civilian 4.5

14. What is the approximate number of personnel needed to maintain the equipment?

Government Civilian 1.5

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



Dynamic Displays Laboratory

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**TAB C
1**

RANGE CAPABILITY FORM

RANGE RESOURCES

TAB C

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TAB C
2

1. NAWCWPNS Point Mugu Sea Test Range..... 3

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RANGE RESOURCES
RANGE CAPABILITY FORM

Technical Center Site	NAWCWPNS Point Mugu
Facility/Equipment Nomenclature or Title	Sea Test Range

1. List all the ranges that your activity maintains and operates. Provide the following information on each range:

a. A Brief Statement of What the Range is Used For.

The NAWCWPNS Point Mugu Sea Test Range is a premier test facility used by Navy, Air Force, other DoD, commercial activities, and foreign governments for the test and evaluation of tactical and strategic airborne and surface weapons including air, surface, and submarine-launched land and ship attack cruise missiles. The Sea Test Range supports Navy and Air Force ballistic missile, space, and satellite launch operations from the eastern Pacific area including Vandenberg AFB. Numerous special access programs (surface and air vehicles, targets, and advanced missile systems) and Navy and Air Force Theater Missile Defense tests are also supported. Additionally, the Fleet uses the range for its weapons firing exercises, including air-to-air, air-to-surface, surface-to-air, and surface-to-surface weapons, as well as bombs, mines, and guns. The Sea Test Range is the most extensively instrumented, large-scale test range in the world and has a proven record of support to DoD's most complex test and training evolutions conducted in an operationally realistic marine environment (open ocean, coastal waters, frequent strong ducting conditions—a serious problem in the Middle East and other areas) supporting thousands of operations and hundreds of missile firings annually. To complete the full spectrum of life cycle airborne weapons support, Point Mugu also hosts an extensive array of aircraft, weapons and electronic warfare simulations laboratories. Its capabilities are truly unique in supporting a full array of test and multi-platform, multi-warfare, multi-threat, multi-weapon, multi-service, and multi-national evolutions.

b. Geographic Location of the Range.

In 1945 the Chief of Naval Operations established a site survey to determine where to locate a special missile test center. This team visited 26 potential sites for such a range throughout the United States. Point Mugu was selected as the recommended site "far above the possibilities of any other site" because it has the following:

- Open waterfront to a large ocean test range area
- Offshore islands including San Nicolas Island (which the Navy controls) for siting extended-range instrumentation
- Adjacent Laguna Peak at a 1,500-foot altitude for additional siting of instrumentation on the mainland and extended line of site coverage over the Sea Test Range
- Relatively low commercial shipping activity in the coastal shipping lanes

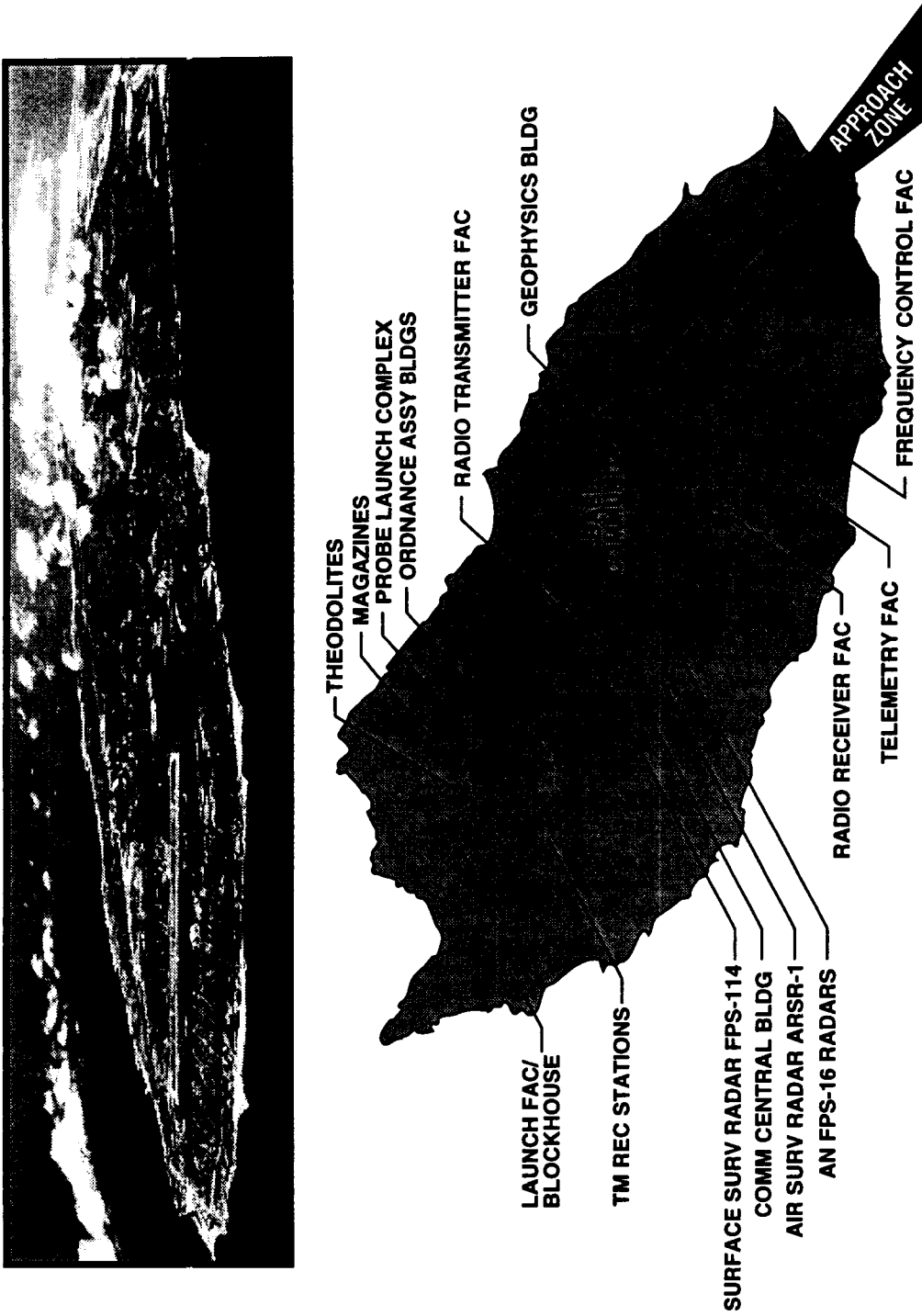
The geographic location of the Point Mugu site is critical to the US. Navy and other DoD and foreign clients because the site represents DoD's largest and most heavily instrumented sea/air range, including a 125 000-square-mile area of instrumented open ocean test space, 36,500 square miles of controlled airspace, precision metric track of up to 35 objects, target control for up to 10 airborne and surface targets, telemetry for up to 20 sources, three control rooms (including T&C Alpha with over 40 support positions), and a battle management interoperability center replicating a carrier or cruiser Command Decision Center (see the following figure).

San Nicolas Island (SNI). Located 60 nautical miles southwest of the Point Mugu complex, SNI is one of the cornerstones in the Sea Test Range capabilities because of its land mass and depth of surrounding waters. It allows the unique replication of some high-threat areas around the world. Because of its remoteness and secured environment, SNI is frequently utilized as a test site for special-access programs. SNI is heavily instrumented with metric tracking, optics, telemetry, and communications necessary to support long range and over-the-horizon weapons testing, Fleet training, and Theater Missile Defense exercises. Because of its isolated environment and shoreline characteristics, SNI is ideal for providing littoral warfare training exercises, including Tri-Service and theater warfare exercises. SNI provides extensive instrumentation capabilities required to support ICBM and Polar satellite launches from Vandenberg AFB (see the following figure).

Santa Cruz Island (SCI). Located approximately 25 nautical miles west of Point Mugu is another unique instrumented island used for meteorological data collection, secure VHF/UHF radio communications and data transmission, microwave relay to and from Vandenberg AFB, and surface surveillance radar coverage of the inner Sea Test Range. Also located on the island is the Santa Cruz Acoustic Range Facility (SCARF), a unique underwater test capability used to measure acoustic characteristics of underwater weapons systems; and the Santa Cruz Radar Imaging Facility (SCRIF), which uses various specialized sensors linked with a surface surveillance radar to track and collect radar cross section data on test ships up to 20 miles off the coast (see the following figure).

Laguna Peak. Located 1567 feet above the eastern corner of the Point Mugu complex, Laguna Peak provides an elevated line-of-sight and transmitter capability for flight control of guided missiles, airborne and surface targets, and pilotless aircraft; and command control/command destruct of test and ballistic missiles launched from Vandenberg AFB. In addition, Laguna Peak is instrumented with surveillance radars, telemetry reception, optics, UHF/VHF (including mobile) communications and HF retransmission of range data (see the following figure).

Interconnectivity. Point Mugu lies within 250 miles of three other major DoD test facilities/ranges and three major training ranges (see the following figure). These complexes interact so frequently with Point Mugu that they are connected with a full broad-band microwave system for real time control of test evolutions and transmission of data between the facilities.



San Nicolas Island

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TAB C

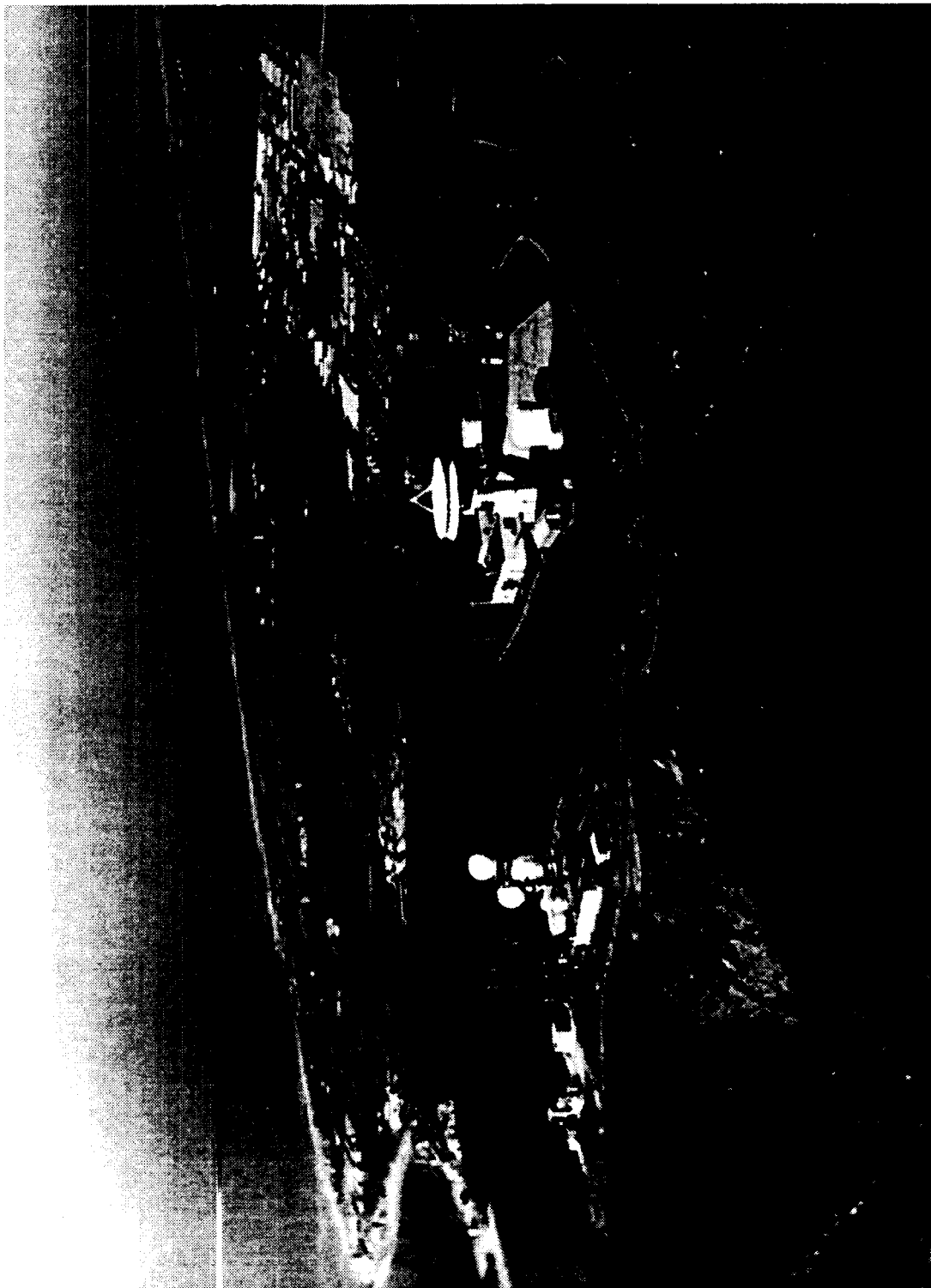


Santa Cruz Island

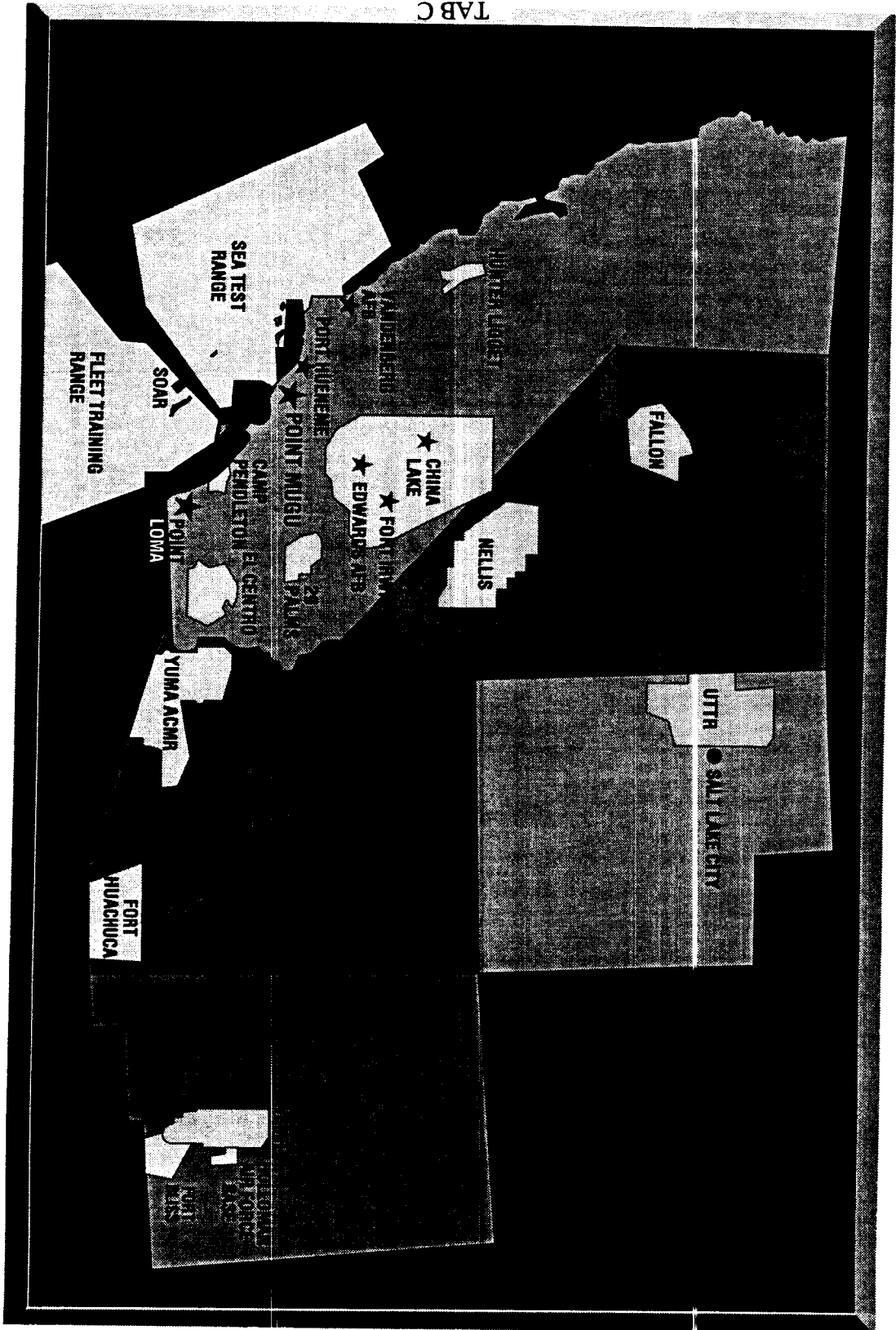
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Laguna Peak



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The Western Test Range at Vandenberg AFB, the only US. site where satellites can be economically launched into polar orbit, lies 110 miles northwest with direct ties to Point Mugu. Because of the optimized geographical siting, Sea Test Range locations at Point Mugu, SNI, and Laguna Peak have been designated as mandatory support sites for Air Force satellite and ICBM launches from Vandenberg AFB.

The Air Force Flight Test Center at Edwards AFB is 80 miles to the northeast of Point Mugu and uses the Sea Range for aircraft flight tests over water.

The NAWCWPNS China Lake site is 150 miles to the northeast, providing ready access to a full spectrum of land ranges for Navy aircraft and weapons integration test programs. Most west coast Tomahawk Land Attack Missile flights initiate in the Sea Range and terminate at a target complex at the China Lake site.

The Navy's Southern California Operational ASW Range (SOAR), a Fleet training range off San Clemente Island, is adjacent to the southern boundary of the Sea Range. Surface and air tracks are provided daily to the SOAR Range Center at North Island, San Diego, from the Extended Area Test System at Point Mugu.

The Air Force's Nellis Test and Training Range Complex is 250 miles northeast of Point Mugu. Test operations to Nellis are easily staged from Point Mugu.

The Army's National Training Center at Fort Irwin lies 200 miles northeast of Point Mugu. Recent Fleet training evolutions have included close air support at Fort Irwin.

Commander, Third Fleet (COMTHIRDFLT) is homeported in San Diego. Because of its extensive instrumentation and range safety capabilities, the Sea Test Range is utilized for all of the COMTHIRDFLT live fire weapons launches in the Southern California area.

Uniqueness.

- Complex multi-participant, multiple warfare area operations
- Coordinated air, surface, and submarine operations
- Submarine, surface, and air-launched cruise weapons testing (ship and land attack)
- Long range, large hazard pattern weapons testing
- Ballistic missile operations support
- ICBM and Polar-orbit satellite launch operations support
- Sea-environment special access program support
- Classified target development and testing
- Joint engagement zone scenarios
- Simulated regional conflict operations
- Multiple participant live-fire exercises
- Theater Missile Defense
- Radar cross section measurement of sea and air platforms

A key element in defining the Sea Range as a unique DoD resource is its highly trained and experienced personnel. The complex operations that are almost routinely planned and, then safely conducted on the Sea Range would not be possible without this very capable workforce. They continue to demonstrate the expertise and skills required to plan, coordinate, and execute multi-platform exercises under realistic combat conditions—e.g., multi-threat, electronic combat, etc.—for the Sea Range, expanded to include other DoD ranges when larger operational areas are required.

c. Distance from the Range to the Activity's Headquarters Facility.

The Headquarters site for NAWCWPNS rotates between China Lake and Point Mugu. Currently the Commander resides at China Lake and the Vice Commander at Point Mugu. Video teleconferences can occur as needed for quick decisions. Shuttles also run daily between the two sites, reducing commute time to only 45 minutes.

d. Range Size in Square Miles.

The area of instrumentation coverage is approximately 125,000 square miles, off the coast of Southern California, stretching from the Mexican border north to Big Sur, from the shore to beyond the outer Defense Zone. Range instrumentation (metric track, telemetry, communications, surveillance, and command control) is located at Point Mugu, Laguna Peak, San Nicolas Island, Santa Cruz Island, Vandenberg AFB, and Point Pillar augmented by airborne instrumentation from P-3 aircraft to ensure coverage from the sea surface to 100,000 feet altitude. The Extended Area Test System provides coverage to a 250 nautical mile (nm) radius from SNI.

e. Scheduling Authority.

NAWCWPNS is the designated scheduling authority for Warning Areas W-289, W-289N, W-290, W-412, W-532, W-537, W-60, W-61, and Restricted Area R-2519. This authority is assigned by CINCPACFLT via COMTHIRDFLT. Descriptions of this authority are contained in FACSAC San Diego Instruction 3120.1B.

f. Air Space Available/Restrictions.

The Sea Range comprises 36,000 square miles of assigned, controlled air space readily expandable to the south and west to meet the requirements of any specific scenario through issuance of Notice to Airmen and Notice to Mariners at least 48 hours prior to use. This expansion is frequent and routinely coordinated with the Federal Aviation Administration (FAA) at Los Angeles Center. As noted above, the Sea Range instrumentation can easily extend up to an area of over 125,000 square miles, but occasionally scenarios require even further coverage, which is accomplished through sophisticated range instrumentation aircraft. Other than air restricted areas over San Nicolas Island (R-2535A and R-2535B) and Point Mugu (R-2519), the public has complete access to all airspace with prior permission from the controlling agency. There are five FAA corridors that cross the range west to east. Two of the five controlled areas must remain open at all times to facilitate the flow of trans-Pacific, oceanic air traffic into and from the west coast. When they are not being used for range activities, they are released to the FAA for unrestricted use 24 hours per day (see the following figure).

g. Maximum Water Depth Available/Restrictions.

The Sea Range contains widely varying water depths available for weapons testing, from surf lines to shallow water shelves (100 to 600 feet deep), to depths beyond 12,000 feet. Several submarine transit lanes traverse the Sea Range. The subsurface areas of the Sea Range are under the control of COMSUBPAC. NAWCWPNS coordinates any exercises that may impact subsurface use with SUBPAC. Torpedo and mine exercises are routinely conducted without restriction, but warhead testing is always coordinated. Greatest water depth is officially listed as 14,040 feet.

h. Instrumentation Capability.

Point Mugu's Sea Test Range is DoD's largest and most heavily instrumented sea/air range and can support tests over 125,000 square miles. Instrumentation is located on the coastline from as far south as San Diego to Tassajera Peak to the north and on several offshore islands including San Nicolas, Santa Cruz, Santa Rosa, San Miguel, and San Clemente (see the following figure). Specific data are provided below.

Seven FPS-16 Metric Tracking Radars: 4 at Point Mugu and 3 at San Nicolas Island
 Two radars have 3-megawatt transmitters and five have 1-megawatt transmitters
 All-weather tracking capability
 G-band beacon and skin track capability
 Two radars have a 32,000-mile range and five have a 4,000-mile range
 Two have doppler range tracking capability
 All radars have antenna mounted TV systems with VHS recording capabilities
 Five-microsecond pulse width permits enhanced long-range tracking capability
 Five radars have automatic transmit time-phasing for Vandenberg support

Extended Area Test System (EATS)

Time, space, tracking position, velocity, direction, and target control relay
 Over-the-horizon tracking up to 250 nm from San Nicolas Island
 Tracking capability of up to 28 participants
 Datalink for RAJPO GPS data
 One Master Operations Control Station (MOCS)
 Two dual redundant Ground Interrogation Stations (GISs)
 Over 300 participant instrumentation packages configured for aircraft and shipboard use

GPS

Provides high accuracy real time differential GPS data
 Position accuracy: 6-foot horizontal, 10-foot vertical
 Velocity accuracy: 1.6 ft/sec, 2.6 ft/sec
 Data rate: 10 samples/second
 Dynamics: Up to 10 gs
 Two datalinks available to support GPS: EATS (141 MHz), 150-nm range;
 range applications joint program office datalink system (1350-1400, 1427-1435 MHz)

Telemetry Ground Station at Point Mugu

Eight Antennas
 Four 32-foot GKR-11 (L- and S-band)
 Two 8-foot GKR-9A (L- and S-band, P-band)
 Two 20-foot GKR-13 located on Laguna Peak (L- and S-band)
 One Mobile 8-foot antenna on trailer (L-, S-, and high S-band)
 Four General purpose receiver stations
 One Special purpose receiver station
 Four General purpose recording stations
 One Special purpose recording station

Telemetry Collection Facility at San Nicolas Island

Seven Antennas

- Two 30-foot GKR-8A (L- and S-band)
- One 30-foot GKR-12 (L- and S-band)
- One 8-foot GKR-9A (L- and S-band)
- One 7-foot GKR-9 (L-, S-, P-band)
- Two 20-foot SKR-1 (L- and S-band)

Four Receiver stations

Three General purpose recording stations

One Special purpose recording station

One Telemetry van

- One 7-foot GKR-9A antenna (L- and S-band)
- Two Analog instrumentation tape recorders
- One PCM decommutator
- Two PDM/PAM demultiplexers

Airborne Telemetry System

Two P-3A aircraft equipped with:

- 5-beam phased array antenna (high and low S-band)
- On-board record, separation, and display

Cinetheodolites

Twelve fixed stations

Measures target motion in the x, y, and z axes with two or more stations

Standard of comparison for other metric instrumentation

Attitude data such as pitch, yaw, and roll

Cinesextants

Six mobile systems

Support system for mounting of camera used in target tracking and data acquisition

Four platform mounting surfaces capable of carrying up to 250 pounds each

Picture taking rate up to 400 pictures/second

Film sizes of 16-, 36-, and 70-mm

Surveillance

Overlapping air/surface surveillance of inner and outer sea test range areas.

Three AN/FPS-114 surface surveillance radars (San Nicolas Island, Santa Cruz Island, and Laguna Peak)

One AN/SPS-10 surface surveillance radar (Point Mugu)

One AN/ARSR-1 air surveillance radar (San Nicolas Island)

One Automated Range Surveillance System (ARSS)

Integrates data from multiple on and off range radars

Accepts surveillance radar data from Vandenberg AFB, FACSFAC San Diego, and other inputs to surveillance radar grid

NTDS precision and surveillance radar displays

Up to 256 tracks (1,000-foot nominal accuracy)

Composite real time display of all detected participants/intruders

Communications

- HF, VHF, UHF, microwave, fiber optics
- Secure/non-secure
- Voice/data transmission
- Tactical data links (Dual Link 4A, Link 11, Link 16)
- SATCOM (FLTSATCOM, OTCIXS, TADIXS A/B)

Target Control - capable of flying/controlling

- Six Integrated Target Control System (ITCS) air/surface targets
- Two ITCS Universal Control Console (UCC) for full-scale aircraft targets
- Two EATS over-the-horizon air/surface targets
- UHF control system capable of 14 targets (includes 2 Vandal targets)

Note: The Sea Test Range is scheduled to be the first DoD range to receive the Next Generation Target Control System (NGTCS), a joint service development.

Airborne capabilities include:

- Five Instrumentation P-3A aircraft
- Area surveillance, Extended Area Test System (EATS) tracking, telemetry reception and retransmission, UHF communications relay, command control, cast glance and streak photography, sonobuoy launch, air-launched deep ocean transponder, sonobuoy missile impact location system scoring, harpoon launch, harpoon flight termination, and flare drop

Supporting Instrumentation/Services

- Range Scheduling Office
- Range Safety Office (service provided to multiple MRTFB/training ranges)
- Three operations control rooms (secure/non-secure)
- Battle Management Interoperability Center (BMIC)
- Range timing centers
- Western Area Frequency Coordinator (for all DoD agencies in Southern California area)
- Frequency monitoring and control
- Geophysical measurements
- Surface weapon/target launch complexes (Point Mugu and SNI)
- Three airborne target launch platforms
- Surface target presentations (fully augmented)
- Surface Craft
 - Boundary boat operations
 - Weapon/target launch and recovery
- Ordnance handling and storage
- Photographic services
- Metrology

i. Accuracy of Tracking.

Extended Area Test System (EATS)

Position: 15-foot horizontal, 200-foot vertical (barometric), 1% of alt (radar altimeter)

Velocity: 5 ft/sec horizontal, 8 ft/sec vertical

Data rate: Up to 10 samples/second

Dynamics: Up to 8 gs

FPS-16 Metric Tracking Radars

Position: 30 feet at 10,000-foot altitude at 33 nm

Cinetheodolites

Position: 1 to 10 feet within 10 nm

From +20 to +10 arc seconds

j. Data Collection/Replay Capability.

NAWCWPNS supports the test and evaluation of DoD weapons systems on the Sea Range at Point Mugu and other nearby ranges. This support includes among all the other facets, the collection of data used by every test operation. This includes Time Space Position Information (TSPI) data from radars, telemetry data, EATS data, GPS data, NTDS data from Fleet participants and from surveillance radars, inter-range network data, and simulation data. Data are recorded at each system, such as at the radar site and at the Telemetry Processing System (TPS), and are recorded at the central site computers. At the central site, the real time computers process and combine and record the data in a merged format. Processed data are utilized in real time to produce displays in the Operations Control Rooms for range safety, operations control, and real time engineering analysis. The data are available for replay, post processing, distribution to the customer, and retention for an extended period, normally over 1 year. The central site computer systems provide the capability to utilize the recorded range test data to replay any test operation. In addition to being able to generate the same displays and outputs, the computers can reconstruct the operation by reprocessing and reproducing alternate displays. The General Range Information Display System (GRIDS) also records the data and video it produces in the Operational Control Rooms (OCRs). This video can be replayed on GRIDS or low cost monitors to assist in operation and weapon system evaluation.

k. What Are the Maximum Hours Per Year That This Range is Available to Support Activities?

Provide the Actual Hours That the Range Was Up and Capable of Providing Services. Do not count "Down Time" due to maintenance, reconfiguration, or administrative activities (i.e, holiday shutdowns).

7,824 hours. This figure is based upon the fact that the range is capable of 24-hour-per-day operation, 365 days per year except for one closed weekend per month, holiday closures, and nominal weather non-availability. It should be noted that the range is not currently staffed for a continuous 24-hour-per-day operation nor are all programs capable of conducting operations in non-daylight hours.

l. What were the actual hours this Range was utilized per year for the last five years?

FY 1989	4,865 hours
FY 1990	5,459 hours
FY 1991	4,082 hours
FY 1992	3,394 hours
FY 1993	3,754 hours

m. What were the actual hours this Range was utilized in FY 1993?

3,754 actual hours. However due to its large size and instrumentation capacity, the range is capable of supporting multiple operations simultaneously. During FY 1993, when simultaneous operations and instrumentation and target set-up operations are included, the range actually supported 13,006 operational hours.

n. Who are the customers of the Range?

The Sea Test Range routinely supports the test and evaluation of airborne weapon systems, including weapon/platform integration, for NAVAIRSYSCOM. Classes of weapons tested include anti-air, anti-surface, and air-launched anti-submarine weapons, as well as cruise missiles. Weapons currently under test or tested recently include Sidewinder, Sparrow, Phoenix, AMRAAM, SLAM, Harpoon, Tomahawk, and HARM, as well as conventional munitions.

Aircraft and weapon/platform integration testing for both the Navy and Air Force has been performed for the F-14, F-15, F-16, F/A-18, F-22, A-6, EA-6B, B-1B, B-2, and B-52 aircraft.

The Sea Test Range supports the development of surface launched weapons systems and combat systems testing for NAVSEASYSYSCOM. Weapon and combat systems currently under test or tested recently include Seasparrow, AEGIS, Standard Missile, CIWS, RAM, Harpoon, SLAM, Tomahawk, and MK-48 ADCAP Torpedoes.

The Sea Test Range supports development and follow-on tests for Navy, Air Force, and NASA ballistic missile, space, and satellite operations. Test support has been provided for Polaris, Trident, Scout, Peacekeeper, Titan, Minuteman, Delta, Thor, Atlas, Pegasus, and Space Shuttle as well as other programs. Sea Test Range instrumentation is a mandatory support resource for ballistic missile and satellite launch operations from Vandenberg AFB.

The Sea Test Range has supported Theater Missile Defense (TMD) operations for the Navy and Air Force.

The Sea Test Range supports numerous Special Access programs. Due to its remote location and security provisions, STR is particularly well suited to support of such activities.

The Sea Test Range provides significant support for Fleet training operations including air-to-air, air-to-surface, surface-to-air, and surface-to-surface missile operations, as well as aerial mining and bombs. All Fleet live fire weapons operations in the Southern California area are performed on the Sea Test Range.

The Sea Test Range has been utilized for support of tests for several allied governments, including Japan (JDF SSM-1), Norway (NASAM), Germany (F-4F ICE), Israel (UAV), Britain, Spain, and Canada.

The Navy has successfully prosecuted some of its most challenging flight test programs at Point Mugu, including the following.

- Tomahawk Land Attack Missile with its over 800 mile range, requiring the interconnection of up to seven DoD ranges (San Clemente, Point Mugu, Vandenberg, Edwards, China Lake, Tonapah, and Utah Test and Training Range connected by Inland Route (R-200) (1977 to present)). This series has included eight coordinated Tomahawk air strikes into China Lake and Fallon with Fleet aircraft.
- Tomahawk Antiship Missile with its over 200-mile range over water and extensive search patterns (1976 to present) (Point Mugu and Vandenberg).
- F-14/Phoenix weapons integration testing, including multi-target scenarios of up to six targets (1972 to present) (Point Mugu and Vandenberg).
- F/A-18/AMRAAM weapons integration testing, including multi-target scenarios of up to four targets (1986 to present) (Point Mugu and Vandenberg).
- AEGIS Combat System testing, including a manned raid of over 40 aircraft and multi-missile scenario against nine targets in a heavy ECM environment (1988) (Point Mugu and Vandenberg).
- Trident tactical-launch OT scenarios of up to four missiles rippling two at a time (1982 to 1993) (Point Mugu, Vandenberg, and Southern California Fleet Training Range).
- Joint Electromagnetic Interference (JEMI) Program Tests. The Sea Range was selected as the best site to conduct the graduation test series for JEMI. These tests, conducted over a 3-week period, involved up to 25 warfare systems from the Army, Navy, Marines, and Air Force. The special range support requirements of these tests were metric track for all participants and an environment for land, sea, and air systems to be deployed in tactically relevant scenarios.
- The Japanese Self Defense Force has sited their DT, OT, and training flight tests at Point Mugu for their Army surface-launched anti-ship cruise missile.
- The Germans chose Point Mugu as the test site for their F-4F Improved Combat Effectiveness (ICE) program, which included an aircraft avionics upgrade along with AMRAAM weapons integration.
- The Norwegians selected San Nicolas Island for the NASAM's flight test program, which included extensive combat systems and AMRAAM missile (a surface-to-air variant) testing against low incoming targets.
- The Air Force chose Point Mugu for SRAM LEAP flights because no other range could provide the required instrumentation test volume.
- The Sea Range has worked closely with operational units from throughout the western United States to coordinate more complex training scenarios under a concept called BITE (Battle

Management Interoperability Test and Evaluation/Training Exercises). The 27 exercises conducted since June of 1991 have included Navy, Marine, and Air Force elements testing and exercising a number of aspects of warfare including command and control, reconnaissance, engagement, and battle damages assessment. Up to six major combatants and 40 aircraft have participated. Some recent scenarios involve joint force projection components to China Lake. In addition, our participation in Tandem Thrust 92 (conducted to evaluate solutions to Joint Service command and control interoperability lessons learned during Desert Storm) demonstrated the use of the Sea Range's Battle Management Interoperability Center as an alternate Strike Planning Center ashore under the Navy's Copernicus architecture.

The success of the Sea Range in conducting complex operations has led Commander, Third Fleet to select the Sea Range to conduct the most complex Carrier Battle Group exercises performed anywhere. These 2-day exercises involve the aircraft carrier and four to six battle group combatants, e.g., AEGIS cruisers, cruisers, destroyers, frigates, and submarines, fighting anti-air, anti-surface, and anti-submarine warfare against various threat scenarios.

The most complex component of these scenarios involves 10 controlled air targets representing opposing forces (both subsonic and supersonic), blue forces engaging those forces with Standard Missile and Seasparrow weapons, and neutral aircraft all within the engagement envelope of the defending ships. A tactical picture must be developed by the Fleet warfare commander to allow engagement of the opposing threats only while the other air vehicles are in the envelope.

This attack phase then transitions to an anti-ship phase where Fleet aircraft and ships use Harpoon and HARM missiles to defend against surface attack from three real and up to 12 simulated threats and a backdrop of up to 30 neutral additional ships. This phase is then followed by an air-to-air phase with Fleet aircraft engaging aerial targets with Phoenix, AMRAAM, Sparrow, and Sidewinder missiles.

Other phases of the exercise involved manned aircraft raids of up to 30 aircraft, e.g., B-1s, B-52s, F/B-111, F-14s, F-15s, F-16s, and F-18s, then becoming force projection strike units under command of the Battle Group into land targets at China Lake, Fort Irwin, and Twentynine Palms.

Up to 50 missiles are fired during these 2 days, which are controlled from Point Mugu using both the Operational Control Rooms and the Battle Management Interoperability Center.

To date (April 1994), three of these very complex training events have been staged with planning for even more complex scenarios in process emphasizing joint operations, simultaneous warfare, and greater use of simulation. These concepts are at the forefront of Joint and Navy operational force commands. Because of the Sea Range's extensive capabilities and experienced workforce, we are team leader in the development and execution of these advanced concepts.

o. Of the Actual Hours Utilized, What Percentage of Utilization was Provided to Which Customers?

NAVAIR - 33.1%

AMRAAM	Phoenix Production
AQM-37	Pioneer
BQM-34	QF-4 FSAT Prod Support
BQM-37	SLAM
F-14	Sparrow
F/A-18	Tomahawk/SLCM
Harpoon Product Improvement	UAV
Mobile Sea Range	Miscellaneous Range Support

Fleet - 21.0%

Fleet Support
Harpoonex
Miscellaneous exercise: (CSSQT, SETT 12, Wabash)
Miscellaneous targets (C/A/AS, Target Kits, Support Equipment)
Score
Trident

NAVSEA - 8.1%

AEGIS	Self Defense Test Ship
RAM	Standard Missile

Air Force - 8.3%

Aladdin	Lab ASTB
ATES	Minute Man I, III
Atlas	Peacekeeper
F-15	Scout
F-16	STS Shuttle
Have Nap	Titan
Kestrel	

Special Access Programs - 12.5%

F-14 Dusty Koala Support	Precious
Radar Program	Special Projects
ARMT	Gilder Halibut
Project 7.2/9.2/Gilder Kestrel	

Other Navy - 2.7%

CNO Project 225	Naval Reserve (CNAVRES)
Cruise Missile C2	SCRIF (NMPDC)
HARM	

Other Government - 2.5%

Airborne Multisensor POD Systems (AMPS)

Other DoD - 0.2%

Excalibur

Marines - 1.2%

Air Combat Maneuver : Testing

FMS - 7.7%

F-4F ICE

JDF

JMS DF

NASAMS

SAMEX

Spanish Fit Test

Tornado/Kormoran

Navy Labs - 1.0%

Shallow Water Torpex

COMOPTEVFOR - 0.2%

AIM-54C 7.00TE

VX-4 CNO-080

Army - 0.4%

HAIDE

NASA - 0.4%

Wallpaper

p. Provide a Sketch, Drawing, or Map of the Range.

See the Sea Test Range (Warning Area Map) figure above.

2.0 Are any of your ranges part of the DoD Major Range and Test Facility Base (MRTFB)? If yes, which ones?

Yes. The NAWCWPNS Point Mugu Sea Test Range is the largest Navy component activity within the Major Range and Test Facility Base (MRTFB). Indeed, NAWCWPNS Point Mugu, under its previous organizational titles of Pacific Missile Range and later Pacific Missile Test Center, was one of the original founders of the MRTFB. NAWCWPNS has been a consistent supporter of MRTFB activities and other MRTFB member ranges (as well as Fleet Training Ranges and other non-MRTFB ranges). NAWCWPNS Point Mugu provides significant support to MRTFB and non-MRTFB ranges in several areas, including range instrumentation development (GPS, NGTCS, SIDS, IRIS, etc.), range safety (RSOP, RSAs, operational support), airborne and surface target operational and logistics support, geophysics support, and range instrumentation depot level maintenance support. The Head of the Sea Range Directorate is the current Chairman of the Range Commanders Council Executive Committee.

3. Are there any limiting (current or future) environmental and/or encroachment characteristics that are associated with this range?

Main Base. Wetland and endangered species issues have limited usable beach area (seasonally) and limited some open areas on the base. However, beach operations are extremely rare here and are only a very minor part of our test program. Other operations are usually sited at existing facilities.

San Nicolas Island. Marine mammals and endangered species issues have limited usable beach areas around the island. However we only perform about one test operation per year on island beaches, and with proper scheduling, there have been no operational conflicts. Over 500

archaeological sites have been identified on the island to date. These sites are located primarily on the western half of the island, which is the most used for operations. We have been able to site operations in the areas between sites, so this has not been a limiting factor.

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APPENDIX A
FUNCTIONAL SUPPORT AREAS
LIFE CYCLE WORK AREAS LIST

APPENDIX A
1
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I. FUNCTIONAL SUPPORT AREAS

1. PLATFORMS

- 1.1 Undersea
- 1.2 Aircraft
- 1.3 Surface Ship
- 1.4 Space Satellites
- 1.5 Ground Vehicles

2. WEAPONS SYSTEMS

- 2.1 Gun Systems
- 2.2 Guided Missiles
- 2.3 Free Fall Weapons and Rockets
- 2.4 Torpedoes
- 2.5 Mines
- 2.6 Directed Energy Systems
- 2.7 Explosives
- 2.8 Launchers
- 2.9 Fire Control
- 2.10 Weapons Data Links
- 2.11 Weapons Fuzing
- 2.12 Weapons Propulsion
- 2.13 Other Ordnance
- 2.14 Explosive Ordnance Disposal

3. COMBAT SYSTEM INTEGRATION

- 3.1 Subsurface
- 3.2 Air
- 3.3 Surface
- 3.4 Multiplatform

4. SPECIAL OPERATIONS SUPPORT

- 4.1 Landing Force Equipment and Systems
- 4.2 Coastal/Special Warfare Support

5. SENSORS & SURVEILLANCE SYSTEMS

- 5.1 Sonar Systems
- 5.2 Radar Systems
- 5.3 Special Sensors
- 5.4 Space Sensor/Surveillance Systems
- 5.5 Ocean Surveillance

6. NAVIGATION

- 6.1 Submarine Navigation Systems
- 6.2 Aircraft Navigation Systems
- 6.3 Surface Ship Navigation Systems
- 6.4 Weapons Navigation Systems
- 6.5 Satellite Navigation Systems

7. COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE (C³I)

- 7.1 Submarine
- 7.2 Airborne
- 7.3 Shipboard
- 7.4 Land-Based
- 7.5 Space Communications Systems
- 7.6 Non-Tactical Data Systems
- 7.7 Air Traffic Control Systems
- 7.8 Intelligence Information Systems

8. DEFENSE SYSTEMS

- 8.1 Ballistic Missile Defense
- 8.2 Countermeasures (CM)
- 8.3 Electronic Warfare (EW) Systems

9. STRATEGIC PROGRAMS

- 9.1 Navy Strategic Systems
- 9.2 Nuclear Weapons and Effects

10. GENERAL MISSION SUPPORT

- 10.1 Personnel and Training
 - 10.1.1 Submarine-Related Training Systems
 - 10.1.2 Aircraft-Related Training Systems
 - 10.1.3 Surface Ship-Related Training Systems
 - 10.1.4 Weapons-Related Training Systems
 - 10.1.5 Human Resources Research and Development
- 10.2 Logistics Planning and Implementation
- 10.3 Facilities Engineering
- 10.4 Diving, Salvage and Ocean Engineering
- 10.5 Environmental Description, Prediction, and Effects
- 10.6 Crew Equipment and Life Support
 - 10.6.1 Submarine
 - 10.6.2 Aircraft
 - 10.6.3 Surface Ship
 - 10.6.4 Medical Research and Combat Casualty Care
 - 10.6.5 Clothing and Textiles
- 10.7 Major Range Development and Operation
- 10.8 Other Subsidiary Systems or Components
- 10.9 Activity Mission and Function Support

APPENDIX A

11. GENERIC TECHNOLOGY BASE. [Includes basic research and exploratory development (Budget Categories 6.1 & 6.2) projects that do not fit under the more warfare-focused functional support areas.]

- 11.1 Computers.
- 11.2 Software.
- 11.3 Communications Networking.
- 11.4 Electronic Devices.
- 11.5 Materials and Processes.
- 11.6 Energy Storage.
- 11.7 Propulsion and Energy Conversion.
- 11.8 Design Automation.
- 11.9 Human-System Interfaces.
- 11.10 Other Technology Base Programs.

II. LIFE-CYCLE WORK AREAS

RDT&E

- 1. BASIC RESEARCH
- 2. EXPLORATORY DEVELOPMENT
- 3. ADVANCED DEVELOPMENT
- 4. ENGINEERING AND MANUFACTURING DEVELOPMENT
- 5. RDT&E MANAGEMENT SUPPORT
- 6. OPERATIONAL SYSTEMS DEVELOPMENT

ACQUISITION

- 7. PRODUCTION
- 8. ACCEPTANCE TESTING
- 9. MODERNIZATION
- 10. PROGRAM SUPPORT

LIFE-TIME SUPPORT

- 11. MAINTENANCE
- 12. REPAIR
- 13. TESTING
- 14. IN-SERVICE ENGINEERING
- 15. PROGRAM SUPPORT
- 16. RETIREMENT

GENERAL

- 17. TRAINING/OPERATIONAL SUPPORT
- 18. SIMULATION, MODELING AND ANALYSIS

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APPENDIX B
DEFINITIONS FOR FUNCTIONAL SUPPORT AREAS
LIFE CYCLE WORK AREAS

APPENDIX B
1
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I. FUNCTIONAL SUPPORT AREA DEFINITIONS

1. PLATFORMS. Those self-propelled, boosted or towed conveyances used for the strategic and tactical deployment of forces, weapons, materials and supplies in support of naval warfare. Projects within this area are limited to those in which the principal objective is to provide technological wherewithal to develop Navy aerospace craft, ships, submarines, boats, and amphibians.

1.1 *Undersea.* Self-propelled, boosted, or towed conveyances for transporting a burden under the sea. The vehicle package includes the design, structures, materials, non-nuclear propulsion, power and auxiliary equipment, transmissions and propulsors, fuels and lubricants, energy conservation and pollution abatement equipment, control systems, and silencing inherent in its construction and operation, but excluding mission oriented systems. Included are submarines and other submersibles including their application as unmanned autonomous vehicles (UAV) and targets.

1.2 *Aircraft.* Self-propelled, boosted, or towed conveyances for transporting a burden through the air. The vehicle package includes the design, structures, materials, non-nuclear propulsion, power and auxiliary equipment, transmissions and propulsors, fuels and control systems and silencing inherent in its construction and operation, but excluding mission oriented systems. Included are all air vehicles including their application as UAVs and targets.

1.3 *Surface Ship.* Self-propelled, boosted, or towed conveyances for transporting a burden on land or sea. The vehicle package includes the design, structures, materials, non-nuclear propulsion, power and auxiliary equipment, transmissions and propulsors, fuels and lubricants, energy conservation and pollution abatement equipment, control systems, and silencing inherent in its construction and operation, but excluding mission oriented systems. Included are ships and craft including their application as UAVs and targets.

1.4 *Space Satellites.* A device or spacecraft in orbit. The vehicle package includes the design, structures, materials, non-nuclear propulsion, power and auxiliary equipment, and control systems, inherent in its construction and operation.

1.5 *Ground Vehicles.* Self-propelled, boosted, or towed conveyances for transporting a burden on land. The vehicle package includes the design, structures, materials, non-nuclear propulsion, power and auxiliary equipment, transmissions and propulsors, fuels and lubricants, energy conservation and pollution abatement equipment, control systems, and silencing inherent in its construction and operation, but excluding mission oriented systems.

2. WEAPONS SYSTEMS. A system that provides the capability to defeat naval and military targets by destructive means. Included are counter-countermeasures and other design features to reduce the susceptibility of the weapon to counter actions, but excluded are those projects in which the principal objective is to counter a weapons system or those efforts to make a system (other than weapons) less vulnerable to enemy weapons.

2.1 *Gun Systems.* Ordnance which fires projectiles; includes related ammunition (guided projectiles are included in "guided missiles". Included are gun systems aboard aircraft and ships, and gun systems used by personnel.

2.2 *Guided Missiles.* Weapons, either self-propelled, (i.e., reaction launched) or impulse driven (i.e., gun/tube impulse launched) capable of homing on, or following a beam or command signals through the air to a target (includes guided projectiles). Included are missiles that are launched by submarine, aircraft, and ship.

2.3 Free Fall Weapons and Rockets. Free fall weapons are those air-delivered weapons, including components and subsystems, which follow a ballistic trajectory after gravity launch without any guidance other than that from the initial orientation and velocity of the launching aircraft. A rocket is a self-propelled airborne vehicle whose trajectory or course, while in flight, cannot be controlled.

2.4 Torpedoes. Self-propelled, guided or unguided underwater weapons. Included are torpedoes launched by submarine, aircraft, and ship.

2.5 Mines. Self-activating standoff or contact explosive devices that are designed to destroy or damage ground vehicles, boats, ships, or aircraft, or designed to wound, kill, or otherwise incapacitate personnel.

2.6 Directed Energy Systems. Devices and techniques for generating and focusing high-intensity beams of electromagnetic energy or charged particles upon targets with lethal effects.

2.7 Explosives. Metastable compounds which can rapidly release large quantities of energy mostly in the form of hot, high-pressure gases. Explosives are used in naval munitions such as mines, torpedoes, missiles, etc., and also in other Navy products such as aircraft escape systems, fuse trains, etc.

2.8 Launchers. That group of devices, components, or subsystems needed to support, hold, and launch expendable weapons, countermeasure devices, or other stores; the control systems for managing these systems and the stores they carry.

2.9 Fire Control. Those platform-based systems which provide data for and/or control the launch platform/weapon/weapon-target interaction in all phases required by a weapons system (e.g., acquisition, track, commit-to-fire-pre-launch, post-launch, mid-course, terminal intercept, and assessment). Included are systems that are based undersea, aboard aircraft, shipboard, and on land.

2.10 Weapons Data Links. Efforts include the data links that are part of the weapon's command, control and communications systems.

2.11 Weapons Fuzing. Efforts leading to the design of systems to sense a target or the result of other prescribed conditions such as time, barometric pressure, command, etc., and initiate a train of fire. Safing and arming are primary functions performed by a fuse to preclude initiation of the ammunition before the desired position or time.

2.12 Weapons Propulsion. Included are propellants, subsystems and systems that comprise the means by which a weapons system moves through the air or sea.

2.13 Other Ordnance. Includes efforts that do not fit in the above categories (e.g., pyrotechnics, gas generators, CAD/PAD/AE/S).

2.14 Explosive Ordnance Disposal. Efforts relating to the technical support of explosive ordnance disposal technology and training.

3. COMBAT SYSTEM INTEGRATION. That effort required to introduce a new system into the operating forces. It involves the integration and evaluation of a new hardware or software subsystem installed in a Navy

platform. It includes the mating, installation, and operational support of the resulting higher level system to ensure optimum operating performance.

3.1 *Subsurface*. The integration and evaluation of the various hardware and software subsystems that make up a higher level system, and the mating, installation, and operational support of this higher level system, including its operational software and training systems into undersea platforms.

3.2 *Air*. The integration and evaluation of the various hardware and software subsystems that make up a higher level system, and the mating, installation, and operational support of this higher level system, including its operational software and training systems into air platforms.

3.3 *Surface*. The integration and evaluation of the various hardware and software subsystems that make up a higher level system, and the mating, installation, and operational support of this higher level system, including its operational software and training systems into surface platforms.

3.4 *Multiplatform*. The integration of multiplatform hardware and software subsystems to make up a higher level system, including the mating, installation, and operational support (including training systems) of this higher level system

4. SPECIAL OPERATIONS SUPPORT. Those efforts which are in support of amphibious landing, Marine Corps operations, special warfare and other unique operations. It includes weapons, countermeasures, surveillance and a command support which are developed specifically for the projection of forces ashore and that do not have an application by the Navy general forces in the role of sea control.

4.1 *Landing Force Equipment and Systems*. Involved is that RDT&E effort which is not functionally a part of the amphibious platform. Specifically, this includes reconnaissance of amphibious objective areas, environmental support of amphibious operations, amphibious logistics and the integration of the amphibious and Marine Corps systems required to land amphibious forces on a hostile shore and establish a beachhead. (Contingency facilities in support of forces ashore are included in "facilities".)

4.2 *Coastal/Special Warfare Support*. Techniques and systems required to defend coastal, inshore and harbor facilities as well as those needed to conduct operations such as reconnaissance, deception, coastal or offshore interdiction and assault, counterinsurgency, intelligence gathering, remote sensor operation and waterborne intrusion detection. Special warfare systems include systems, techniques, and concepts utilized by specifically cross-trained personnel in unconventional warfare and coastal/riverine operations.

5. SENSORS & SURVEILLANCE SYSTEMS. Those systems used to systematically observe air, space, surface and subsurface areas to detect, classify, localize and identify real or potential military targets. Excluded are those projects in which the principal objective is navigation, weapon fire control or broadbased investigation of the properties of the media or the propagation of energy therein.

5.1 *Sonar Systems*. Those sonar systems and devices used to conduct search, reconnaissance, and surveillance operations to detect, classify, locate, and/or track targets. Included are those systems and devices that are mobile aboard undersea, air and surface platforms, and those that are fixed.

5.2 Radar Systems. Those radar systems and devices used to conduct search, reconnaissance, or surveillance operations to detect, classify, locate, and/or track targets. Included are those systems and devices that are mobile aboard undersea, air, and surface platforms, and those that are fixed.

5.3 Special Sensors. Those systems and devices which utilize unique phenomena or methods or combinations of methods to conduct search, reconnaissance, or surveillance operations to detect, classify, locate, and/or track targets. Included are active sensors, passive sensors (e.g., thermal imagers, low light level TV, and infrared search and track systems), and the associated signal and image processing.

5.4 Space Sensor/Surveillance Systems. Those devices and systems in Earth orbit that are used to conduct search, reconnaissance, or surveillance operations to detect, classify, locate and/or track targets.

5.5 Ocean Surveillance. Systems and equipment for systematic observation of ocean areas for identification and localization of ships, submarines, and aircraft from fixed and mobile platforms including operational software development, and integration of multi-sensor, coordinated detection data and its display at appropriate sites.

6. NAVIGATION. Those systems which utilize electromagnetic, acoustic, or inertial means to guide or navigate surface, subsurface, or aerospace platforms. Included are those systems deployed aboard submarines, aircraft, surface ships and satellites, as well as those used in weapons systems.

6.1 Submarine Navigation Systems. Navigation systems deployed aboard submarines, or other undersea vehicles.

6.2 Aircraft Navigation Systems. Navigation systems deployed aboard aircraft.

6.3 Surface Ship Navigation Systems. Navigation systems deployed aboard surface ships.

6.4 Weapons Navigation Systems. Navigation systems installed within weapon systems, such as guided missiles.

6.5 Satellite Navigation Systems. Navigation systems deployed aboard satellites.

7. COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE (C³I). The acquisition, processing and dissemination of information required to plan, direct, and control operations. Included are those projects in command and control, communications and intelligence. Excluded are surveillance systems, and guidance and control of vehicles and weapons. These C³ systems may be internal or external to submarine, airborne, surface, and land-based platforms.

7.1 Submarine. C³ systems deployed aboard submarines, or other undersea vehicles.

7.2 Airborne. C³ systems deployed aboard aircraft.

7.3 Shipboard. C³ systems deployed aboard surface ships.

7.4 Land-Based. C³ systems deployed at shore facilities.

7.5 Space Communications. Communications systems in Earth orbit used to convey information.

7.6 Non-Tactical Data Systems. Data systems utilized aboard the Navy's operating forces and at shore sites that support ship, submarine and aircraft maintenance, configuration and asset management, supply, inventory, finance, medical, dental, manpower management, administration, food services (ship's mess), and resale operations (ship's stores).

7.7 Air Traffic Control Systems. Systems used to promote the safe, orderly, and expeditious movement of air traffic.

7.8 Intelligence Information Systems. The systems necessary to conduct the naval warfare task of intelligence. This task involves the assessment and management of information obtained via surveillance, reconnaissance, and other means to produce timely indications and warning, location, identification, intentions, technical capabilities, and tactics of potential enemies and other countries of interest.

8. DEFENSE SYSTEMS. Those systems that are principally designed to defeat a particular weapon system; those systems that are designed to reduce the effectiveness of an enemy's surveillance, communications, navigation and command and control; as well as those efforts directed toward gathering information on the emissions of enemy systems. It does not include those projects in which the principal objective is to incorporate design features in vehicles, surveillance, communication, navigation and other support systems which reduce their vulnerability to enemy action. It also does not include chemical/biological defense for personnel.

8.1 Ballistic Missile Defense. Systems designed to protect civilian population centers, military forces, and territory from ballistic missile attack.

8.2 Countermeasures (CM). Those systems that are principally designed to defeat a particular weapon system; reduce the effectiveness of an enemy's surveillance, communications, navigation and command and control; as well as gather information on the emissions of enemy systems. Included are those projects to develop systems deployed aboard submarine, aircraft, and surface ship, and those for countering enemy mine warfare through the destruction or neutralization of minefields.

8.3 Electronic Warfare (EW) Systems. Those systems, techniques, and devices utilized to determine, exploit, reduce, or prevent hostile use of the electromagnetic spectrum. Included are those projects to develop systems deployed aboard submarine, aircraft, and surface ship, as well as those to develop EW simulators.

9. STRATEGIC PROGRAMS. Programs conducted to support the deployment and use of the Navy's strategic deterrence force, as well as those programs conducted on nuclear weapons and effects.

9.1 Navy Strategic Systems. Those ships and weapon systems, subsystems, devices, techniques, trainers and facilities required specifically for the deployment and use of the Navy's strategic deterrence force.

9.2 Nuclear Weapons and Effects. Nuclear weapons effects and countermeasures, including thermal and nuclear radiation effects and the hardening of components and of weapons systems both nuclear and non-nuclear.

10. GENERAL MISSION SUPPORT. Those major areas of support required by Navy general forces that are not included under platforms, weapons systems, combat system integration, special operations support, sensors and surveillance systems, navigation, C³I, defense systems, strategic programs, and technology base programs.

10.1 *Personnel and Training.* Human resources research and development for the areas of manpower, personnel, education, and training and its support and service functions for human factors effort in system design, development and acquisition. Included are those systems related to submarine, aircraft, surface ship and weapons training, as well as human resources research.

10.1.1 Submarine-Related Training Systems

10.1.2 Aircraft-Related Training Systems

10.1.3 Surface Ship-Related Training Systems

10.1.4 Weapons-Related Training Systems

10.1.5 Human Resources Research and Development

10.2 *Logistics Planning and Implementation.* Projects for those aspects of military operations which deal with the movement, maintenance, supply, and support of Naval forces afloat and ashore, including underway replenishment, warehousing, and mobile logistics maintenance and repair activities; material acquisition, control, handling, distribution and disposal processes; and logistics planning, control, and information processing functions.

10.3 *Facilities Engineering.* Products for (a) ocean facilities including the siting, design, construction/implant, and maintenance of facilities attached to the sea floor such as cable structures, pipelines, communications/power cables and Fleet moorings; (b) contingency facilities and equipment to support Navy and Marine Corps forces ashore in amphibious objective areas and at advanced naval bases; (c) permanent shore facilities such as buildings, piers, drydocks, airfields, POL and weapons storage, and utilities; (d) energy systems ashore including conservation, synthetic fuels, energy self-sufficiency; and (e) environmental protection systems ashore such as industrial wastewater treatment plants, air and noise pollution control devices, and solid waste management systems.

10.4 *Diving, Salvage and Ocean Engineering.* Those support systems and equipment that are required by the Navy in the performance of ocean bottom search, diving, rescue, recovery, salvage operations, and siting, design, construction/implantment, inspection, maintenance and recovery of underwater facilities and associated systems.

10.5 *Environmental Description, Prediction, and Effects.* The study, modeling, and simulation of atmospheric, oceanic, terrestrial, and space environmental effects, both natural and man-made, including the interaction of a weapon system with its operating medium and man-produced phenomena such as obscurants found on the battlefield.

10.6 *Crew Equipment and Life Support.* Techniques, equipment and devices to provide protection for and support of Navy operating personnel, including chemical/biological defense. Included are systems aboard submarines, aircraft, and surface ships, as well as medical research and combat casualty care, and clothing and textiles.

10.6.1 Submarine

10.6.2 Aircraft

10.6.3 Surface Ship

10.6.4 Medical Research and Combat Casualty Care

10.6.5 Clothing and Textiles

10.7 *Major Range Development and Operation.* The design, equipping, and operation of ranges offering diverse and accurate measurement and reconstruction capabilities to establish performance profile data on newly designed, as well as existing, naval vehicles and systems operating in a realistic environment.

10.8 *Other Subsidiary Systems or Components*. Subsidiary systems or components that do not fit within the above product areas (e.g., batteries).

10.9 *Activity Mission and Function Support*. Efforts that clearly support the Activity's responsibilities but which cannot be uniquely assigned to a specific functional area.

11. GENERIC TECHNOLOGY BASE. Includes basic research and exploratory development (Budget Categories 6.1 & 6.2) projects that do not fit under the more warfare-focused functional support areas. These areas include computers, software, communications networking, electronic devices, materials and processes, energy storage, propulsion and energy conversion, design automation, human-system interfaces, and other technology base areas.

11.1 *Computers*. High performance computing systems (and their software operating systems) providing orders-of-magnitude improvements in computational and communications capabilities as a result of improvements in hardware, architectural designs, networking, and computational methods.

11.2 *Software*. The tools and techniques that facilitate the timely generation, maintenance, and enhancement of affordable and reliable applications software, including software for distributed systems, data base software, artificial intelligence, and neural nets.

11.3 *Communications Networking*. The timely, reliable, and secure production and worldwide dissemination of information, using shared communications media and common hardware and applications software from originators to DoD consumers, in support of joint-Service mission planning, simulation, rehearsal, and execution.

11.4 *Electronic Devices*. Ultra-small (nanoscale) electronic and optoelectronic devices, combined with electronic packaging and photonics, for high speed computers, data storage modules, communications systems, advanced sensors, signal processing, radar, imaging systems, and automatic control.

11.5 *Materials and Processes*. Development of man-made materials (e.g., composites, electronic and photonic materials, smart materials) for improved structures, higher temperature engines, signature reduction, and electronics, and the synthesis and processing required for their application.

11.6 *Energy Storage*. The safe, compact storage of electrical or chemical energy, including energetic materials for military systems.

11.7 *Propulsion and Energy Conversion*. The efficient conversion of stored energy into usable forms, as in fuel efficient aircraft turbine engines and hypersonic systems.

11.8 *Design Automation*. Computer-aided design, concurrent engineering, simulation, and modeling; including the computational aspects of fluid dynamics, electromagnetics, advanced structures, structural dynamics, and other automated design processes.

11.9 *Human-System Interfaces*. The machine integration and interpretation of data and its presentation in a form convenient to the human operator; displays; human intelligence emulated in computational devices; and simulation and synthetic environments.

11.10 *Other Technology Base Programs.* All technology base programs (Budget Categories 6.1 and 6.2 only) that do not fit into the above warfare-focused functional support areas (#1 - #10), or within the above generic technology base areas (#11.1 - #11.9).

II. LIFE-CYCLE WORK AREA DEFINITIONS

RDT&E

1. **BASIC RESEARCH.** (Budget Category 6.1 only) This area includes scientific study and experimentation to increase knowledge and understanding in the physical, engineering, environmental and life sciences related to long-term national security needs.
2. **EXPLORATORY DEVELOPMENT.** (Budget Category 6.2 only) This area includes efforts to solve specific military problems, short of major development. Exploratory development may vary from fairly fundamental applied research to sophisticated breadboard hardware, study programming and planning efforts.
3. **ADVANCED DEVELOPMENT.** (Budget Category 6.3 only) This area includes efforts on projects which have moved into the development of hardware for test. The prime objective is proof of design concept rather than the development of hardware for service use.
4. **ENGINEERING AND MANUFACTURING DEVELOPMENT.** (Budget Category 6.4 only) This area includes programs in full scale development, but which have not received approval for production or had production funds included in the DoD budget submission for the budget or subsequent fiscal year.
5. **RDT&E MANAGEMENT SUPPORT.** (Budget Category 6.5 only) This area includes support of installations or operations required for general research and development use. Included would be test ranges, military construction, maintenance support of laboratories, operations and maintenance of test aircraft and ships, and studies and analyses in support of the R&D program.
6. **OPERATIONAL SYSTEMS DEVELOPMENT.** (Budget Category 6.6 only) This area includes projects still in full-scale development, but which have received approval for production through Defense Acquisition Board or other action, or for which production funds have been included in the DoD budget submission for the budget or subsequent fiscal year. All work in this area is identified by major line item projects that appear as "RDT&E Costs of Weapon System Elements" in other programs.

ACQUISITION

7. **PRODUCTION.** During this phase, the system, including training equipment, spares, etc., is produced for operational use.
8. **ACCEPTANCE TESTING.** This phase involves the test and evaluation of production items to demonstrate that the items procured fulfill the requirements and specifications of the procuring contract or agreement.

9. **MODERNIZATION.** This phase of the work involves the modification, upgrade, or improvement of a system or subsystem.

10. **PROGRAM SUPPORT.** This phase involves all work not fully under the category of production (#7), acceptance testing (#8), or modernization (#9), that occurs during the acquisition of new systems or subsystems.

LIFE-TIME SUPPORT

11. **MAINTENANCE.** This phase of work involves the maintenance of systems and subsystems.

12. **REPAIR.** This phase of work involves the repair of systems or subsystems.

13. **TESTING.** This phase is typically funded from Budget Category 6.5 or procurement program elements. Work in this area supports developmental and/or operational testing and focuses on the evaluation of system safety, technical performance, environmental (climatic, electromagnetic, etc.) effects, sustainability and operational suitability, maturity of production processes, and compliance with the specifications and quality standards.

14. **IN-SERVICE ENGINEERING.** This phase is typically funded from Budget Category 6.6 or operations and maintenance (O&M) program elements. In-service engineering tends to focus on system peculiar capabilities in order to conduct check-out of the system and/or subsystem after they have undergone a modification, upgrade or improvement.

15. **PROGRAM SUPPORT.** This phase involves all work not falling under the categories of maintenance (#11), repair (#12), testing (#13), in-service engineering (#14) and retirement (#16) that occur during the life-time support of new systems and/or subsystems.

16. **RETIREMENT.** This phase includes the retirement and disposal of obsolete systems and/or subsystems.

GENERAL

17. **TRAINING/OPERATIONAL SUPPORT.** Efforts in this area, involve the training of operational forces in the use of new techniques, equipment and systems, tactics or doctrine. Training and operational support is typically funded from O&M program elements.

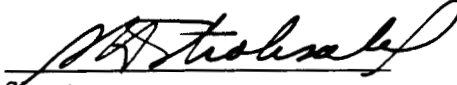
18. **SIMULATION, MODELING AND ANALYSIS.** This phase of work provides a simulated test environment or representation of systems, components and platforms. This work can be carried out throughout the development and test process as analytical tools, as well as tools to drive or control electronic and other environmental stimuli.

BRAC 95
DATA CALL 5

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

G. H. Strohsahl, RADM, USN
NAME (Please type or print)


Signature

Commander
Title

5/13/94
Date

Naval Air Warfare Center
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

W. C. Bowes, VADM, USN
NAME (please type or print)


Signature

Commander
Title

13 May 94
Date

Naval Air Systems Command
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.B. Greene, Jr.
NAME (Please type or print)


Signature

Acting
Title

27 May 1994
Date

of this mission. A single support organization serves both sites, resulting in the most cost effective infrastructure. Although BRAC '95 Data Call #5 is provided separately for China Lake and Point Mugu as requested, the capabilities of both NAWCWPNS sites must be considered as an integrated whole.

I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

Roger K. Hull. CAPT., USN

NAME (Please type or print)

Vice Commander

Title
Naval Air Warfare Center,
Weapons Division

Activity


Signature

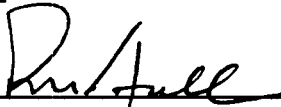
10 MAY 1994
Date

of this mission. A single support organization serves both sites, resulting in the most cost effective infrastructure. Although BRAC '95 Data Call #4 is provided separately for China Lake and Point Mugu as requested, the capabilities of both NAWCWPNS sites must be considered as an integrated whole.

I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

Roger K. Hull, CAPT, USN
NAME (Please type or print)


Signature

Acting Commander
Title
Naval Air Warfare Center,
Weapons Division
Activity

13 MAY 1994
Date

BRAC-95 CERTIFICATION

Reference: SMCNAV NOTE 11000 dtd 8 Dec 93

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

We have responded to the BRAC Data Call #4 for Point Mugu per the instructions. However, it is essential to understand that the Naval Air Warfare Center Weapons Division (NAWCWPNS) is a full-spectrum research, development, test, evaluation, and in-service engineering center for weapon systems associated with air warfare; missiles and missile subsystems, aircraft weapons integration, and assigned airborne electronic warfare systems. Naval Air Warfare Center Weapons Division as a total entity represents the work of more than 8,000 civilian employees and 1,300 military personnel. It is the Navy's complete repository of scientific and technical knowledge for air warfare systems, guided missiles, and aircraft/weapon integration and it is the host for the Navy's Air Weapons Operational Testing Squadrons. Naval Air Warfare Center Weapons Division constitutes the Department of Defense's largest weapons research and development laboratory and air, land and sea test range capability.

The primary sites of NAWCWPNS are at China Lake and Point Mugu, California. A major detachment is operated as a tenant at the White Sands Missile Range. These sites operate with a truly integrated structure. Many organizational entities are spread across both sites. This organizational integration across sites and functional areas recognizes that research, development, test, evaluation, and in-service engineering of weapon systems, is a seamless process that has proven to be most efficient with a critical mass of technical talent focused on all life cycle phases

of this mission. A single support organization serves both sites, resulting in the most cost effective infrastructure. Although BRAC '95 Data Call #5 is provided separately for China Lake and Point Mugu as requested, the capabilities of both NAWCWPNS sites must be considered as an integrated whole.

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ACTIVITY COMMANDER

Roger K. Hull, CAPT, USN
NAME (Please type or print)


Signature

Acting Commander
Title
Naval Air Warfare Center,
Weapons Division
Activity

13 May 1994
Date

BRAC 95
DATA CALL 5
NAWC HQ CHANGE 1

cert for Revised pages
TAB B 23, 24, 28, 32, 36,
23A 40, 44, 48,
166, 166A

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

In certify that the information herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

RADM DONALD V. BOECKER

NAME (Please type or print)

Donald V. Boecker
Signature

COMMANDER (Acting)

3 June 94
Date

Title

Date

NAVAL AIR SYSTEMS COMMAND

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J. B. Greene, Jr.

NAME (Please type or print)

J. B. Greene
Signature

Acting
Title

10 JUN 1994
Date

Title

Date

BRAC 95
DATA CALL 5
NAWCHQ CHANGE 1

*Cert for Revised pages
TAB B 23, 23A, 24, 28, 32, 36,
40, 44, 48, 166, 166A.*

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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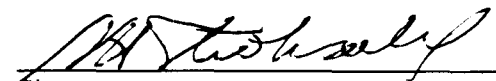
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ACTIVITY COMMANDER

G. H. Strohsahl, RADM, USN
NAME (Please type or print)


Signature

Commander
Title

5/25/94
Date

Naval Air Warfare Center
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

W. E. NEWMAN, RADM, USN
NAME (Please type or print)
COMMANDER
Title
NAVAL AIR WARFARE CENTER
Activity

W E Newman
Signature
8/31/94
Date

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Title

Activity

Signature

Date

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

W. C. BOWES, ZADM, USN
NAME (Please type or print)
COMMANDER
Title
NAVAL AIR SYSTEMS COMMAND
Activity

W C Bowes
Signature
2 Sep 94
Date

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

**DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)**

W. A. EARNER
NAME (Please type or print)

Title

W A Earner
Signature
9/6/94
Date

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

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I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

D. B. McKinney, RADM, USN
Name (Please type or print)


Signature

Commander
Title

8/11/94
Date

Naval Air Warfare Center Weapons Division Point Mugu Site
Activity

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

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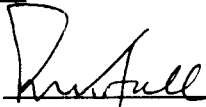
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ACTIVITY COMMANDER

Roger K. Hull, CAPT, USN
Name (Please type or print)


Signature

Acting Commander
Title

16 Sept '94
Date

Naval Air Warfare Center Weapons Division Point Mugu Site
Activity

Data Call #5 Revision of 30 August 1994

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, Uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

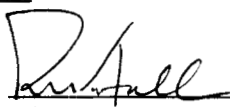
The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in you activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

Roger K. Hull, CAPT, USN
Name (Please type or print)


Signature

Acting Commander
Title

16 Sept '94
Date

Naval Air Warfare Center Weapons Division Point Mugu Site
Activity

168

**BRAC '95
DATA
CALL
#33**

ENVIRONMENTAL
NAWCWPNS Point Mugu

27 MAY 94

FOR OFFICIAL USE ONLY

**BRAC 1995 ENVIRONMENTAL DATA CALL:
All Navy/Marine Corps Host Activities**

INDEX

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ENVIRONMENTAL DATA CALL

Responses to the following questions provide data that will allow an assessment of the potential environmental impact associated with the closure or realignment of a Navy shore activity. This criterion consists of:

*Endangered/Threatened Species and Biological Habitat
Wetlands
Cultural Resources
Environmental Facilities
Air Pollution
Environmental Compliance
Installation Restoration
Land/Air/Water Use*

As part of the answers to these questions, a source citation (e.g., 1993 base loading, 1993 base-wide Endangered Species Survey, 1993 letter from USFWS, 1993 Base Master Plan, 1993 Permit Application, 1993 PA/SI, etc.) must be included. It is probable that, at some point in the future, you will be asked to provide additional information detailing specifics of individual characteristics. In anticipation of this request, supporting documentation (e.g., maps, reports, letters, etc.) regarding answers to these questions should be retained. Information needed to answer these questions is available from the cognizant EFD Planning and Real Estate Divisions, and Environment, Safety, and Health Divisions; and from the activity Public Works Department, and activity Health Monitoring and Safety Offices.

For purposes of the questions associated with land use at your base is defined as land (acreage owned, withdrawn, leased, and controlled through easements); air (space controlled through agreements with the FAA, e.g., MOAs); and water (navigation channels and waters along a base shoreline) under the control of the Navy.

Provide a list of the tenant activities with UICs that are covered in this response.

TENANT	
Name	UIC
Defense Commissary Agency	49208
Explosive Ordnance Detachment Three	30213
Navy Resale Activity	30949
Naval Aviation Engineering Support Unit	32904
Commander, Third Fleet Representative	33321
Branch Medical Clinic	66009
Branch Dental Clinic	35744
Naval Telecommunication Center	39048
Navy Military Personnel Command Sea Duty	41342
Personnel Support Detachment	43145
Resident Officer in Charge of Contracts	44266
Naval Satellite Operations Center	63200
Naval Air Reserves	66630
Navy Publishing & Printing Service Detachment	66965
Marine Air Detachment	67414
Helicopter Combat Support Five	53812
Air Test & Evaluation Squadron Four	52820
Patrol Squadron Sixty Five	09173
Strike Fighter Squadron Three Zero Five	09326
Navy Campus Field Activity	63015
Antarctic Development Squadron Six	09587

1. ENDANGERED/THREATENED SPECIES AND BIOLOGICAL HABITAT

1a. For federal or state listed endangered, threatened, or category 1 plant and/or animal species on your base, complete the following table. Critical/sensitive habitats for these species are designated by the U. S. Fish and Wildlife Service (USFWS). A species is present on your base if some part of its life-cycle occurs on Navy controlled property (e.g., nesting, feeding, loafing). Important Habitat refers to that number of acres of habitat that is important to some life cycle stage of the threatened/endangered species that is not formally designated.

SPECIES (plant or animal)	Designation (Threatened/ Endangered)	Federal/ State	Critical/ Designated Habitat (Acres)	Important * Habitat (Acres)
POINT MUGU				
Cordylanthus maritimus maritimus - salt marsh birds beak	Endangered	Federal	0	370
Falco peregrinus anatum - American peregrine falcon	Endangered	Federal	0	1500
Pelecanus occidentalis californicus - California brown pelican	Endangered	Federal	0	575
Rallus longirostis levipes - light-footed clapper rail	Endangered	Federal	0	220
Sterna antillarum browni - California least tern	Endangered	Federal	0	345
Charadrius alexandrinus nivosus - western snowy plover	Threatened	Federal	0	125
Passerculus sandwichensis beldingi - Belding's savannah sparrow	Endangered	State	0	1735
SAN NICOLAS ISLAND				
Falco peregrinus anatum - American peregrine falcon	Endangered	Federal	0	150
Pelecanus occidentalis californicus - California brown pelican	Endangered	Federal	0	125
Charadrius alexandrinus nivosus - western snowy plover	Threatened	Federal	0	160
Xantusia riversiana - island night lizard	Threatened	Federal	0	470
Dithyrea maritima - beach spectaclepod	Category 1	Federal	0	40
Eriogonum grande var. timorum - San Nicolas Island buckwheat	Endangered	State	0	490
Orobanche parishii brachyloba - short-lobed broomrape	Category 1	Federal	0	100
Cryptantha traskiae - Trask's cryptantha	Category 1	Federal	0	145
Urocyon littoralis dickeyi - San Nicolas Island fox	Threatened	State	0	13,370

NOTE: In many cases, habitat acreages overlap.

TABLE (Cont'd.)

SPECIES (plant or animal)	Designation (Threatened/ Endangered)	Federal/ State	Critical/ Designated Habitat (Acres)	Important* Habitat (Acres)
SAN MIGUEL ISLAND				
Falco peregrinus anatum - American peregrine falcon	Endangered	Federal	0	3100
Pelecanus occidentalis californicus - California brown pelican	Endangered	Federal	0	65
Charadrius alexandrinus nivosus - western snowy plover	Threatened	Federal	0	50
Dithyrea maritima - beach spectaclepod	Category 1	Federal	0	40
Galium buxifolium - box bedstraw	Category 1	Federal	0	20
Lavatera assurgentiflora assurgentiflora - island mallow	Category 1	Federal	0	10
Orobanche parishii brachyloba - short-lobed broomrape	Category 1	Federal	0	100
Phacelia insularis - Northern Channel Island phacelia	Category 1	Federal	0	5
Urocyon littoralis littoralis - San Miguel Island Fox	Threatened	State	0	9,325

NOTE: In many cases, habitat acreages overlap.

Source Citation: Field observations by NAWS, NPS, and NBS staff, 1994 USFWS Listing.

1b. *Have your base operations or development plans been constrained due to: USFWS or National Marine Fisheries Service (NMFS)? State required modifications or constraints?*

YES, minimally. Point Mugu is required by the Endangered Species Act to consult the USFWS and NMFS on projects having the potential to adversely impact endangered species or their habitat.

If so, identify below the impact of the constraints including any restrictions on land use. Are there any requirements resulting from species not residing on base, but which migrate or are present nearby? If so, summarize the impact of such constraints.

YES

No closures or blanket restrictions have been placed upon operations by USFWS or National Marine Fisheries Service due to protection concerns for sensitive species. However, because of our concern for the protection of these species and our proactive relationship with these agencies, we have scheduled a number of test missions around endangered species and marine mammal protection. There are seasonal restrictions on the use of some beaches at Point Mugu and San Nicolas Island (SNI) because of endangered species. Some areas are restricted from use on SNI for marine mammal and marine bird protection.

Numerous marine mammals and endangered species live in the waters offshore of Point Mugu and around SNI. On a few occasions, presence of sensitive species have necessitated rescheduling or relocating some aspects of test missions. Close coordination between the Environmental Division staff and operation program managers have greatly minimized constraints on operations.

Only two tests in the Sea Test Range have required observations of the project area for migratory marine mammals and whales. This is **not** a standard requirement for routine test scenarios.

1c. *If the area of the habitat and the associated species have not been identified on base maps provided in Data Call 1, submit this information on an updated version of Data Call 1 map.*

See Figures 1, 2, and 3 for maps of endangered/threatened species habitat at Point Mugu main base, San Nicolas Island, and San Miguel Island.

1d. *Have any efforts been made to relocate any species and/or conduct any mitigation with regards to critical habitats or endangered/threatened species? Explain what has been done and why.*

NO

1e. *Will any state or local laws and/or regulations applying to endangered/threatened species which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.*

NO

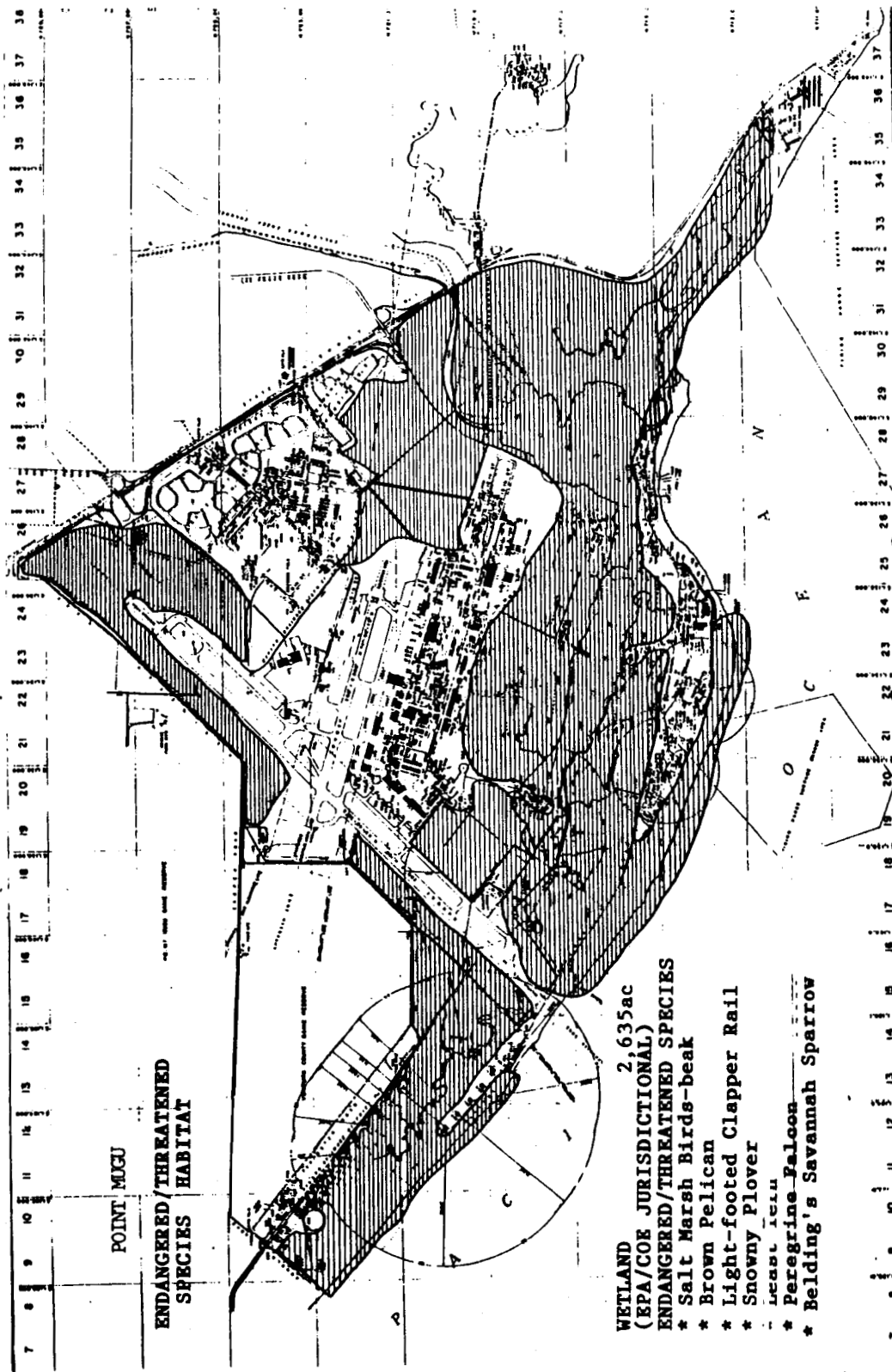
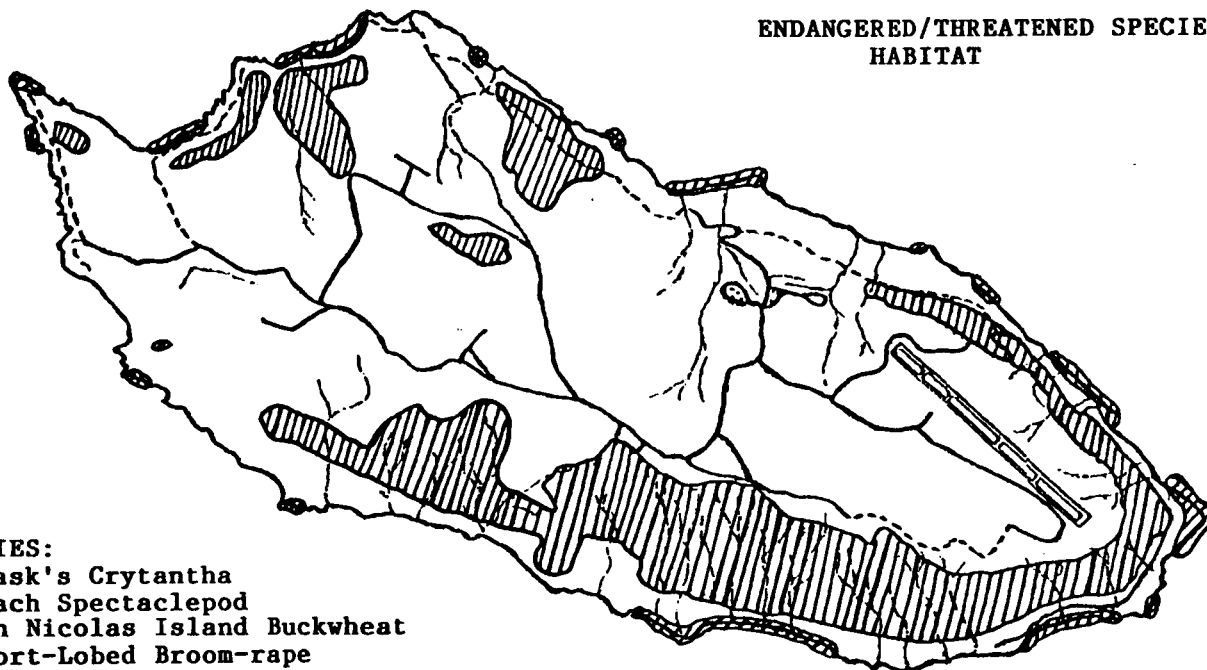


FIGURE 1. Map of Point Mugu Main Base. Stippled areas indicate important habitat for endangered/threatened species.

SAN NICOLAS ISLAND
ENDANGERED/THREATENED SPECIES
HABITAT

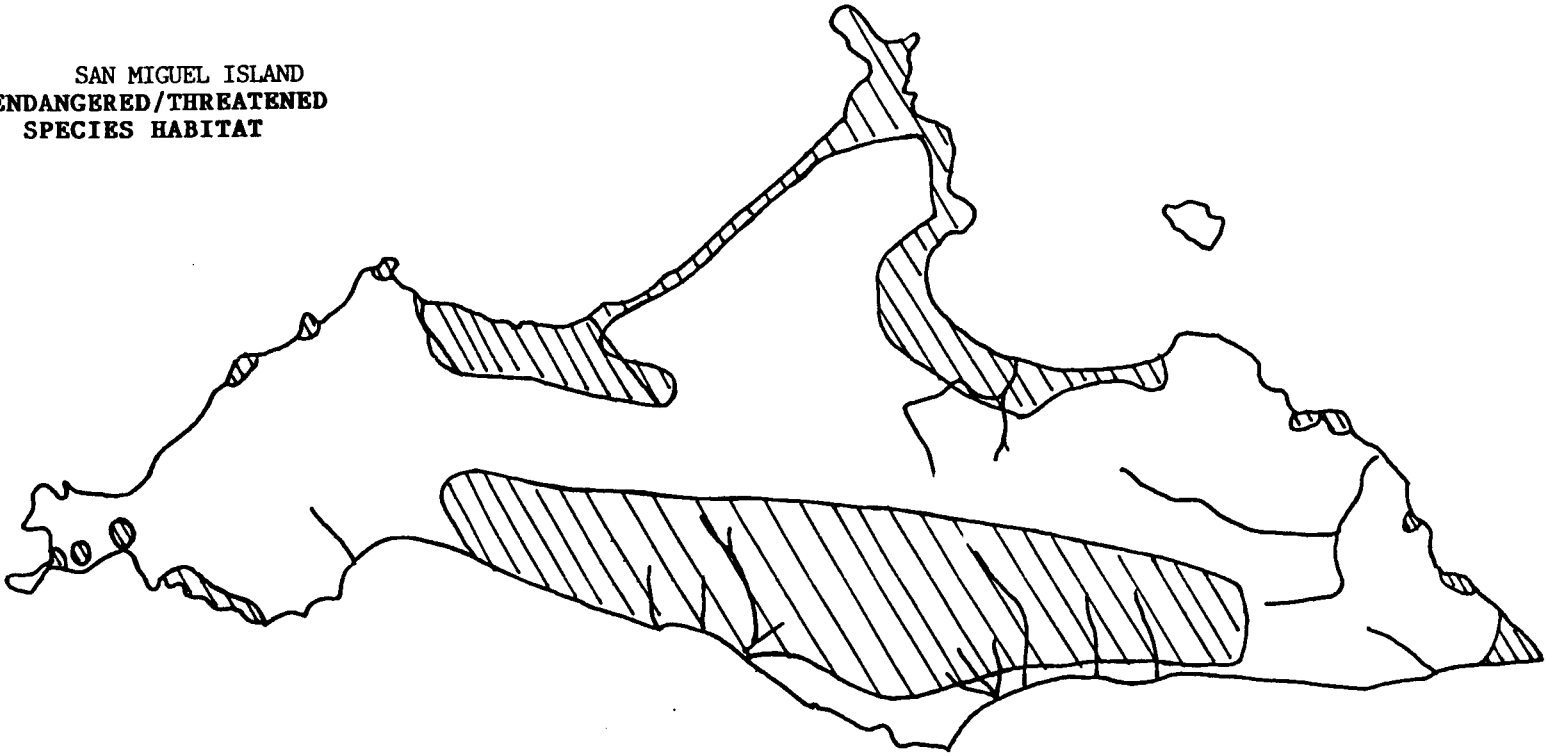


SPECIES:

- * Trask's Crytantha
- * Beach Spectaclepod
- * San Nicolas Island Buckwheat
- * Short-Lobed Broom-rape
- * Island Night Lizard
- * Brown Pelican
- * Snowy Plover
- * Peregrine Falcon
- * Island Fox (Island-wide)

FIGURE 2. Map of San Nicolas Island. Crosshatching indicates important habitat for endangered/threatened species.

**SAN MIGUEL ISLAND
ENDANGERED/THREATENED
SPECIES HABITAT**



SPECIES:

- * Beach Spectaclepod
- * Box Bedstraw
- * Island Mallow
- * Indian Paint brush
- * Short-Lobed Broom-rape
- * Brown Pelican
- * Snowy Plover
- * Peregrine Falcon
- * Island Fox (Island-wide)

FIGURE 3. Map of San Miguel Island. Crosshatching indicates important habitat for endangered/threatened species.

2. WETLANDS

Note: Jurisdictional wetlands are those areas that meet the wetland definition criteria detailed in the Corps of Engineers (COE) Wetland Delineation Manual, 1987, Technical Report Y-87-1, U.S. Army Engineer Waterway Experiment Station, Vicksburg, MS or officially adapted state definitions.

2a. *Does your base possess Federal jurisdictional wetlands?*

YES

Has a wetlands survey in accordance with established standards been conducted for your base?

YES. Point Mugu only, San Nicolas and San Miguel Islands are excluded.

When was the survey conducted or when will it be conducted?

April through September 1993.

What percent of the base has been surveyed?

100%

What is the total acreage of jurisdictional wetlands present on your base?

Approximately 2287 acres.

Source Citation: COE, EPA, NAWS wetland delineation; work 95% complete. Final report is in preparation. COE and EPA are national authorities on wetland delineation.

2b. *If the area of the wetlands has not been identified on base maps provided in Data Call 1, submit this on an updated version of Data Call 1 map.*

See Figure 1.

2c. *Has the EPA, COE or a state wetland regulatory agency required you to modify or constrain base operations or development plans in any way in order to accommodate a jurisdictional wetland?*

NO

If YES, summarize the results of such modifications or constraints.

NOT APPLICABLE.

3. CULTURAL RESOURCES

3a. *Has a survey been conducted to determine historic sites, structures, districts or archaeological resources which are listed, or determined eligible for listing, on the National Register of Historic Places? If so, list the sites below.*

YES

Point Mugu - A complete survey has not been conducted. Much of the base is submerged or wetland or has been filled over for construction, making the discovery of cultural resources unlikely and a base-wide survey not cost effective. There are no National Register properties on Point Mugu.

San Nicolas Island - SNI has been partially surveyed for historic and archaeological resources. So far, 500 prehistoric sites and 40 historic sites have been identified. It appears that the island is eligible as a National Register thematic district for prehistoric sites, though studies are continuing and no formal action has yet been taken to designate the island.

San Miguel Island - San Miguel was surveyed for prehistoric sites in the 1960s. Based on this survey, the entire island was listed as a National Register district.

3b. *Has the President's Advisory Council on Historic Preservation or the cognizant State Historic Preservation Officer required you to mitigate or constrain base operations or development plans in any way in order to accommodate a National Register cultural resource? If YES, list the results of such modifications or constraints below.*

NO

3c. *Are there any on base areas identified as sacred areas or burial sites by Native Americans or others? List below.*

YES

Point Mugu - There are no identified sacred areas on the installation. There is one prehistoric site on the installation that is known to contain human remains.

San Nicolas Island - There are no sacred areas on the island. Fifty-nine prehistoric sites are known to contain human remains. There are probably more than this that have yet to be identified.

San Miguel - Chumash people have conducted recent reburials and ceremonies on the island and as such it is considered sacred by the Chumash. Forty-two prehistoric sites are known to contain human remains. There are probably more than this that have yet to be identified.

4. ENVIRONMENTAL FACILITIES

Notes: *If your facility is permitted for less than maximum capacity, state the maximum capacity and explain below the associated table why it is not permitted for maximum capacity. Under "Permit Status" state when the permit expires, and whether the facility is operating under a waiver. For permit violations, limit the list to the last 5 years.*

4a. *Does your base have an operating landfill?*

NO

Are there any current or programmed projects to correct deficiencies or improve the facility?

NO

4b. *If there are any non-Navy users of the landfill, describe the user and conditions/agreements.*

NOT APPLICABLE.

4c. *Does your base have any disposal, recycling, or incineration facilities for solid waste?*

YES

Facility/Type of Operation	Permitted Capacity	Ave Daily Throughput	Maximum Capacity	Permit Status	Comments
San Nicolas Island Incinerator	N/A	300 lbs	52 tons/year	Air permit	See Note
Santa Cruz Island Incinerator	N/A	17 lbs	39 tons/year	Air permit	
Recycling	N/A	4 tons	N/A	No permit required	

NOTE: Incineration facilities for solid waste exist on Santa Cruz Island (SCI) and at the Outlying Landing Field (OLF), SNI.

List any permit violations and projects to correct deficiencies or improve the facility.

The SNI incinerator permit is issued by the Ventura County Air Pollution Control District (VCAPCD). The permit for the SCI incinerator is issued by the Santa Barbara County Air Pollution Control District (SBCAPCD). Non-compliance citations have been issued once for each of the two incinerators. The SCI incinerator permit was recently updated to incorporate new operational and record-keeping requirements. An application to modify the SNI incinerator permit has recently been submitted to correct operational deficiencies.

4d. Does your base own/operate a Domestic Wastewater Treatment Plant (WWTP)?

YES, on San Nicolas Island only. A pretreatment plant exists on main base (see Question 4e).

ID/Location of WWTP	Permitted Capacity	Ave Daily Discharge Rate	Maximum Capacity	Permit Status	Level of Treatment/Year Built
OLF, San Nicolas Island	Not limited	3,600 GPD (1993 data)	100,000 GPD	Curren	Primary/1973

List permit violations and discuss any projects to correct deficiencies.

NONE.

Source Citation: 1993 NAWS Point Mugu Utilities Division Operating Records; 1993 Permit Renewal Application to California Regional Water Quality Control Board (CA RWQCB); CA RWQCB Waste Discharge Requirements Permit (Order No. 94-006); 1990-1994 letters and Monitoring Report to CA RWQCB.

4e. *If you do not have a domestic WWTP, describe the average discharge rate of your base to the local sanitary sewer authority, discharge limits set by the sanitary sewer authority (flow and pollutants) and whether the base is in compliance with their permit. Discuss recurring discharge violations.*

NAWS Point Mugu has a pretreatment plant that treats domestic and light industrial sewage. The plant was built in 1946. The treatment process consists of primary treatment, partial secondary treatment, and disinfection. After pretreatment, the sewage is discharged to the local sanitary sewer authority, Oxnard Wastewater Division. The 1992/1993 average discharge rate to the sewer authority was 260,000 gallons per day (GPD). (The plant does not continuously discharge to the sewer authority.) The Station is in compliance with its wastewater discharge permit requirements. NAWS Point Mugu does not have a permit limit for the discharge flow but has a contractual limit of 1.0 million gallons per day (MGPD). The effluent limitations are as follows.

<u>Pollutant or Pollutant Property</u>	<u>Daily Maximum</u>
Cadmium	3.0 mg/L
Chromium	3.0 mg/L
Cyanide	3.0 mg/L
Copper	3.0 mg/L
Lead	3.0 mg/L
Nickel	3.0 mg/L
Oil and Grease	100 mg/L
Silver	3.0 mg/L
Suspended Solids	800 mg/L
Total Toxic Organics (EPA 624&625)	1.0 mg/L
Zinc	3.0 mg/L
pH (maximum)	10.0
pH (minimum)	6.0

Source Citation: CY 1992-1993 NAWS Point Mugu Utilities Division operation records; 1990-1994 letters and self-monitoring reports to Oxnard Wastewater Division; 1993 Utilities Technical Study; City of Oxnard Industrial Wastewater Discharge Permit No. 24C; Operation & Maintenance Manual by COMWESTNAVFACENGCOM, 1979; utility contract with City of Oxnard.

4f. Does your base own/operate a Industrial Wastewater Treatment Plant (IWTP)?

NO

List any permit violations and projects to correct deficiencies or improve the facility.

NOT APPLICABLE.

4g. Are there other waste treatment flows not accounted for in the previous tables? Estimate capacity and describe the system.

YES. The Station has five waste streams containing silver that are treated using individual silver recovery units. The photo laboratory has four dual-cell/passive ion-exchange silver recovery units and one electrolytic/single-cell passive recovery unit. The Station's medical clinic has one dual-cell silver recovery unit. All waste streams are treated prior to discharge to the station sanitary sewer. Capacity limits are not applicable because the individual recovery units are transportable and additional units can be added to meet future operations and capacity.

4h.

Does your base operate drinking Water Treatment Plants (WTP)?					YES
ID/Location of WTP	Operating (GPD)		Method of Treatment	Maximum Capacity	Permit Status
	Permitted Capacity	Daily Rate			
NAWS Point Mugu	N/A	861,000	Disinfection	2.16 MGD 5.76 MGD ^{a,b}	Current
OLF, San Nicolas Island	N/A	19,400	Disinfection	60,000 GPD	Current

^a Plant capacity is 2.16 MGD, however, water plant can be bypassed and the NAWS Point Mugu distribution system can receive water directly from a local water supplier at a capacity of 5.76 MGD.

^b NAWS Point Mugu also has on-site water wells (standby sources, currently under repair) that could supplement water from the local water supplier.

List permit violations and projects/actions to correct deficiencies or improve the facility.

NONE

Source citation for preceding data: CY 1992-1993 NAWS Point Mugu utilities operation records; 1993 Utilities Technical Study; California State Department of Health Services Water Supply Permits (No. 5610700, 5610702)).

4i. *If you do not operate a WTP, what is the source of the base potable water supply. State terms and limits on capacity in the agreement/contract, if applicable.*

NOT APPLICABLE.

4j. *Does the presence of contaminants or lack of supply of water constrain base operations? Explain.*

NO

4k. *Other than those described above does your base hold any NPDES or stormwater permits? If YES, describe permit conditions.*

YES

NAWS Point Mugu holds three NPDES permits and two General Industrial Storm Water NPDES permits. The NPDES permits are as follows.

1. Permit for water softener plant discharge located at NAWS Point Mugu. Discharge is from a water softener plant that softens water for the housing area and other living quarters. The permit requires quarterly effluent monitoring (biochemical oxygen demand, total suspended solids, settleable solids, oil and grease, pH, and temperature) and recording of daily flow rates.
2. Permit for brine discharge from the reverse osmosis desalination plant located at OLF, San Nicolas Island. Discharge is from desalination plant that produces fresh water to supplement the San Nicolas Island water supply. The permit requires monthly effluent monitoring (biochemical oxygen demand, total suspended solids, total dissolved solids, settleable solids, oil and grease, and temperature) and recording of daily flow rates and pH.
3. The base holds an NPDES permit for the groundwater treatment facility at the Navy Exchange (NEX) Gasoline Station site. Permit conditions require a monthly waste discharge (treated groundwater discharge) report showing compliance with established discharge limits for specific pollutants of concern. The report is submitted to the Regional Water Quality Control Board.

The two General Industrial Storm Water NPDES permits are for NAWS Point Mugu and the OLF, SNI. Permit conditions require the elimination of illicit discharges, inspection of industrial operations, implementation of best management practices, employee training, inspection of storm water discharge from outfalls, inspection of industrial operations, and seasonal storm water quality monitoring (total suspended solids, inorganics, oil and grease, volatile organic compounds, total fuel hydrocarbons, total petroleum hydrocarbons, pH, nitrite, and nitrate).

Source Citation: CA RWQCB NPDES Permit for San Nicolas Island Desalination Plant (NPDES No. CA0061794); CA RWQCB NPDES Permit for NAWS Point Mugu Water Softener (NPDES No. CA0058700); CA General Industrial Activities Storm Water Permits (ID NO. 4A56S000859, ID No. 4A56S000858)).

4l. *Does your base have bilge water discharge problems?*

NO

Do you have a bilge water treatment facility?

NO

Explain: NAWCWPNS Point Mugu berths ships and boats in the CBC Port Hueneme Harbor. These craft are used for range and target operations. CBC Port Hueneme is responsible for bilge water services.

4m. *Will any state or local laws and/or regulations applying to Environmental Facilities, which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.*

NO

4n. *What expansion capacity is possible with these Environmental Facilities? Will any expansions/upgrades as a result of BRACON or projects programmed through the Presidents budget through FY1997 result in additional capacity? Explain.*

Maximum capacities of environmental facilities are as stated above. One project planned for completion by June 1996 will increase the storage capacity of the main base domestic water by 1.0 million gallons. Estimated cost is less than \$300K and will be funded using station funds (DBOF).

4o. *Do capacity limitations on any of the facilities discussed in question 4 pose a present or future limitation on base operations? Explain.*

NO

5. AIR POLLUTION

5a. *What is the name of the Air Quality Control Areas (AQCA) in which the base is located?*

The Point Mugu main base is located in the AQCA controlled by the Ventura County Air Pollution Control District (VCAPCD) which reports to the California Air Resources Board for regulatory compliance with the California Clean Air Act. The VCAPCD also regulates the OLF, SNI site, located approximately 60 miles from the Ventura County mainland.

Is the installation or any of its OLFs or non-contiguous base properties located in different AQCA?

YES

List site, location and name of AQCA.

The Santa Cruz Island facilities provide support to range operations on the island. SCI is located in the AQCA controlled by the Santa Barbara County Air Pollution Control District (SBCAPCD).

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BRAC 95 DATA CALL #33

ACTIVITY UIC: 63126

5b. For each parcel in a separate AQCA fill in the following table. Identify with an "X" whether the status of each regulated pollutant is: attainment/non-attainment/maintenance. For those areas which are in non-attainment, state whether they are: Marginal, Moderate, Serious, Severe, or Extreme. State target attainment year.

Site: Main Base and San Nicolas Island AQCA: Ventura County Air Pollution Control District

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year ¹	Comments ²
CO	X				
Ozone		X (Severe)		2005	See Note
PM-10	X				
SO ₂	X				
NO ₂	X				
Pb	X				

¹ Based on national standard for Non-Attainment areas or SIP for Maintenance areas.

² Indicate if attainment is dependent upon BRACON, MILCON or Special Projects. Also indicate if the project is currently programmed within the President's FY-1997 budget.

NOTE: Ventura County is designated as a severe non-attainment area for ozone with respect to the National Ambient Air Quality Standards (NAAQS). The target attainment year is 2005. Attainment is not dependent upon any BRACON, MILCON, or Special Projects. Ventura County is an attainment area for carbon monoxide (CO), particulate matter less than ten microns in diameter (PM-10), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and lead (Pb).

Site: Santa Cruz Island AQCA: Santa Barbara County Air Pollution Control District

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year ¹	Comments ²
CO	X				
Ozone		X (Moderate)		1996	See Note
PM-10	X				
SO ₂	X				
NO ₂	X				
Pb	X				

¹ Based on national standard for Non-Attainment areas or SIP for Maintenance areas.

² Indicate if attainment is dependent upon BRACON, MILCON or Special Projects. Also indicate if the project is currently programmed within the President's FY-1997 budget.

NOTE: Santa Barbara County is designated as a moderate non-attainment area for ozone with respect to the NAAQS. The target attainment year is 1996. Attainment is not dependent upon BRACON, MILCON, and Special Projects. Santa Barbara County is an attainment area for CO, PM-10, SO₂, NO₂, and Pb.

5c. For your base, identify the baseline level of emissions, established in accordance with the Clean Air Act. Baseline information is assumed to be 1990 data or other year as specified. Determine the total level of emissions (tons/yr) for CO, NOx, VOC, PM10 for the general sources listed. For all data provide a list of the sources and show your calculations. Use known emissions data, or emissions derived from use of state methodologies, or identify other sources used. "Other Mobile" sources include such items as ground support equipment.

Emission Sources (Tons/Year)						
Pollutant	Permitted Stationary ^a		Personal Automobiles ^b	Aircraft Emissions ^c	Other Mobile ^d	Total
	VCAPCD	SBCAPCD				
CO	31.83	3.95	Not available	Not available	296.37	332.15
NOx	128.29	18.09	Not available	Not available	52.42	198.8
VOC	28.58	1.31	Not available	Not available	18.97	48.86
PM-10	11.99	1.30	Not available	Not available	3.91	17.2

^a Permitted stationary sources include auxiliary engines (e.g., GSE generators) greater than 50 horsepower.

^b We have no available data on the number of personal automobiles, nor their types, sizes, ages, or miles driven on the installation. These emissions could be estimated using many critical assumptions, however, data would not be certifiable.

^c The only data available are the total number of operations (i.e., number of take-offs and landings). Total operations for 1990 was 73,705. Converting this small amount of data to total aircraft emissions would involve such a large number of critical assumptions (e.g., power settings, aircraft type, time in mode etc.) that the validity of the estimates as a measurement of pollutant emitted would be questionable. Data derived from these estimates would not be certifiable.

^d Other mobile sources include heavy-duty equipment, fleet vehicles, and non-permitted ground support equipment.

Source Document: CY 1990 throughput/usage data submitted to VCAPCD and SBCAPCD for permitted stationary sources. Other data derived from calculations based upon fuel usage, mileage, and equipment inventories.

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5d. For your base, determine the total FY1993 level of emissions (tons/yr) for CO, NOx, VOC, PM10 for the general sources listed. For all data provide a list of the sources and show your calculations. Use known emissions data, or emissions derived from use of state methodologies, or identify other sources used. "Other Mobile" sources include such items as ground support equipment.

Emission Sources (Tons/Year)						
Pollutant	Permitted Stationary ^a		Personal Automobiles ^b	Aircraft Emissions ^c	Other Mobile ^d	Total
	VCAPCD	SBCAPCD				
CO	30.74	3.85	Not available	Not available	294.10	344.99
NOx	135.43	17.66	Not available	Not available	50.74	207.73
VOC	15.68	1.29	Not available	Not available	18.73	36.59
PM-10	10.58	1.27	Not available	Not available	3.80	15.92

^a Permitted stationary sources include auxiliary engines (e.g., GSE generators) greater than 50 horsepower.

^b We have no available data on the number of personal automobiles, nor their types, sizes, ages, or miles driven on the installation. These emissions could be estimated using many critical assumptions, however, data would not be certifiable.

^c The only data available are the total number of operations (i.e., number of take-offs and landings). Total operations for CY 1993 was 55,414. Converting this small amount of data to total aircraft emissions would involve such a large number of critical assumptions (e.g., power settings, aircraft type, time in mode, etc.) that the validity of the estimates as a measurement of pollutant emitted would be questionable. Data derived from these estimates would not be certifiable.

^d Other mobile sources include heavy-duty equipment, fleet vehicles, and non-permitted ground support equipment.

Source Document: CY 1993 throughput/usage data submitted to VCAPCD and SBCAPCD for permitted stationary sources. Other data derived from calculations based upon fuel usage, mileage, and equipment inventories.

5e. Provide estimated increases/decreases in air emissions (Tons/Year of CO, NOx, VOC, PM10) expected within the next six years (1995-2001). Either from previous BRAC realignments and/or previously planned downsizing shown in the Presidents FY1997 budget. Explain.

Previously planned downsizing as described in Table 1.1 of BRAC Data Call #4 calls for a reduction of 200 personnel annually over the next three years. If this same reduction is carried out through the year 2001 there will be a 25% overall reduction of personnel. Automobile emissions and other associated air emissions should also decrease by 25%.

5f. Are there any critical air quality regions (i.e. non-attainment areas, national parks, etc.) within 100 miles of the base?

YES. Most of the urban/industrial area under the jurisdiction of the South Coast Air Quality Management District (SCAQMD) is located within 100 miles of the Point Mugu base. This area is designated as an extreme non-attainment area for ozone, a serious non-attainment area for CO and PM-10, and an attainment area for NO2.

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ACTIVITY UIC: 63126

5d. For your base, determine the total FY1993 level of emissions (ton/yr) for CO, NOx, VOC, PM10 for the general sources listed. For all data provide a list of the sources and show your calculations. Use known emissions data, or emissions derived from use of state methodologies, or identify other sources used. "Other Mobile" sources include such items as ground support equipment.

Emission Sources (Tons/Year)						
Pollutant	Permitted Stationary ^a		Personal Automobiles ^b	Aircraft Emissions ^c	Other Mobile ^d	Total
	VCAPCD	SBCAPCD				
CO	47.04	3.85	Not available	Not available	294.10	344.99
NOx	139.33	17.66	Not available	Not available	50.74	207.73
VOC	16.57	1.29	Not available	Not available	18.73	36.59
PM-10	10.85	1.27	Not available	Not available	3.80	15.92

^a Permitted stationary sources include auxiliary engines (e.g., GSE generators) greater than 50 horsepower.

^b We have no available data on the number of personal automobiles, nor their types, sizes, ages, or miles driven on the installation. These emissions could be estimated using many critical assumptions, however, data would not be certifiable.

^c The only data available are the total number of operations (i.e., number of take-offs and landings). Total operations for CY 1993 was 55,414. Converting this small amount of data to total aircraft emissions would involve such a large number of critical assumptions (e.g., power settings, aircraft type, time in mode, etc.) that the validity of the estimates as a measurement of pollutant emitted would be questionable. Data derived from these estimates would not be certifiable.

^d Other mobile sources include heavy-duty equipment, fleet vehicles, and non-permitted ground support equipment.

Source Document: CY 1993 throughput/usage data submitted to VCAPCD and SBCAPCD for permitted stationary sources. Other data derived from calculations based upon fuel usage, mileage, and equipment inventories.

5e. Provide estimated increases/decreases in air emissions (Tons/Year of CO, NOx, VOC, PM10) expected within the next six years (1995-2001). Either from previous BRAC realignments and/or previously planned downsizing shown in the Presidents FY1997 budget. Explain.

Previously planned downsizing as described in Table 1.1 of BRAC Data Call #4 calls for a reduction of 200 personnel annually over the next three years. If this same reduction is carried out through the year 2001 there will be a 25% overall reduction of personnel. Automobile emissions and other associated air emissions should also decrease by 25%.

5f. Are there any critical air quality regions (i.e. non-attainment areas, national parks, etc.) within 100 miles of the base?

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YES. Most of the urban/industrial area under the jurisdiction of the South Coast Air Quality Management District (SCAQMD) is located within 100 miles of the Point Mugu base. This area is designated as an extreme non-attainment area for ozone, a serious non-attainment area for CO and PM-10, and an attainment area for NO₂.

There are two National Parks within 100 miles of the base:

Santa Monica Mountains National Recreational Area is adjacent to the base and actually incorporates the eastern third of the base (designated, but no actual changes to base authority/jurisdiction).

Channel Islands National Park lies about 14 miles offshore, and includes four of the eight Channel Islands, including San Miguel Island. San Miguel Island is owned by NAWCWPNS, but its non-military mission is administered by the Channel Islands National Park.

5g. Have any base operations/mission/functions (i.e.: training, R&D, ship movement, aircraft movement, military operations, support functions, vehicle trips per day, etc.) been restricted or delayed due to air quality considerations? Explain the reason for the restriction and the "fix" implemented or planned to correct.

YES. Only one project has ever been constrained due to air quality considerations. The issue fell under the Air Toxics Rule and involved the air district placing a cap on the number of fuelings of drones that used a hypergolic fuel. The allowed number of fuelings was adequate for mission requirements. This was a unique program and did not impact on the routine test and evaluation missions of the base.

5h. Does your base have Emission Reduction Credits (ERCs) or is it subject to any emission offset requirements? If yes, provide details of the sources affected and conditions of the ERCs and offsets. Is there any potential for getting ERCs?

NO. The base currently does not have ERCs but expects to receive ERCs in the immediate future. The ERCs will be available from downsizing some boilers and installation of Best Available Control Technology on some of the boilers. Modification to the SNI incinerator permit will require emission offsets. Emission offsets may also be required to modify the coating operations permit. ERCs for this modification will be obtained from the shutdown of JP-4 storage and transfer operations at Point Mugu and SNI (operations replaced with JP-8).

6. ENVIRONMENTAL COMPLIANCE

6a. Identify compliance costs, currently known or estimated that are required for permits or other actions required to bring existing practices into compliance with appropriate regulations. Do not include Installation Restoration costs that are covered in Section 7. For the last two columns provide the combined total for those two FY's.

Program	Survey Completed?	Costs in \$K to correct inefficiencies					
		FY94	FY95	FY96	FY97	FY98-99	FY00-01
Air	No	85	325	300	0	0	0
Hazardous Waste	No	0	0	0	0	0	0
Safe Drinking Water Act	N/A	100	0	0	0	0	0
PCBs ^a	Yes ^b	40	95	95	95	110	0
Other (non-PCB) Toxic Substances Control Act	N/A	0	0	0	0	0	0
Lead Based Paint	No	500	400	300	250	350	200
Radon	Yes	0	0	0	0	0	0
Clean Water Act	Yes	741	506	0	0	0	0
Solid Waste	Yes	0	0	0	0	0	0
Oil Pollution Act	Yes	100	0	0	0	0	0
USTs	Yes	30	0	0	0	0	0
Other Asbestos	No	1700	1500	1200	1000	1600	1200
Other Cultural	Yes	40	100	100	100	200	200
NEPA	N/A	75	0	0	0	0	0
Total		3411	2826	1995	1445	2260	1600

NOTE: Costs are for projects for all facilities including main base; OLF, SNI; and Santa Cruz Island.

^a To comply with OPNAVINST 5090.1A Navy PCB removal policy of eliminating PCBs from electrical distribution systems to the maximum extent practicable.

^b Revised cost estimate completed 01/94 as part of PCB Management Plan.

Provide a separate list of compliance projects in progress or required, with associated cost and estimated start/completion date.

Project Title	Cost (\$K)	Start Date	Completion Date
AIR			
Repair SNI incinerator	15.0	01/94	09/94
Repair SCI incinerator	10.0	01/94	06/94
Install Phase I vapor recovery on SCI gas station	10.0	01/94	06/94
Install fuel monitoring system at SCI powerhouse	10.0	06/94	09/94
Install fuel monitoring system at SNI powerhouse	15.0	03/94	09/94
Install BACT on Buildings 20, 36, 219, 513, 761 boilers	150.0	03/95	05/95
Repair and upgrade NEX ground water remediation system	150.0	01/95	09/95
Prepare air toxics emission inventory update	25.0	10/93	05/94
Notify public/take corrective action on air toxics risk	25.0	10/94	09/95
Install BACT on SNI powerhouse engines	300.0	01/95	12/96
SAFE DRINKING WATER ACT			
Surface Water Treatment Plant, San Nicolas Island Water system is in compliance - water sources are off line until plant is in operation.	100.0	In progress	06/94
PCBs			
Replace PCB transformers, pole mounted, NAWS, Point Mugu	40.0	In progress	09/94
Replace PCB transformers, NAWS Point Mugu and OLF, SNI (in-house replacement continues)	95.0	10/94	09/95
Replace PCB transformers, NAWS Point Mugu and OLF SNI	95.0	10/95	09/96
Replace PCB transformers, NAWS Point Mugu	95.0	10/95	09/97
Replace PCB transformers, NAWS Point Mugu	55.0	10/97	09/98
Replace PCB transformers, NAWS Point Mugu	55.0	10/93	09/99
LEAD BASED PAINT			
Abatement, Building 55	2.0	In progress	09/94
Abatement, Building 5-1	5.0	In progress	09/94
Abatement, Building 5-2	5.0	In progress	09/94
Abatement, Building 4-32	5.0	In progress	09/94
Abatement, Building 20	65.0	In progress	09/94
Abatement, Building 213	83.0	In progress	09/94
Abatement, Building 36	7.0	In progress	09/94
Abatement, Capehart	224.0	In progress	09/94
Abatement, Buildings 66, 67, 68	26.0	In progress	09/94
Abatement, Housing A and B	75.0	In progress	09/94
USTs			
Removal of abandoned USTs, Contract No. N62474-93-C-4003	30.0	In progress	06/94

^a Costs for remediation after FY-94 of lead based paint projects are estimates only.

TABLE (Cont'd.)

Project Title	Cost (\$K) ^a	Start Date	Completion Date
CLEAN WATER ACT			
Storm drain illicit discharge repair and install signs, Buildings 553, 532, 382, 355, 513, 77, and 643	25.0	In progress	09/94
Install storm water monitoring equipment	100.0	In progress	09/94
Storm drain illicit discharge correction, Building 601	65.0	10/94	03/95
Storm drain illicit discharge correction, Building 761	27.0	10/94	03/95
Storm drain illicit discharge correction, Building 513	35.0	10/94	03/95
Storm drain illicit discharge correction, Building 646	43.0	10/94	06/95
Storm drain illicit discharge correction, Building 387	11.0	11/94	03/95
Storm drain illicit discharge correction, San Nicolas Island	25.0	11/94	03/95
Design of containment berms for tanks without berms	20.0	07/94	10/94
Repair of Santa Cruz Island fuel farm, Contract No. N62474-93-R-7874	401.0	In progress	08/94
Repair of San Nicolas Island fuel farm, Contract No. N62474-94-R-6890	150.0	In progress	01/95
Construction of containment berms for tanks without berms	100.0	10/94	09/95
Oxidation Pond	225.0	In progress	09/94
ASBESTOS			
Perform asbestos inventory	400.0	06/94	09/96
Removal, Building 351	3.0	In progress	09/96
Removal, Building 352	3.0	In progress	09/94
Removal, Building 389	3.0	In progress	09/94
Removal, Building 761	3.0	In progress	09/94
Removal, Building 55	2.0	In progress	09/94
Removal, Building 553	70.0	In progress	09/94
Removal, Building 53	22.0	In progress	09/94
Removal, Buildings 167, 169, 171	3.0	In progress	09/94
Removal, Building 5-1	20.0	In progress	09/94
Removal, Building 6	20.0	In progress	09/94
Removal, Building 20	95.0	In progress	09/94
Removal, Building 150	132.0	In progress	09/94
Removal, Building 761	24.0	In progress	09/94
Removal, Building 22, 25, 241	108.0	In progress	09/94
Removal, Building 21, 23	90.0	In progress	09/94
Removal, Building 24	47.0	In progress	09/94
Removal, Building 213	70.0	In progress	09/94
Removal, Building 513	23.0	In progress	09/94
Removal, Building 372	35.0	In progress	09/94
Removal, Building 738	23.0	In progress	09/94
Capehart	375.0	In progress	09/94
Removal, Building 339	18.0	In progress	09/94
Removal, Building 351	9.0	In progress	09/94
Removal, Building 211	16.0	In progress	09/94
Removal, Building 5	14.0	In progress	09/94
Removal, Building 761	15.0	In progress	09/94

^a Costs for remediation after FY-94 of asbestos projects are estimates only.

TABLE (Cont'd.)

Project Title	Cost (\$K) ^a	Start Date	Completion Date
ASBESTOS (Cont'd.)			
Removal, Building 311	24.0	In progress	09/94
Removal, Building 233	5.0	In progress	09/94
Removal, Building 212	5.0	In progress	09/94
CULTURAL RESOURCES COMPLIANCE PROJECT			
Cultural Resources Studies	740.0	01/94	12/2001
OIL POLLUTION ACT			
Prepare OPA 90 Updated Facility Response Plan	100.0	In progress	09/94
NEPA			
Barge Assessment (SNI)	75.0	05/94	09/94

^a Costs for remediation after FY-94 of asbestos projects are estimates only.

6b. *Does your base have structures containing asbestos?*

YES

What % of your base has been surveyed for asbestos?

30%

Are additional surveys planned?

YES

What is the estimated cost to remediate asbestos (\$K)?

\$ 8200K

Are asbestos remediation costs based on encapsulation, removal or a combination of both?

A significant number of structures on the base contain asbestos. This assessment is based on a survey of approximately 30 percent of base-wide structures. Additional surveys are planned to identify structures that pose an imminent health hazard or a potential health hazard, and those that are not likely to impact health. An accurate estimate of asbestos abatement costs cannot be provided due to a lack of a comprehensive survey. Costs for remediation will include a combination of abatement and encapsulation techniques.

6c. Provide detailed cost of recurring operational (environmental) compliance costs, with funding source.

Funding Source	FY92 \$K	FY93 \$K	FY94 \$K	FY95 \$K	FY96 \$K	FY97 \$K	FY98-99 \$K	FY00-01 \$K
O&MN	380	490	250	250	250	250	500	500
HA								
PA								
DBOF	3600	2400	2700	3300	3250	3500	7100	7100
Other (specify) MRTFB	280	580	750	250	250	250	500	500
Total	4260	3470	3700	3800	3750	4000	8100	8100

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The next table shows environmental compliance costs broken out by funding type.

OPERATIONAL ENVIRONMENTAL COMPLIANCE COST BREAKOUT							
FUND TYPE	ACTIVITY COST	FY94 \$K	FY95 \$K	FY96 \$K	FY97 \$K	FY98-99 \$K	FY00-01 \$K
OM&N	H.W. Contract	100	100	100	100	200	200
	H.W. DRMO	100	100	100	100	200	200
	Manpower	50	50	50	50	100	100
	Total	250	250	250	250	500	500
MRTFB	H.W. Contract	100	100	100	100	200	200
	H.W. DRMO	100	100	100	100	200	200
	Manpower	500	50	50	50	100	100
	Material	50	0	0	0	0	0
	Total	750	250	250	250	500	500
DBOF	H.W. Contract	250	250	250	250	500	500
	H.W. DRMO	220	220	220	220	440	440
	Manpower	1000	1500	1500	1500	3000	3000
	Material	250	250	250	250	500	500
	Permit/Fee	105	105	105	105	210	210
	Lab Fee	220	220	220	220	440	440
	Nat/Cult Res	200	200	200	200	400	400
	Nat Res Mgt Plan	100	0	0	0	0	0
	Air Permit Rqmts	0	243	155	370	900	900
	Miscellaneous Cleanup/Contracts	365	360	360	360	720	720
	Total	2710	3348	3260	3475	7110	7110
Grand Total	3710	3848	3760	3975	8110	8110	

6d. *Are there any compliance issues/requirements that have impacted operations and/or development plans at your base?*

YES. Compliance issues or requirements are discussed elsewhere in this document. See paragraphs 1b and 5g.

7. INSTALLATION RESTORATION

7a. Does your base have any sites that are contaminated with hazardous substances or petroleum products.

YES

Is your base an NPL site or proposed NPL site?

NO

7b. Provide the following information about your Installation Restoration (IR) program. Project list may be provided in separate table format. Note: List only projects eligible for funding under the Defense Environmental Restoration Account (DERA). Do not include UST compliance projects properly listed in section VI.

Site Number or Name	Type Site ¹	Groundwater Contaminated?	Extends off base?	Drinking Water Source?	Cost to Complete ^a (\$M)/Est. Completion Date	Status ² / Comments
POINT MUGU (MAIN BASE)						
1	CERCLA	Yes	No	No	2.2:0, 12/97	RI
2	CERCLA	Yes	No	No	2.00:0, 12/2000	RI
3	CERCLA	Yes	No	No	0.0:0, 06/96	SI
4	CERCLA	Yes	No	No	2.8:5, 06/98	RI
5	CERCLA	Yes	No	No	0.6:4, 12/96	RI
6	CERCLA	Yes	No	No	0.0:0, 06/96	RI
7	CERCLA	No	No	No	0.0:0, 10/94	SI
8	CERCLA	Yes	No	No	0.0:0, 06/96	RI
9	CERCLA	Yes	No	No	3.1:9, 06/99	RI
10	CERCLA	No	No	No	0.0:5, 04/95	PA
11	CERCLA	Yes	No	No	0.7:0, 01/97	RI
SAN NICOLAS ISLAND (SNI)						
12	CERCLA	No	No	No	0.5:0, 01/95	SI
13	CERCLA	No	No	No	0.0:5, 08/96	SI
14	CERCLA	No	No	No	0.0:5, 08/96	SI
15	CERCLA	No	No	No	0.1:0, 01/97	SI
16	CERCLA	No	No	No	0.7:5, 06/95	SI

¹ Type site: Comprehensive Environmental Response Compensation Liability Act (CERCLA), RCRA corrective action (CA), UST or other (explain).

² Status = PA, SI, RI, RD, RA, long term monitoring, etc.

^a "Cost to Complete" figures and "Estimated Completion Dates" represent the cost for remediation and the date the remediation work is complete. Costs for maintenance and monitoring and completion dates for maintenance and monitoring are not incorporated in the above chart.

TABLE (Cont'd.)

Site Number or Name	Type Site ¹	Groundwater Contaminated?	Extends off base?	Drinking Water Source?	Cost to Complete ^a (\$M)/Est. Completion Date	Status ² / Comments
POINT MUGU (MAIN BASE)						
PM1, B3-26	UST	No	No	No	.004, 12/94	LM
PM2, B107	UST	No	No	No	.0375, 10/94 .004, 12/94	SI LM
PM3, B325	UST	No	No	No	.004, 12/94	LM
PM4, B50A	UST	No	No	No	.004, 12/94	LM
PM5, B325	UST	No	No	No	.004, 12/94	LM
PM6, B553	UST	Yes	No	No	.0375, 10/94 05, 12/95	SI RA
PM7, B57	UST	No	No	No	.004, 12/94	LM
PM8, B531	UST	No	No	No	.004, 12/94	LM
PM9, B326	UST	No	No	No	.004, 12/94	LM
PM10, B75	UST	No	No	No	.004, 12/94	LM
PM11, B5-1	UST	No	No	No	.004, 12/94	LM
PM12, B359	UST	No	No	No	.004, 12/94	LM
PM13, B372	UST	No	No	No	.004, 12/94	LM
PM14, B553	UST	No	No	No	.004, 12/94	LM
PM15, B759	UST	Yes	No	No	.0375, 10/94 .1, 12/95	SI RA
PM16, B3-1	UST	No	No	No	.004, 12/94	LM
PM17, B53A	UST	No	No	No	.004, 12/94	LM
PM18, B324	UST	No	No	No	.004, 12/94	LM
PM19, B53A	UST	No	No	No	.004, 12/94	LM
PM20, B200	UST	No	No	No	.004, 12/94	LM
PM21, B4-32	UST	Yes	No	No	.0375, 10/94 07, 12/95	SI RA
PM22, B402	UST	No	No	No	.004, 12/94	LM
PM23, B-382	UST	Yes	No	No	.0375, 10/94 05, 12/95	SI RA
PM24, B-392	UST	Yes	No	No	.0375, 10/94 05, 12/95	SI RA
PM25, B6-2	UST	Yes	No	No	.004, 12/94	LM
PM26, B53C	UST	No	No	No	.004, 12/94	LM
PM55, B352	UST	No	No	No	.0375, 10/94 05, 12/95	SI RA
PM56, B325	UST	Yes	No	No	.0375, 10/94 05, 12/95	SI RA
CA27, B240	UST	No	No	No	.004, 12/94	LM
CA28, B246	UST	No	No	No	.004, 12/94	LM
SAN NICOLAS ISLAND (SNI)						
SNI29, B31	UST	No	No	No	.010, 12/94	RA
SNI30, B109	UST	No	No	No	.010, 12/94	RA

¹ Type site: CERCLA, RCRA corrective action (CA), UST or other (explain).

² Status = PA, SI, RI, RD, RA, long term monitoring, etc.

^a "Cost to Complete" figures and "Estimated Completion Dates" represent the cost for remediation and the date the remediation work is complete. Costs for maintenance and monitoring and completion dates for maintenance and monitoring are not incorporated in the above chart.

TABLE (Cont'd.)

Site Number or Name	Type Site ¹	Groundwater Contaminated?	Extends off base?	Drinking Water Source?	Cost to Complete ^a (\$M)/Est. Completion Date	Status ² / Comments
SAN NICOLAS ISLAND (SNI) (Cont'd.)						
SNI31, B148	UST	No	No	No	.010, 12/95	RA
SNI32, B146	UST	No	No	No	.010, 12/95	RA
SNI33, B112	UST	No	No	No	.010, 12/95	RA
SNI34, B113	UST	No	No	No	.0375, 10/94 .010, 12/95	SI RA
SNI35, B158	UST	No	No	No	.010, 12/95	RA
SNI36, B127	UST	No	No	No	.0375, 10/94 .010, 12/95	SI RA
SNI37, B153	UST	No	No	No	.01, 12/95	RA
SNI38, B207	UST	No	No	No	.01, 12/95	RA
SNI39, B180	UST	No	No	No	.01, 12/95	RA
SNI40, B167	UST	No	No	No	.0375, 10/94 .01, 12/95	SI RA
SNI41, B121	UST	No	No	No	.01, 12/95	RA
SNI42, B127	UST	No	No	No	.01, 12/95	RA
SNI43, B178	UST	No	No	No	.01, 12/95	RA
SNI44, B144	UST	No	No	No	.01, 12/95	RA
SNI45, B187	UST	No	No	No	.01, 12/95	RA
SNI46, B153	UST	No	No	No	.01, 12/95	RA
SNI47, B114	UST	No	No	No	.0375, 10/94 1.0, 12/96	SI RA
SNI48, B157	UST	No	No	No	.01, 12/95	RA
SNI49, B255	UST	No	No	No	.01, 12/95	RA
SNI50, B149	UST	No	No	No	.01, 12/95	RA
SNI51, B141	UST	No	No	No	.0375, 10/94 .2, 12/96	SI RA
SNI52, B147	UST	No	No	No	.01, 12/95	RA
SNI53, B2	UST	No	No	No	.0375, 10/94 .01, 12/95	SI RA
SNI54, 906 / 907	UST	No	No	No	.0375, 10/94 .35, 12/96	SI RA
SANTA CRUZ ISLAND (SCI)						
SCI57 Pumphouse	UST	Yes	No	Yes	.0375, 10/94 .3, 12/96	SI RA

¹ Type site: CERCLA, RCRA corrective action (CA), UST or other (explain).

² Status = PA, SI, RI, RD, RA, long term monitoring, etc.

^a "Cost to Complete" figures and "Estimated Completion Dates" represent the cost for remediation and the date the remediation work is complete. Costs for maintenance and monitoring and completion dates for maintenance and monitoring are not incorporated in the above chart.

Source Citation: May 1994 Point Mugu Long-Term Installation Plan for the Main Base and San Nicolas Island (Prepared by PRC for WESTDIV).

7c. Have any contamination sites been identified for which there is no recognized/accepted remediation process available? List.

NO. At the current phase of the Installation Restoration Program no sites have been identified for which no recognized/accepted remediation process is available. However, it appears that one of the sites, site 11 (the Point Mugu Lagoon), may not be remediated because contamination continues to come on the base from off-site sources, and remediation may be too disruptive to the ecosystem.

7d. Is there a groundwater treatment system in place?

YES

Is there a groundwater treatment system planned?

NO

State scope and expected length of pump and treat operation.

A groundwater treatment system exists at the NEX Gasoline Station site. The pump and treat system for this site will be used for a maximum of 5 years from now. A soil vapor extraction system exists at the site and will be used along with the pump and treat system. Natural biodegradation both in soil and groundwater will also help remove contamination. Cleanup of the site is expected by the end of year 2000.

7e. Has a RCRA Facilities Assessment been performed for your base?

NO

7f. Does your base operate any conforming storage facilities for handling hazardous materials? If YES, describe facility, capacity, restrictions, and permit conditions.

YES. Permits are not required for hazardous material storage areas. In general for Point Mugu, users maintain less than a week's supply of hazardous materials on hand, and storage areas for large quantities of hazardous materials (greater than 1 week's supply) are limited in number. Users maintain hazardous material storage lockers, and buildings are used as storage areas for storage of large quantities of hazardous materials (see list below).

Main Base

3 Storage Areas
40 Storage Lockers

San Nicolas Island

1 Storage Area
7 Storage Lockers

Santa Cruz Island

1 Storage Area
3 Storage Lockers

There are no capacity limitations or permit requirements.

Source: 1994 Point Mugu Hazardous Waste Management Plan
Supply Department, HazMat Organization

7g. Does your base operate any conforming storage facilities for handling hazardous waste? If YES, describe facility, capacity, restrictions, and permit conditions.

NO. Point Mugu does not have any RCRA permitted storage facilities, but does have Satellite and "Less-Than-90-Day" Accumulation Areas which are in regulatory compliance and are as follows.

Main Base

40 Satellite Accumulation Areas
2 "Less-Than-90-Day" Accumulation Areas

San Nicolas Island

7 Satellite Accumulation Areas
1 "Less-Than-90-Day" Accumulation Area

Santa Cruz Island

3 Satellite Accumulation Areas
1 "Less-Than-90-Day" Accumulation Area

Source Citation: 1994 Point Mugu Hazardous Waste Management Plan.

7h. *Is your base responsible for any non-appropriated fund facilities (exchange, gas station) that require cleanup? If so, describe facility/location and cleanup required/status.*

YES.

The Naval Exchange Gasoline Station requires remediation as described in item 7d.

7i. *Do the results of any radiological surveys conducted indicate limitations on future land use? Explain below:*

NO

7j. *Have any base operations or development plans been restricted due to Installation Restoration considerations?*

NO. However, the Master Plan for the Main Base proposes future construction of industrial facilities in the Public Works Maintenance Yard (IR Site No. 1). No projects have been submitted due to inclusion of the area in the IR Program.

7k. *List any other hazardous waste treatment or disposal facilities not included in question 7b above. Include capacity, restrictions and permit conditions.*

Not applicable.

8. LAND / AIR / WATER USE

8a. List the acreage of each real estate component controlled or managed by your base (e.g., Main Base - 1,200 acres, Outlying Field - 200 acres, Remote Range - 1,000 acres, remote antenna site - 5 acres, Off-Base Housing Area - 25 acres).

Parcel Descriptor	Acres	Location
Main Base	4,490.49	Point Mugu, CA
San Nicolas Island	13,370.0	San Nicolas Island, CA
Santa Cruz Island (leased)	10.8	Santa Cruz Island, CA
Off-base Housing	51.35	Camarillo, CA
Camarillo Airport	4.34	Camarillo, CA
Laguna Peak	43.93	Point Mugu, CA
Port Hueneme	<1	Port Hueneme, CA
Prince Island	39.4	Prince Island, CA
San Miguel Island	9,082.6	San Miguel Island, CA
Remote Antenna Site	<1	Santa Rosa Island, CA

NOTE: In addition to Class 1 assets listed above, NAWCWPNS Point Mugu assets include DOD's largest and most heavily instrumented Sea/Air Range, including 125,000 square miles of instrumented open ocean test space off the coast of Southern California, stretching from the Mexican Border north to Big Sur, and 36,500 square miles of controlled airspace.

8b. Provide the acreage of the land use categories listed in the table below:

LAND USE CATEGORY		ACRES
Total Developed: (administration, operational, housing, recreational, training, etc.)		3,028
Total Undeveloped (areas that are left in their natural state but are under specific environmental development constraints, i.e.: wetlands, endangered species, etc.) ^a		Wetlands: 2,287
		All Others: 20,577
Total Undeveloped land considered to be without development constraints, but which may have operational/man caused constraints (i.e.: HERO, HERF, HERP, ESQD, AICUZ, etc.) TOTAL ^b		396
Total Undeveloped land considered to be without development constraints		694
Total Off-base lands held for easements/lease for specific purposes		15.5
Breakout of undeveloped, restricted areas. Some restricted areas may overlap. (SEE NOTE 1)	ESQD	-
	HERF	-
	HERP	-
	HERO	277
	AICUZ	328
	Airfield Safety Criteria	230
	Other	19

NOTE: (1) All undeveloped areas within ESQD, HERF, and HERP arcs fall within areas constrained by environmental considerations.

^a Environmental development constraints include: wetlands, San Miguel and Prince Islands, endangered/threatened species habitat, cultural resource areas, marine mammal rookeries, and marine bird rookery sites.

^b We assumed that the term "developmental constraints" as used in this question means "environmental constraints" as used in the prior question.

Because of the complex nature of the land use designation breakdowns given in the preceding table, Figure 4 is submitted for clarification. Figure 4 illustrates the approximate distribution and overlap of land use by category at Point Mugu.

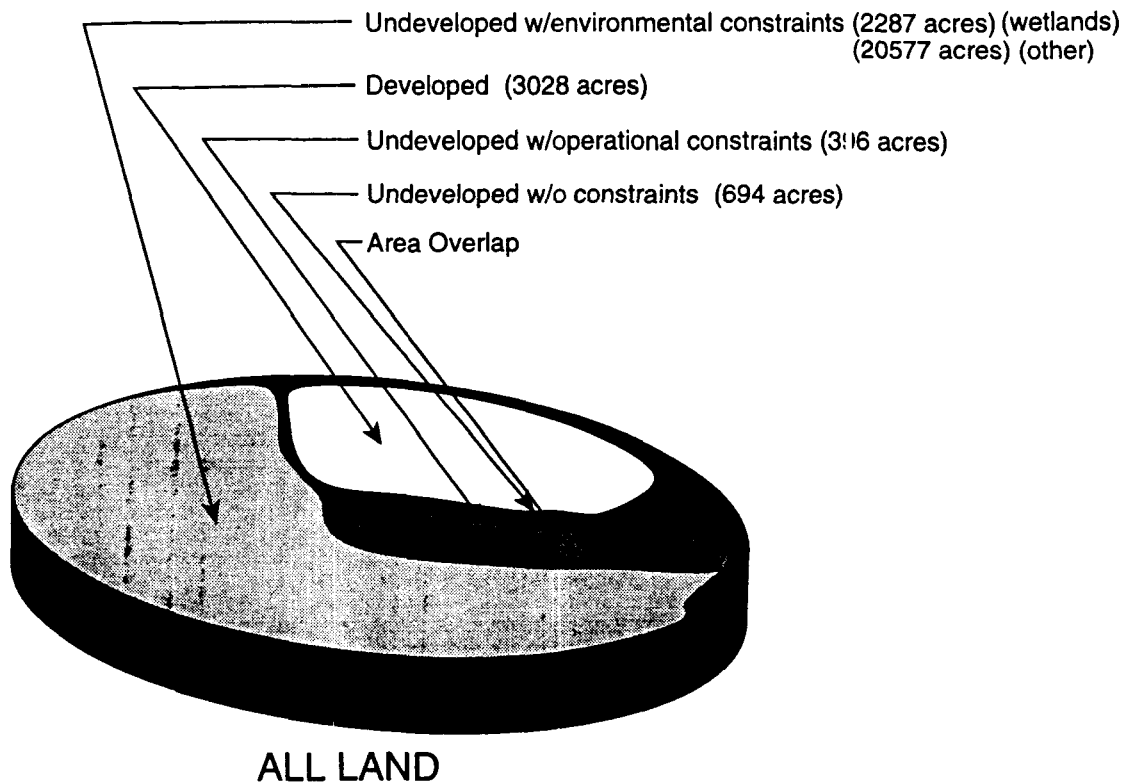


FIGURE 4. Distribution and Overlap of Land Use by Category at Point Mugu.

8c. How many acres on your base (includes off base sites) are dedicated for training purposes (e.g., vehicular, earth moving, mobilization)? This does not include buildings or interior small arms ranges used for training purposes.

37 acres.

8d. What is the date of your last AICUZ update?

September 1992

Are any waivers of airfield safety criteria in effect on your base?

YES

Summarize the conditions of the waivers below.

WAIVER NUMBER	DATE	STATUS	DESCRIPTION
PM-1		Active, Permanent	E-15, MOD 1 Arresting gear
PM-5	08/21/70	Permanent	Air Surveillance Radar ASR-7
PM-6	07/31/75	Permanent 9/8/75	Buildings 325, 3-26, 3-46
PM-8	12/02/71	Permanent	Standby Generator Building 812, Blast Barriers, OAB 45, OAB 41, OAB42, OAB41, Structure 30
PM-9	12/02/71	Permanent	Buildings 3-10, 3-4, 3-8, 3-36
PM-10	09/19/73	Permanent	Precision Approach Radar (PAR).
PM-11	09/19/73	Permanent	FPN-48 Radar Van GCA and Building 358
PM-13	07/19/74	Permanent	San Nicolas Island
PM-16	12/06/78	Permanent	AN/MPN-63 and 21. Emergency generator shelter
PM-17	07/10/79	Permanent	Aircraft parking for transient aircraft
PM-18	02/22/83	Permanent	HCS-5, VP-65 and VA-305 Aircraft Line Operations Buildings
PM-20	12/08/83	Permanent	San Nicolas Island
PM-21	12/20/83	Permanent	Rock Sea Wall at end of R/W 3-21.
PM-22	10/29/87	Permanent	IMA Van Facility for VAQ-34.
PM-23	04/30/81	Temporary	San Nicolas Island
PM-25	02/27/84	Permanent	Santa Cruz Island
PM-26	03/09/87	Permanent	Buildings 318, 333, 339, 343, 349 and 381.
PM-27	06/04/87	Permanent	Aircraft Power Check Facility
PM-28	12/15/88	Temporary	HH-60 aircraft to park
PM-29	08/14/91	Temporary	Test pad for remotely piloted vehicles.
PM-30	05/22/89	Permanent	Aircraft Power Check Facility
PM-31	09/11/91	Permanent	Assault landing box painted on R/W 9-27

8e. List the off-base land use types (e.g., residential, industrial, agricultural) and acreage within Noise Zones 2 & 3 generated by your flight operations and whether it is compatible/incompatible with AICUZ guidelines on land use.

Acreage/Location/ID	Zones	Land Use	Compatible/Incompatible
9 /Various/ trailer park	3	Residential	Incompatible
49 /Various/ farm	2	Residential	Incompatible
13 /Various/ agricultural services	2	Commercial	Compatible
29 /Various/ warehousing	3	Industrial	Compatible
231 /Various/ warehousing	2	Industrial	Compatible
286 /Various/ Duck Club	3	Open Space	Compatible
359 /Various/ Duck Club	2	Open Space	Compatible
52 /Various/ row crops	3	Agricultural	Compatible
3,798 /Various/ row crops	2	Agricultural	Compatible
84 /Various/ vacant land	3	Undeveloped	Compatible
430 /Various/ vacant land	2	Undeveloped	Compatible

8f. List the navigational channels and berthing areas controlled by your base which require maintenance dredging? Include the frequency, volume, current project depth, and costs of the maintenance requirement.

NOT APPLICABLE. Point Mugu does not have a harbor or berthing facilities. NAWCWPNS' ships and boats are berthed at CBC Port Hueneme Harbor.

8g. Summarize planned projects through FY 1997 requiring new channel or berthing area dredged depths, include location, volume and depth.

NOT APPLICABLE.

8h. *Are there available designated dredge areas for maintenance dredging material? List location, remaining capacity, and future limitations.*

NOT APPLICABLE.

Are there available designated dredge disposal areas for new dredge material? List location, remaining capacity, and future limitations.

NOT APPLICABLE.

Are the dredged materials considered contaminated? List known contaminants.

NOT APPLICABLE.

8i. *List any requirements or constraints resulting from consistency with State Coastal Zone Management Plans.*

NONE.

8j. *Describe any non-point source pollution problems affecting water quality, e.g.: coastal erosion.*

Non-point source discharge issues are covered under the NAWA Point Mugu Storm Water Pollution Prevention Plan, the projects for which are described in item 6a above.

8k. *If the base has a cooperative agreement with the US Fish and Wildlife Service and/or the State Fish and Game Department for conducting a hunting and fishing program, does the agreement or these resources constrain either current or future operations or activities? Explain the nature and extent of restrictions.*

NO

8l. *List any other areas on your base which are indicated as protected or preserved habitat other than threatened/endangered species that have been listed in Section 1. List the species, whether or not treated, and the acres protected/preserved.*

<u>Location</u>	<u>Acres</u>
Point Mugu	
Harbor Seals	40
San Nicolas Island	
Harbor Seals	10
Sea Lions	290
Elephant Seals	320
Brandt's Cormorants	25
Western Gulls	70
San Miguel Island	
Sea Lions	310
Elephant Seals	380
Seabirds (Prince Island)	40

9. WRAPUP

9a. *Are there existing or potential environmental showstoppers that have affected or will affect the accomplishment of the installation mission that have not been covered in the previous 8 questions?*

NO

9b. *Are there any other environmental permits required for base operations, include any relating to industrial operations.*

There are two activities that require permits not specifically mentioned in the previous eight sections:

1. Activities involving jurisdictional wetlands or navigational waters (exclusive of harbor-related activities (section 401 CWA and Section 10 RHA).
2. Activities conducted outside of federal property that fall within the coast zone or potentially affecting coastal resources (coastal consistency determinations/negative determinations).

Dredge and fill activities require a permit from the U.S. Army Corps of Engineers and the California Water Quality Control Board and approvals from the U.S. Fish and Wildlife Service, California Department of Fish and Game, and the California Coastal Commission. We have never been denied a permit.

Activities that are conducted outside of federal property or that have a potential effect upon coastal resources require a permit from the California Coastal Commission. This authorization is usually very quick and easy to obtain.

9c. *Describe any other environmental or encroachment restrictions on base property not covered in the previous 8 sections.*

NONE

9d. List any future/proposed laws/regulations or any proposed laws/regulations which will constrain base operations or development plans in any way. Explain.

There are no known proposed regulations that will constrain current or future levels of base military operations that we are aware of. However, there are two proposed regulations that could have implications on base support activities.

There are proposed changes in the Spill Prevention, Control, and Countermeasures (SPCC) regulations listed in 40 CFR part 112 would affect 115 bulk petroleum aboveground storage tanks located at the Point Mugu main base facility and the San Nicolas Island and Santa Cruz Island Annexes. All the tanks would be required to have level indicators, high-level alarms, and automatic shut-off valves installed. Twenty-one of the tanks would be required to have leak detection systems installed at an estimated cost of \$3.2 million.

The Federal Implementation Plan (FIP) for air quality as proposed by the Environmental Protection Agency (EPA) is likely to have a significant impact on base support operations, but not on mission accomplishment. It is expected that the proposed FIP will change in scope as a result of public hearings to be conducted in August 1994. While it is unclear what these changes might be, it is reasonable to assume based on public and industry response to the proposed FIP that the changes are likely to decrease the stringency of the proposed regulations.

In the proposed FIP, military aircraft and ships are exempted. However, annual emissions reduction for Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOCs) are proposed for all other mobile and stationary sources on the base. The reductions are to take effect from year 2001 through year 2005. A tentative plan for meeting these proposed emission cuts might include measures such as installing emission control equipment, substituting existing fuels by "clean" fuels, purchasing zero-emission highway vehicles, electrifying ground support equipment and miscellaneous stationary sources such as water heaters and furnaces, and using a common-sense approach to minimizing emissions by reducing excess capacity and eliminating waste. Additionally, it may be necessary to use emissions reduction credits from banked emissions or purchase such credits from the market to meet compliance goals while maintaining mission of the base. Future expansion options would have to incorporate all or some of these options.

DATA CALL #33
NAVAL AIR WARFARE CENTER
WEAPONS DIVISION
POINT MUGU SITE

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

G. H. Strohsahl, RADM, USN
NAME (Please type or print)


Signature

Commander
Title

6 JUL 94
Date

Naval Air Warfare Center
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

W. C. Bowes, VADM, USN
NAME (please type or print)


Signature

Commander
Title

29 JUL 94
Date

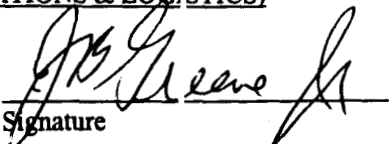
Naval Air Systems Command
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J. B. GREENE, JR.

NAME (Please type or print)
ACTING


Signature

Title

06 JUL 1994
Date

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, Uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."


The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in you activity generating information for the BRAC-95 process must certify that information. Enclosure (1) is provided for individual certifications and may be duplicated as necessary. You are directed to maintain those certifications at your activity for audit purposes. For purposes of this certification sheet, the commander of the activity will begin the certification process and each reporting senior in the Chain of Command reviewing the information will also sign this certification sheet. This sheet must remain attached to this package and be forwarded up the Chain of Command. Copies must be retained by each level in the Chain of Command for audit purposes.

I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

D. B. MCKINNEY, RADM, USN
Name (Please type or print)


Signature

Commander
Title

5/27/94
Date

Naval Air Warfare Center Weapons Division Point Mugu
Activity

DATA CALL #33
15 Sep 94 Change
Point Mugu

Rev. pg 21

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

W. E. NEWMAN, RADM, USN
NAME (Please type or print)
COMMANDER
Title
NAVAL AIR WARFARE CENTER
Activity

WE Newman
Signature
9/21/94
Date

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Title

Activity

Signature

Date

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

DONALD V. BOECKER, RADM USN
~~W. E. NEWMAN, RADM USN~~
NAME (Please type or print)
COMMANDER (ACTING)
Title
NAVAL AIR SYSTEMS COMMAND
Activity

Donald V. Boecker
Signature
22 Sep 94
Date

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

**DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)**

W. A. EARNER
NAME (Please type or print)

Title

W. A. Earner
Signature
9/25/94
Date

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

In accordance with policy set forth by the Secretary of the Navy, personnel of the Department of the Navy, Uniformed and civilian, who provide information for use in the BRAC-95 process are required to provide a signed certification that states "I certify that the information contained herein is accurate and complete to the best of my knowledge and belief."

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I certify the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

D. B. McKinney, RADM, USN
Name (Please type or print)


Signature

Commander
Title

9/19/94
Date

Naval Air Warfare Center Weapons Division Point Mugu Site
Activity

BRAC-95 CERTIFICATION

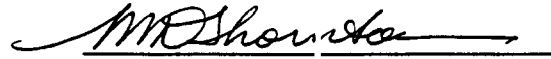
I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MICHAEL D. THORNTON
NAME (Please type or print)

CDR, CEC, USN
Title

MILCON PROGRAMMING DIVISION
Division

NAVAL FACILITIES ENGINEERING COMMAND
Activity



Signature

9 Dec 94

Date

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

J. E. BUFFINGTON, RADM, CEC, USN
NAME (Please type or print)

COMMANDER
Title

NAVAL FACILITIES ENGINEERING COMMAND
Activity


Signature

12/9/94
Date


I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER

NAME (Please type or print)

Title


Signature

12/17/94
Date

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**DATA CALL 64
CONSTRUCTION COST AVOIDANCES**

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

Installation Name:		POINT MUGU CA NAWCWPVN DIV		
Unit Identification Code (UIC):		N68936		
Major Claimant:		NAVAIR		
Project FY	Project No.	Description	Appn	Project Cost Avoid (\$000)
1996	014	CHILD DEVEL CENTER	MCON	1,300
		Sub-Total - 1996		1,300
1998	031	RANGE OPERATIONS CENTER	MCON	10,020
1998	061	SURFACE TARGETS DEV LAB	MCON	4,590
1998	085	JET ENGINE TEST CELL	MCON	7,300
1998	773	MISSILE MAGAZINE	MCON	1,200
		Sub-Total - 1998		23,110
1999	090	WPNS INSTR FAC	MCON	1,300
1999	183	PWR CK PAD W/O SOUND SUPPR	MCON	600
		Sub-Total - 1999		1,900
2001	048	ELEC SYSTEM TEST FAC	MCON	20,000
		Sub-Total - 2001		20,000
		Grand Total		46,310

(Revised 9 Dec 94)

(* - Cost Avoidance is less than project programmed amount)

BRAC-95 CERTIFICATION


I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MICHAEL D. THORNTON
NAME (Please type or print)

CDR, CEC, USN
Title

MILCON PROGRAMMING DIVISION
Division

NAVAL FACILITIES ENGINEERING COMMAND
Activity



Signature

9 Dec 94

Date


I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

J. E. BUFFINGTON, RADM, CEC, USN
NAME (Please type or print)

COMMANDER
Title

NAVAL FACILITIES ENGINEERING COMMAND
Activity


Signature
12/9/94
Date

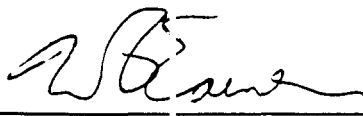
I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER

NAME (Please type or print)

Title


Signature
12/17/94
Date

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

J. E. BUFFINGTON, RADM, CEC, USN
NAME (Please type or print)

Jack E. Buffington
Signature

COMMANDER
Title

7/13/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER

NAME (Please type or print)

W. A. Earner
Signature

Title

7/18/94
Date

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MARK E. DONALDSON
NAME (Please type or print)

CDR, CEC, USN
Title

MILCON PROGRAMMING DIVISION
Division

FACILITIES PROGRAMMING AND CONSTRUCTION DIRECTORATE
Department

NAVAL FACILITIES ENGINEERING COMMAND
Activity

Mark E. Donaldson
Signature
12 July 1994
Date

Enclosure (1)

BRAC DATA CALL NUMBER 64
CONSTRUCTION COST AVOIDANCE

Information on cost avoidance which could be realized as the result of cancellation of on-going or programmed construction projects is provided in Tables 1 (MILCON) and 2 (FAMILY HOUSING). These tables list MILCON/FAMILY HOUSING projects which fall within the following categories:

1. all programmed construction projects included in the FY1996 - 2001 MILCON/FAMILY HOUSING Project List,
2. all programmed projects from FY1995 or earlier for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995, and,
3. all programmed BRAC MILCON/FAMILY HOUSING projects for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995.

Projects listed in Tables 1 and 2 with potential cost avoidance were determined as meeting any one of the following criteria:

Projects with projected Work in Place (WIP) less than 75% of the Current Working Estimate (CWE) as of 1 OCT 1995 .

Projects with projected completion dates or Beneficial Occupancy Dates subsequent to 31 March 1996.

Projects with projected CWE amount greater than \$15M.

The estimated cost avoidance for projects terminated after construction award would be approximately one-half of the CWE for the remaining work. Close-out, claims and other termination costs can consume the other half.

DATA CALL 64

168

CONSTRUCTION COST AVOIDANCES

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

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2001	048	ELEC SYSTEM TEST FAC	MCON	20,000
		Sub-Total - 2001		20,000
		Grand Total		46,310

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

J. E. BUFFINGTON, RADM, CEC, USN
NAME (Please type or print)

COMMANDER
Title

NAVAL FACILITIES ENGINEERING COMMAND
Activity

Jack E. Buffington
Signature
7/13/94
Date

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER

NAME (Please type or print)

Title

W. A. Earner
Signature
7/18/94
Date

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MARK E. DONALDSON
NAME (Please type or print)

CDR, CEC, USN
Title

MILCON PROGRAMMING DIVISION
Division

FACILITIES PROGRAMMING AND CONSTRUCTION DIRECTORATE
Department

NAVAL FACILITIES ENGINEERING COMMAND
Activity

Mark E. Donaldson
Signature
12 July 1994
Date

BRAC DATA CALL NUMBER 64
CONSTRUCTION COST AVOIDANCE

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