



ASN 176

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20350-1000

MM-0444-F8
BSAT/JT
18 November 1994

MEMORANDUM FOR CHAIR, LABORATORY JOINT CROSS-SERVICE GROUP

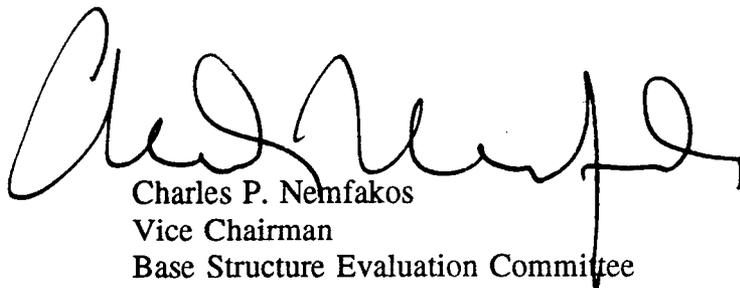
SUBJECT: PROVISION OF CERTIFIED DEPARTMENT OF NAVY
DATA TO BRAC 95 LABORATORY JOINT CROSS-SERVICE GROUP

In compliance with the Internal Control Plan for Managing the Identification of DoD Cross-Service Opportunities as Part of the DoD 1995 Base Realignment and Closure Process, dated 13 April 1994 and as authorized by the Executive Secretary, BRAC 95 Steering Group by memorandum dated 2 August 1994, I am forwarding the enclosed data and information to be used for analysis by the Laboratory Joint Cross-Service Group. This data was obtained by the Department of the Navy (DoN) in response to the Laboratory Joint Cross-Service Group request for C4I and Energetics data in accordance with your Memorandums of 6 October 1994 and was certified in accordance with the DoN BRAC 95 certification policy and procedure. However, I note that the data response from NSWC Crane includes descriptions of functions and capabilities at Crane Army Ammunition Activity (See pages 3, 5,6,41&42), a major tenant at NSWC Crane Division, Crane, Indiana. Further, in coordinating this with the Department of Army, they have expressed that they do not desire that this information be used. Such data should not be construed as certified, since it was not obtained in accordance with the Department of Army BRAC 95 certification policy and procedure.

I further note that the data response from NAWC Weapons Division, China Lake, California is based upon a definition of energetics that is broader than the definition provided in your clarification, Control Number: LJCSG-ENERGETICS-001 (See pages 9&10 of the data response). Their presentation viewgraphs appear to be consistent with the data response. NAWC China Lake has been advised that their response must be revised, as necessary, to be compatible with your definition of energetics. Their revised response will be forwarded upon receipt. A certified true copy of the original data response, as received, is forwarded for your informational purposes.

94-11-21 10:03 RCVD

The documents enclosed consist of a certified true copy of the data call responses received from the activities as listed on the attachment. The only changes authorized for the enclosed data call responses will be any technical corrections made in response to errors identified by internal DoN verification checks, or for any additional clarifying information requested by the Laboratory Joint Cross-Service Group. In either circumstance, another formal transmission will be made by DoN for any such data submitted to the Laboratory Joint Cross-Service Group.



Charles P. Nemfakos
Vice Chairman
Base Structure Evaluation Committee

Attachment

Mission Purification Solid Propulsion Report

by

Thomas N. McDowell
Systems Technology Branch
Ordnance Systems Department

AUGUST 1992

Distribution authorized to the Department of Defense and U.S. DOD contractors only; critical technology; 6 August 1992. Other requests for this document shall be referred to the Naval Air Warfare Center Weapons Division (Code 327). This is an informal report of the Naval Air Warfare Center Weapons Division, China Lake, and is not part of the permanent records of the Department of Defense.

WARNING: This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751 *et seq.*) or the Export Administration Act of 1979, as amended, Title 50, U.S.C., app. 2401 *et seq.* Violations of these export laws are subject to severe criminal penalties.

DESTRUCTION NOTICE--Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

NAVAL AIR WARFARE CENTER WEAPONS DIVISION
China Lake, CA 93555-6001

CONTENTS

Introduction	3
Purpose.....	3
Scope	3
Background.....	3
Discussion.....	4
Approach/Method.....	4
Results and Discussion	6
Personnel Experience Level.....	6
Solid Propulsion Facilities and Equipment.....	7
Current Workload Evaluation by Phase	8
Current Workload Evaluation by Category.....	13
Conclusions and Recommendations.....	16
Appendixes:	
A. Plan of Action and Milestones for NAWCWPNS/CL and NSWC/IHD Memorandum of Agreement for Solid Propulsion.....	17
B. Source Data	23
C. Solid Propulsion Mission Purification Video Teleconference Briefing	51
D. NAWCWPNS/CL and NSWC/IHD Unique Capabilities.....	81

FOREWORD

This document documents a mission purification study concerning solid propulsion. The study was conducted from March and June 1992 at the Naval Air Warfare Center Weapons Division, China Lake, California.

The purpose of the study was to identify any mission overlap areas in solid propulsion work between the Naval Air Warfare Center Weapons Division, China Lake, and the Naval Surface Warfare Center, Indian Head. The results of this study were initially presented during a video teleconference on 23 June 1992 to China Lake and Indian Head personnel.

This document was prepared for timely presentation of information and is released at the working level.

J. M. Robbins, Head
Propulsion Systems Division
Ordnance Systems Department
15 August 1992

NAWCWPNS TM 7373, published by Code 327, 15 copies.



BRAC DATA CALL 12 AMENDMENT 1
ENERGETICS CROSS-SERVICE ANALYSIS

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

NEXT ECHELON LEVEL (if applicable)

CAPT. W. J. NEWTON
NAME (Please type or print)

W. J. Newton
Signature

COMMANDER
Title

18 OCT 1994
Date

INDIAN HEAD DIVISION, NSWC
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)

DR. IRA M. BLATSTEIN
NAME (Please type or print)

Ira M Blatstein
Signature

Technical Director
Title

10/20/94
Date

Naval Surface Warfare Center
Activity

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

MAJOR CLAIMANT LEVEL

E. S. MCGINELY, II
NAME (Please type or print)

[Signature]
Signature

(ACTING) COMMANDER
Title

10/20/94
Date

NAVAL SEA 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)

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

W. A. Earner
Signature

Title

10/27/94
Date

BRAC DATA CALL 12 AMENDMENT 1
ENERGETICS CROSS-SERVICE ANALYSIS

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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

ACTIVITY COMMANDER

CAPT. W. J. NEWTON
NAME (Please type or print)

W. J. Newton
Signature

COMMANDER
Title

18 OCT 1994
Date

INDIAN HEAD DIVISION, NSWC
Activity

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

OVERVIEW

Naval Surface Warfare Center, Indian Head Division (IHDIV) carries out full spectrum functions for energetics research, development, manufacturing and in-service engineering, providing the unique capability to transition from laboratory to production and service use, for any type of energetic material. The scope of capabilities at IHDIV allows for efficient use of specialized expertise and expensive facilities required for development, scale-up, manufacture, and test of energetic materials. This efficiency is becoming much more critical as the volume of weapons business decreases and the cost of environmental compliance escalates. An important benefit of the engineering and manufacturing technology at IHDIV is that it provides a warm base for low rate production and mobilization and technical know-how to kick-start industry. This capability has been extensively used in every conflict over the last 100 years.

The 1993 Base Closure and Realignment Commission concluded that it made sense to consolidate the Navy explosive research and development from White Oak to Indian Head. Additionally, NAVSEA explosive loading and Tri-service Cartridge Actuated Devices/Propellant Actuated Devices (CAD/PAD) responsibilities have also been consolidated at Indian Head. As further consolidation is considered, it would make good sense to consider consolidating at Indian Head.

"Unique capabilities need to be retained in the Navy e.g., ordnance research and development at Indian Head"

"Common functions should be consolidated into centers of excellence, e.g., Energetics"

Briefing of NRAC Studies to Washington, D.C. Area Flag Officers and Senior Executives, 29 September 1994

Other DoD activities are single purpose in nature; i.e., either a narrow product line at high volume with limited engineering, OR research and development (R&D) without manufacturing capability. Therefore, the only alternative would be to establish various aspects of IHDIV's capability at a variety of DoD and private companies. The risks attendant to this are:

17 October 1994
PAGE NO. 1

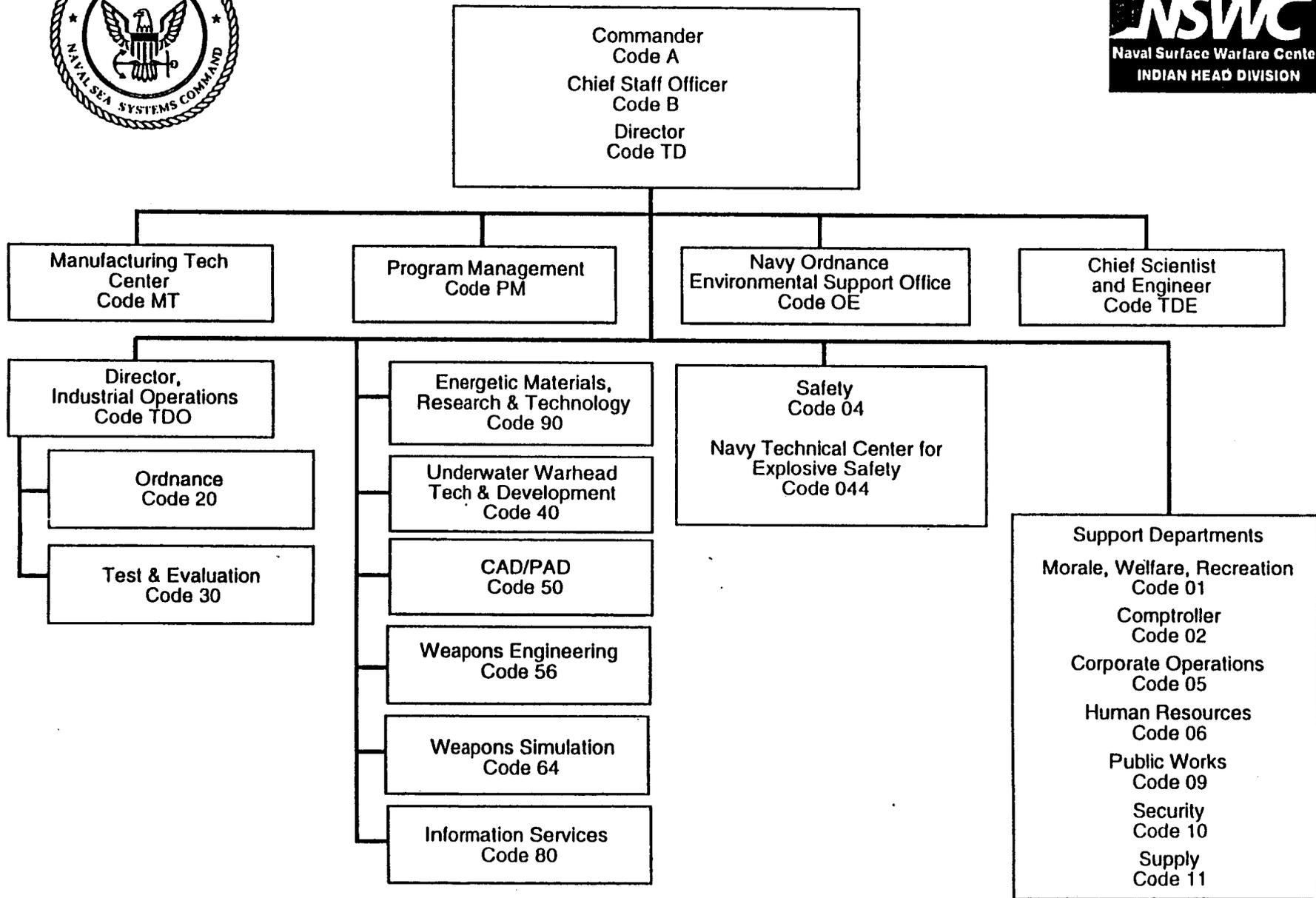
NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

- The loss of important segments of energetics capability since spreading the work may not provide sufficient volume of work to sustain critical mass.
- Splitting R&D from scale-up will result in loss of the important technical connection between research, development, manufacture and maintenance and reduced efficiency.
- Loss of the close relationship between user requirements and technology initiatives.
- The cost to replicate Indian Head unique facilities. Indian Head is the sole provider of some products such as:
 - NG lacquer for missiles
 - HBNQ and PNC, chemicals for propellants and underwater explosives
 - Man-rated, tri-service CAD/PAD devices for Aircrew Escape Systems
 - M43 insensitive propellant for tank ammunition
 - Otto fuel for MK46 and MK48 torpedoes
 - One of two plants in the U.S. for extruded rocket motors

1. Organization Chart (as of 30 Sep 94):

a. Show organizational elements (those which report directly to the activity commander).

See following page for organization chart.



NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

b. Describe organizational relationships especially between support organizations and any other organizations located on the Installation/Base.

Relationships Between IHDIIV Organizations and Tenants

IHDIIV has a strong functional relationship with two of its major tenants; the Naval Ordnance Center (NAVORDCEN) and the Explosive Ordnance Disposal Technology Division (EODTD).

NAVORDCEN is responsible for Navy ordnance and relies upon IHDIIV's special technical expertise as the Navy's Technical Center for Explosive Safety, and the Ordnance Environmental Support Office (OESO), to advise and guide them on explosive safety and ordnance environmental considerations for their commands and field activities.

EODTD's mission is Tri-service explosive ordnance disposal technology. EODTD frequently relies on IHDIIV expertise and facilities to complement their own capabilities. IHDIIV assists EODTD to develop and fabricate explosive components, such as Safe & Arm devices, for use in EOD "tools." IHDIIV's Physical/Chemical Analysis organization provides analysis and characterization of energetic materials for EODTD. The electronics engineers and technicians of the Weapons Simulation Department design and fabricate the electronic portion of the device. EODTD then works with the Energetic Materials Research and Technology and Ordnance Departments to fabricate the complete explosive components for evaluation by EODTD, and the Weapons Engineering Department provides design analysis for EODTD programs. Additionally, IHDIIV funds EODTD for direct support of Mine Countermeasure programs and to develop DEMIL procedures to render ordnance safe. EODTD also provides disassembly expertise in fleet mishap and accident investigations.

Relationships Between IHDIIV Organizations

The mission of the Indian Head Division is **energetics**. The IHDIIV organization performs research and development, engineering, process development, and testing of energetic materials and the devices/subsystems into which they are loaded. The evolution of these organizations at one site established a comprehensive team of energetics professionals that are tightly integrated through sharing of technical

17 October 1994

PAGE NO. 4

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

knowledge, equipment, and facilities. The close-knit relations between research, engineering, production, and test functions provide the basis for the practice of concurrent engineering which can result in:

- 30-70% less development time
- 65-90% fewer change orders
- 20-90% less time to market
- 200-600% higher overall quality
- 21-120% higher return on investment

Source: National Institute of Standards & Technology, Thomas Group Inc., and the Institute for Defense Analyses.

The Energetic Materials Research and Technology department develops new ingredients, explosives, propellants, pyrotechnics, warhead concepts, and explosive components; develops advances in detonation physics, detonation chemistry, and warhead effectiveness modeling; and develops new manufacturing technologies for energetic materials. The engineering organizations use the results of all these efforts to meet the performance and vulnerability requirements in their warhead, propelling charge, rocket motor, or cartridge development and product improvement programs. Engineering and Ordnance departments call on the research organization to bring basic scientific knowledge to bear on product improvement programs as well as performance and processing problems with subsystems during scale-up, production, or service use.

The engineering organizations (Underwater Warheads, Weapons, and CAD/PAD) develop new subsystems and devices and provide engineering support (design agent, in-service, and acquisition) in their specialty areas. By their direct interface with the Fleet the engineering organizations develop and gather operational and performance requirements for new energetic materials necessary to maintain weapons superiority for our fighting forces. These operational and performance requirements are provided to the research organizations to focus their efforts. The Research department also uses the analysis and modeling capability of the engineering organizations to support their research and development efforts. Ordnance and engineering department personnel often work together at contractor sites to evaluate and correct production problems. When a problem is identified with weapons in the fleet, the engineering departments work with the test & evaluation to develop and implement field diagnostic procedures

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

(radiographic, etc.) to test units in the Fleet, thereby achieving cost effective and timely fleet readiness.

The Ordnance department maintains state-of-the-art facilities to provide a near-production scale base which supports the research and engineering organizations. The Ordnance department teams with research and development to assure producibility of new energetic materials, and transitions know-how and procedures to industry for large scale production. Engineering organizations also use the Ordnance department to examine and download ordnance units from the fleet as part of malfunction investigations or surveillance programs which assure that the ordnance inventory remains safe and effective for use.

The Test & Evaluation organization provides comprehensive capability to environmentally condition and test propulsion systems and aircraft/weapon system energetic components. They perform test firings and non-destructive tests to support the Research, Engineering, and Ordnance departments. The test and analyses performed are essential to research, development, scale-up, production, quality evaluation, and malfunction investigation programs for ordnance items. The research organization uses the Test and Evaluation department to characterize and test new materials and concepts once their development has moved beyond the laboratory stage. The Test organization performs lot acceptance tests for contractor produced items such as man-rated components of aircrew escape systems, tests and analyses of materials and metal parts supplied by outside sources, and acceptance test of items produced by the Ordnance department.

Energetics expertise is difficult to acquire, develop, and sustain. The location of the IHDIV full spectrum energetics organization at one site lets us conduct cost-effective research, development, engineering, processing, and test programs, and provide:

- Greater utilization of very costly equipment and buildings required to process and test energetic materials and devices.
- Greater utilization of energetics technical expertise.
- Greater stimulation to practice concurrent engineering to transition from R&D to service use to meet changing fleet requirements.

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

2. For each organizational element:

a. Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following job categories: S&T, Engineering Development, Production, In-service Engineering, & other (describe).

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY TOTAL of ALL WORKYEARS										
	ENERGETICS						OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	334	375	123	618	380	13	333	119	374	2,669
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	4	4	4	31	11	0	6	59	142	261
^{1,contractor} off-site	23	21	3	10	31	10	10	30	5	143
TOTAL	361	400	130	659	422	23	349	208	521	3,073

¹ According to the "LABORATORY INFRASTRUCTURE CAPABILITIES STUDY", WEAPONS PANEL REPORT TO DDR&E, of 19 July 1994, 75% of the DoD FY93 RDT&E Budget is outsourced before ever reaching the labs. The "INTRAMURAL" fraction of RDT&E Budget was cited as the lowest since 1968/1969.

² In-house labor in FY93 amounted to only 40% of total IHDIV expenditures.

The remaining tables show workyears broken out for the main Energetics organizations of IHDIV.

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY PROGRAM MANAGEMENT OFFICE										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Tech- nical	BOS	Gen'l	Total
Government	4	3	1	3	8	0	0	0	4	23
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	0	0	3	3	0	0	0	0	0	6
Contractor off-site	0	0	0	0	0	0	0	0	0	0
TOTAL	4	3	4	6	8	0	0	0	4	29

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY ORDNANCE ENVIRONMENTAL SUPPORT/MANUFACTURING TECHNOLOGY										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Tech- nical	BOS	Gen'l	Total
Government	0	0	1	0	0	13	0	0	2	16
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	0	0	0	0	0	0	0	0	0	0
Contractor off-site	0	0	0	0	0	10	0	0	0	10
TOTAL	0	0	1	0	0	23	0	0	2	26

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY NAVY TECHNICAL CENTER FOR EXPLOSIVES SAFETY										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	1	1	6	14	0	0	10	1	0	33
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	0	0	0	0	0	0	0	0	0	0
Contractor off-site	0	0	0	0	0	0	3	0	0	3
TOTAL	1	1	6	14	0	0	13	1	0	36

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY ORDNANCE DEPARTMENT										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	1	28	75	395	18	0	0	0	0	517
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	0	0	0	4	0	0	0	0	0	4
Contractor off-site	0	0	0	0	0	0	0	0	0	0
TOTAL	1	28	75	399	18	0	0	0	0	521

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY TEST & EVALUATION DEPARTMENT										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	36	55	0	56	45	0	0	0	0	192
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	2	3	0	3	2	0	0	0	0	10
Contractor off-site	0	0	0	0	0	0	0	0	0	0
TOTAL	38	58	0	59	47	0	0	0	0	202

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY UNDERWATER WARHEAD TECHNOLOGY & DEVELOPMENT										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	75	64	0	5	2	0	0	0	0	146
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	0	0	0	0	0	0	0	0	0	0
Contractor off-site	5	5	0	0	0	0	0	0	0	10
TOTAL	80	69	0	5	2	0	0	0	0	156

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY CAD/PAD DEPARTMENT										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	4	43	0	0	122	0	0	0	0	169
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	0	0	0	0	3	0	0	0	0	3
Contractor off-site	0	1	0	0	5	0	0	0	0	6
TOTAL	4	44	0	0	130	0	0	0	0	178

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY WEAPONS ENGINEERING										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	21	61	0	0	121	0	0	0	0	203
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	0	0	0	0	0	0	0	0	0	0
Contractor off-site	7	7	0	0	26	0	0	0	0	40
TOTAL	28	68	0	0	147	0	0	0	0	243

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY WEAPONS SIMULATION										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	0	12	5	12	6	0	186	1	2	224
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	0	0	0	0	0	0	0	0	1	1
Contractor off-site	0	0	0	0	0	0	4	0	0	4
TOTAL	0	12	5	12	6	0	190	1	3	229

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY INFORMATION TECHNOLOGY										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	0	2	0	20	26	0	52	0	54	154
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	0	0	0	0	0	0	0	0	0	0
Contractor off-site	0	0	0	0	0	0	0	25	0	25
TOTAL	0	2	0	20	26	0	52	25	54	179

NSWC, INDIAN HEAD DIVISION
 DATA CALL 12 AMENDMENT #1
 ENERGETICS CROSS-SERVICE ANALYSIS

NSWC, INDIAN HEAD DIVISION LIFE-CYCLE WORKYEAR SUMMARY ENERGETIC MATERIALS RESEARCH & TECHNOLOGY										
ENERGETICS							OTHER			
	S&T	Eng Dev	Mfg.Tech/ Process Devel.	Prod	ISE/Acq Mgmt	Env. Tech	Techni- cal	BOS	Gen'l	Total
Government	147	63	31	16	17	0	0	0	0	274
FFRDC on-site	0	0	0	0	0	0	0	0	0	0
FFRDC off-site	0	0	0	0	0	0	0	0	0	0
Contractor on-site	1	0	0	0	0	0	0	0	0	1
Contractor off-site	5	6	1	0	0	0	0	0	0	12
TOTAL	153	69	32	16	17	0	0	0	0	287

NSWC, INDIAN HEAD DIVISION
 DATA CALL 12 AMENDMENT #1
 ENERGETICS CROSS-SERVICE ANALYSIS

b. Number of square feet of space broken out by: laboratory specific space, general office space, and other space (describe). Note if government owned or leased. All Space is government owned.

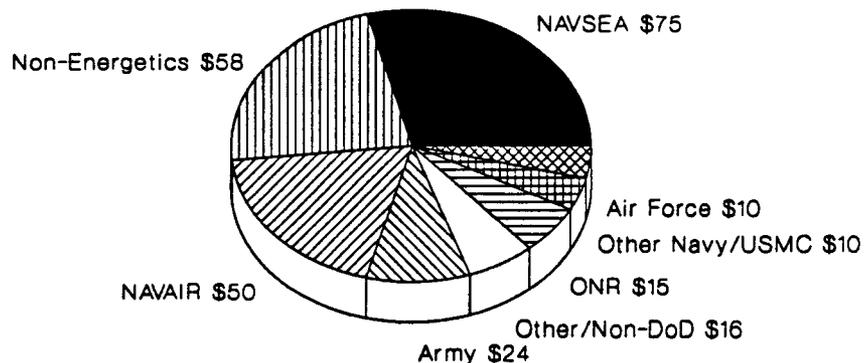
NUMBER OF SQUARE FT OCCUPIED			
Departments	Laboratory	General Office	Process/Product Development
Commander, Chief Staff Officer, Director (CMD)	0	15,006	0
Navy Ordnance Environmental Support Office (OESO)	0	11,194	0
Morale, Welfare, & Recreation (01)	0	12,628	0
Comptroller (02)	0	17,518	0
Navy Technical Center for Explosives Safety (04)	0	9,328	0
Human Resources (06)	0	26,051	0
Public Works (09)	36	33,707	5,241
Security (10)	0	9,515	9,116
Supply (11)	9,154	27,675	10,650
Program Management (13)	0	13,778	0
Ordnance (20)	14,124	0	936,167
Test & Evaluation (30)	186,968	0	1,458
Underwater Warhead Technology & Development (40)	85,805	0	0
Cartridge Actuated Devices/Propellant Actuated Devices (CAD/PAD) (50)	33,501	0	0

NSWC, INDIAN HEAD DIVISION
 DATA CALL 12 AMENDMENT #1
 ENERGETICS CROSS-SERVICE ANALYSIS

NUMBER OF SQUARE FT OCCUPIED			
Departments	Laboratory	General Office	Process/Product Development
Weapons Engineering (56)	43,608	0	0
Weapons Simulation (64)	55,190	0	40,570
Information Technology (80)	15,476	15,471	0
Energetic Materials Research & Technology (90)	189,430	0	43,227
Explosives Engineering (Yorktown, VA site (90)	58,255	0	0
TOTAL	691,547	191,871	1,046,429

c. List total FY93 funds and list main programs, and customers.

FY93 funds received - \$258 million reimbursable



**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

Because our work is at the component level we support over 230 different sponsors. The following table lists some of IHDIV's major programs/sponsors.

MAJOR SPONSORS	MAJOR PROGRAMS SUPPORTED	FY93 FUNDS REC \$M
OFFICE OF NAVAL RESEARCH		
Office of Naval Research	6.2 Warhead Block Effort, Explosive Formulation/Applications, Detonation Physics, Explosion Damage, Warhead Applications Effort, Mine Hunter Killer/MAHEM Warhead	\$15.2
NAVSEA		
PEOTAD - Standard Missile Program (PMS422)	Standard Missile, VLS	\$22.9
PEO MW - Mine Warfare Systems Program Office (PMO407)	Surf Zone Mine Counter Measures, Explosive Advanced Technology Development (EATD), MK14 Warhead, MK56 Mine, MK35 Acoustic Firing Device, Environmental R&D	\$16.0
Warfare Systems Group (SEA-91W)	Insensitive Munitions Advanced Development; High Explosives and Propellants	\$6.0
2E/2T Cog NAVSEA/NAVAIR	Cartridge Actuated Devices/Propellant Actuated Devices Quality Evaluation (CAD/PAD QE), 2.75" Rocket Motor QE, Air Launched Missiles	\$6.0
Ammunition Program Office (SEADPM), Crane IN	Cartridge Actuated Devices/Propellant Actuated Devices Quality Evaluation (CAD/PAD) PIP, R&E, ILS, Gun Ammunition Design	\$5.6

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

MAJOR SPONSORS	MAJOR PROGRAMS SUPPORTED	FY93 FUNDS REC \$M
Program Executive Office, Undersea Warfare - PEO USW (PMO402, PMO406, PMO416, PMO427, PMO428)	Vertical Launch ASROC, MK48/ADCAP Torpedo, MK50 Torpedo Warhead, Surface Ship Torpedo Defense,	\$10.7
NAVSEA - Theater Nuclear Warfare Program (PMS423)	Chemical Weapons Convention, Special Weapons Missiles	\$4.1
Field Activity Support (SEA07)	Ordnance Environmental Support (OESO)	\$1.4
NAVAIR		
Program Executive Office for Tactical Aircraft Programs (PEO(T) PMA201, PMA242	2.75" Rocket, Visual Cues, Jet Assist Take-off (JATO), Cartridge Actuated Devices/Propellant Actuated Devices Quality Evaluation (CAD/PAD, Advanced Rocket System (ARS)	\$22.2
PEO for Cruise Missiles Project and Unmanned, Aerial Vehicles Programs (PEOCU)	Tomahawk, Harpoon, Slam, Penguin, Weapons Systems Engineering Evaluation	\$6.8
Deputy Commander for Acquisition and Operations (PMA202, 205, 225)	Harpoon, Slam, Sidewinder, Tomahawk, Penguin, Cartridge Actuated Devices/Propellant Actuated Devices (CAD/PAD)	\$3.4
Direct Reporting Program Manager		
Strategic Systems Programs, Washington, DC (SSPO)	Trident GAMS, Environmental Research	\$1.1

NSWC, INDIAN HEAD DIVISION
 DATA CALL 12 AMENDMENT #1
 ENERGETICS CROSS-SERVICE ANALYSIS

MAJOR SPONSORS	MAJOR PROGRAMS SUPPORTED	FY93 FUNDS REC \$M
HQ, Army Munitions and Chemicals Command, (AMCCOM) Rock Island, IL	Low Vulnerability Ammunition (LOVA), Cartridge Actuated Devices/Propellant Actuated Devices (CAD/PAD), 2.75" Rocket Motor, MK22 Line Throwing Rocket Motor, Visual Cues	\$20.0
AIR FORCE		
Hill Air Force Base, Ogden Air Logistics Center (DAFHIL)	Cartridge Actuated Devices/Propellant Actuated Devices (CAD/PAD)	\$6.9

3. Describe by major functional and product lines, the capabilities of your activity to perform energetic functions in terms of manpower, intellectual / skill capability and capacity, and major facilities and equipment.

NSWC IHDIV's major function is to support all life cycles for the full spectrum of energetics products. **NSWC IHDIV possesses the most complete array of facilities, equipment, and people dedicated to military energetics in DoD.** IHDIV is the only site capable of transitioning from the lab to limited production and fleet use, any explosive, propellant or pyrotechnic enabling DoD to: maintain smart buyer capability, qualify/assist public and private suppliers, retain critical production capability, and achieve efficiencies through concurrent engineering.

MANPOWER/INTELLECTUAL SKILLS:

A critical factor in working with energetics is people. Our experienced energetics workforce is a blend of approximately 700¹ physicists, chemists, mathematicians, and electrical, mechanical, environmental, chemical, and aerospace engineers, of which approximately 20% possess advanced technical

¹ Total IHDIV S&E population is approximately 850

NSWC, INDIAN HEAD DIVISION
 DATA CALL 12 AMENDMENT #1
 ENERGETICS CROSS-SERVICE ANALYSIS

degrees. Fundamental training in these disciplines is available through colleges and universities, however, the field of military energetics demands that scientists and engineers (S&E's) obtain highly specialized skills and knowledge. Improper handling of energetics can be fatal, destroy critical/expensive facilities, and devastate the environment. The skills and knowledge required can *only* be acquired through many years of working with experienced colleagues and specially configured equipment to safely work with energetic compounds. A minimum of 5 years is required for an individual to achieve the full performance level in an energetics specialty.

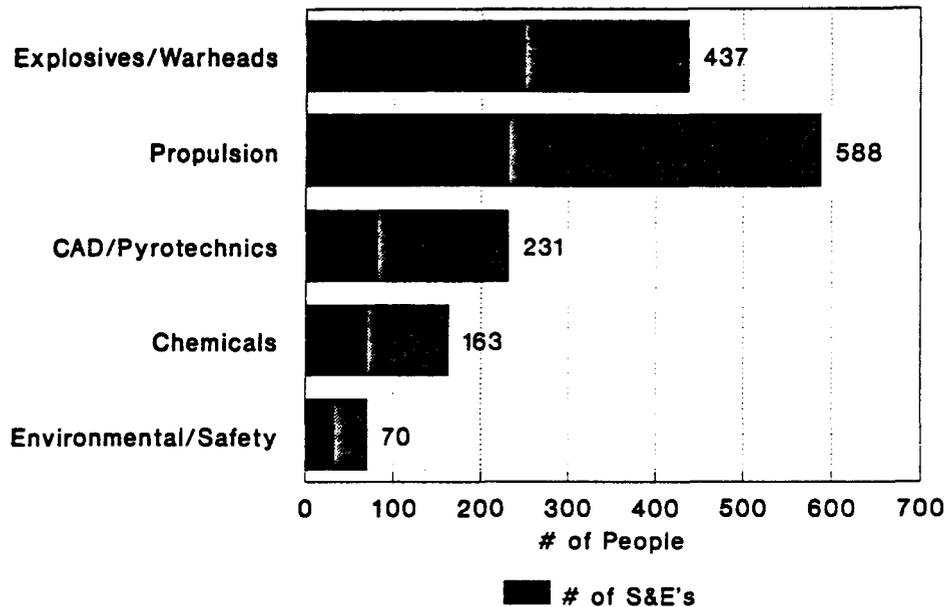
The following table displays *some* of the technologies in which S&E's must specialize to successfully perform full spectrum energetics functions; the table also illustrates the approximate number of IHDIV S&E's dedicated to each technology:

ENERGETICS TECHNOLOGIES	NO. OF S&E'S
Energetic Materials Chemistry	72
Formulation of Propellants, Explosives, Pyrotechnics	64
Detonation Physics	23
Energetic Materials Processing	142
Energetics Testing	36
Environmental Remediation and Pollution Prevention	22
Underwater Warheads Development and Design	96
Explosive Mine Countermeasures	55
Cartridge Actuated/Propellant Actuated Devices, Air-crew Escape Propulsion Systems	83
Rocket/Missile Propulsion Design and Engineering	82
Gun Propulsion Development	8
Total	683

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

The following graph helps put in perspective the total number of people dedicated to energetics at IHDIV.

Principal Energetics Workforce



The diversity of energetic products, technologies, and life cycles supported by IHDIV provides special opportunities for our scientists and engineers. Our S&E's can shift among R&D, engineering, and manufacturing/manufacturing technology organizations and gain:

- a much better understanding and appreciation of the dynamics and interrelationships between all phases of an energetic's life cycle, and
- a broader array of knowledge of energetics products/process technologies.

IHDIV possesses the nation's only underwater warhead design and development expertise, which is critical to maintain the Navy's underwater

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

superiority. We also have the pre-eminent R&D talent in explosives and explosive systems, nitration technology, propulsion systems design, and manufacturing technology for energetics.

One-of-a-kind experts specialize in explosive shock wave physics, explosive effects analysis, primary explosives and initiation train technology, explosive formulation, and design of explosive systems.

IHDIV's exclusive involvement in energetics has gained us recognition as the Navy's expert for Explosives Safety and Ordnance Environmental Support. The Navy's Technical Center for Explosives Safety and Navy's Ordnance Environmental Support Office (OESO) are sited here at IHDIV and provide Navy-wide support. These groups employ recognized experts in explosives safety and ordnance environmental standards, understand and interpret complex state and federal laws and DoD regulations and help translate these into Navy policy and regulations. They also provide DoD-wide technical support to other activities such as explosive site plan evaluation and review, and setting up environmental compliance programs. The OESO manages the Navy's 6.3B environmental research program. The technical knowledge required to staff these functions can only be obtained through years of direct involvement with energetic materials.

Patents, articles, and prototypes used in end-items provide additional insight into the depth and expertise of our energetics technical staff, as addressed by the following data:

48 patents awarded to the in-house technical staff members of this activity since 1 January 1990

55 patents applied for by the in-house technical staff members of this activity since 1 January 1990

323 articles written by the in-house technical staff that were published or accepted for publication in journals since 1 January 1990

180 major end-item prototypes, either product or process technology, were developed in-house and are currently in

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

production and/or are currently in use by the U.S. Armed Forces or by industry.

The processing of inherently dangerous materials requires special manufacturing and chemical processing knowledge. IHDIV has developed 180 different processes and end products for the various services. Additionally, IHDIV is constantly investigating new ways to exceed the chemical and physical limitations of current energetic products. This expertise is brought to bear on 1) providing higher energy propellants and explosives, 2) protecting the environment during processing, and 3) increasing the safety of our products.

Since 1980, six of the seven explosives transitioned from development to service use were done by IHDIV.

NAVY	
<u>Explosive</u>	<u>Weapon</u>
N-109(IH)	MK-80 SER BOMBS
N-110(IH)	SM2 MISSILES MK 50 TORPEDO
N-111(H)	U/S MND
N-7(IH)	IM BOOSTERS
N-9(IH)	APOBS
DXN-1(IH)	IM DETONATORS

An example of IHDIV's full spectrum capability in propellant development is Nitramine Propellants. We took the concept of encapsulating very fine nitramine particles in a binder matrix of plastisized cellulose from small bench top efforts to full scale production and into service use.

Within the past two years, we have signed three CRADAs to continue our working relationship with industry and academia.

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

In examining the experience level of personnel involved with energetics, the table below was extracted from the 1992 study entitled "Mission Purification Solid Propulsion Report", attachment (1). The report compares NSWC/IHDIV and NAWCWPNS/CL on pp. 62-63 of the attachment. The study showed IHDIV to have 2.8 times the total experience of NAWCWPNS/CL in propulsion at that time. We were unable to expand this table to include the other areas where we have significant numbers of highly experienced energetics personnel (explosives, chemicals, and CAD/pyrotechnics) in time provided to respond to this data call amendment.

SOLID PROPULSION ONLY - EXPERIENCE WORKYEARS

NSWC/IHD	Research	Development	Production/ Prod Support	In-service Engineering	Totals
Scientists/Engineers	526	1302	1931	835	4594
Technicians	233	557	1384	909	3083
Skilled Labor		3979			3979

The impact of a shrinking DoD budget, and hiring and promotion freezes will result in an erosion of Navy and DoD's critical energetics technical base. This is particularly true for S&Es. Continued consolidation of explosives, propellants, and pyrotechnics at IHDIV makes good business sense because:

- IHDIV has a critical mass of capable, technically competent, and flexible people that can readily adapt to accept new energetics responsibilities.
- IHDIV's workforce has the strongest technical foundation (people, facilities, and equipment) in DoD to perform consolidated energetics functions.
- IHDIV's expertise and experience in energetics translates into a safer, smoother, and more effective transition from R&D to production to fleet use.

MAJOR FACILITIES AND EQUIPMENT

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

The following major facilities support IHDIV's energetics mission:

- Energetics Materials Research
- Weapons Product Development
- Chemicals Processing Complex
- Nitramine Gun and High Energy Propellant Complex
- Extruded Products Facility
- Composite Propellant/PBX Processing Facility
- Ordnance Device Development and Prototyping Facility
- Ordnance Test & Evaluation Complex
- Chemical/Physical Characterization
- Explosive Magazines

These facilities, except explosive magazines which support all of IHDIV's energetics work, are described later in this section.

IHDIV facilities are product oriented and collectively give an unmatched capability to develop process technologies concurrently with development of products. From Nitrocellulose based Gun propellants in the early 1900's, to double base extruded rocket propellants in the 1940's, to vertical mixed slurry cast composite propellants and Plastic Bonded Explosives (PBX) in the 1960's, IHDIV has been at the leading edge in developing innovative manufacturing technology for energetics. Today we are pioneering technologies such as Continuous Processing of Composite Propellants in a joint U.S./France cooperative R&D project, injection loading of PBX in a CRADA with Alliant Tech Systems, and Supercritical Fluid processing of energetics through the SBIR program. IHDIV's process development work coupled with our unique product development expertise and our ties to industry resulted in the Navy establishing Indian Head as the Energetics Manufacturing Technology Center of Excellence.

As you can see in the Facility and Product Interdependency table which follows and in the following facility write-ups, each of these facilities supports a wide array of energetic products and manufacturing technologies. No other organic DoD activity has the facilities to accommodate this variety within one site. Moving would require environmental impact statements which would involve EPA, State environmental officials, environmental interest groups, public hearings, and comment periods. However, only minor facility modifications would be required at IHDIV to accept the energetics R&D work performed at other sites.

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

FACILITY DESCRIPTIONS

ENERGETIC MATERIALS RESEARCH LABORATORY (\$42M)

The primary purpose of this complex is to support the required research and development of new energetic molecules, chemicals, and energetic formulations for the Navy and DoD. This includes R&D for such items as insensitive minimum smoke propellants (Navy 6.2), insensitive explosives (IHDIV manages and performs the primary R&D for the Navy 6.2 and IMAD 6.3B explosives block programs), high energy gun propellants, extruded composites for rockets, and energetic chemicals such as ADN, CDN, TNAZ, NTO, HAN, HAP, and HNS (Navy 6.1, 6.2, other services). This facility was instrumental in performing the research and development work that led to fleet introduction of most of the modern high explosive formulations in use today by the Navy, such as DXN-1 and PBXN-7, 9, 103, 109, 110, and 111. Other important programs include R&D for new high energy fuels, liquid propellants, and liquid oxidizers for cruise missile, torpedo, and gun propulsion applications. Additionally, this complex supports the Navy's principal R&D program to develop environmental technologies for energetics throughout their life cycle. Examples of current work include; bioremediation of soil contaminated with energetic ingredients, use of waste energetic material as a boiler fuel additive, and use of UV light energy to treat volatile organic compounds (VOCs). Characterization studies performed on energetics are conducted to determine and predict the safe service life of materials in the fleet such as Trident and Harpoon propellants. We are the producer of last resort for small volume specialty chemicals no longer manufactured by industry. Detonation physics research is conducted in explosive test chambers. This provides controlled detonation experiments which support modeling and simulation of explosive effects. This work provides unique equation-of-state and energy release description for military explosives.

The following is just a partial listing of the equipment included in this facility:

- 5 explosive test chambers, with full instrumentation consisting of VISAR Interferrometry equipment, high speed cameras, flash X-ray, and other diagnostics

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

- 2-Stage Gas Gun
- 2.3 MeV X-Ray System
- Particle size analyzer
- UV/IR Spectrophotometers
- Accelerating rate calorimeter
- Gas/Liquid/Ion Chromatographs
- Surface area analyzer
- Tensile tester
- Friction sensitivity tester
- 1 gallon vertical planetary mixer
- Laboratory scale fluid energy mill
- Pulverizer

b. Uniqueness of Facility:

This facility is unique because it supports not only the laboratory scale functions such as synthesis of new materials, formulation of propellants and explosives, and characterization, but also develops the process and manufacturing technology to scale up new materials to address environmental and safety issues and evaluation for weapon system application. This complex represents the only complete chemical synthesis pilot plant facility in DoD for energetic materials.

The following example shows how Indian Head is meeting the needs of the Tri-service community. The only domestic producer of hexanitrostilbene (HNS) used in aircrew escape systems, is no longer in production and is now a superfund site. The small volume of the chemical required and the large amount of waste which it produces during manufacture causes industry to shy away from its production. Because the chemical is critical to a number of Tri-service CAD/PAD items, Indian Head began the search for an alternative. IHDIV was able to locate a foreign source to meet the needs at this time. However, to ensure the availability of HNS, IHDIV has developed a low volume production line to produce small quantities needed in house.

c. Difficulty to Move or Replicate:

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

- Complex includes 5 laboratories, and 50 support structures such as magazines, aging/conditioning ovens, and other buildings.
- Laboratories must be specially constructed and sited for handling energetics.
- Separation of the R&D capability from an active production facility and from design agent/in-service engineering functions reduces the fleet and product focus and synergy.
- Explosive decontamination will be required before moving equipment
- Complex, expensive, sensitive equipment will require special moving precautions to prevent internal damage

WEAPONS PRODUCT DEVELOPMENT (\$135M)

a. Describe Facility and Primary Purpose:

The primary purpose of this complex is the development of energetic materials such as propellants, explosives and pyrotechnics and the process technology to manufacture them. Functions performed in this complex include: qualification of all new Navy explosives including process scale-up and documentation, development and transition to production of high energy nitramine gun propellants, development of a solventless process for manufacture of MTV for rocket and JATO igniters, and continuous processing technology development for composite propellants and explosives. Design, development, and qualification of weapons products such as rocket motors, warheads, mine countermeasure explosive and deployment systems, are some examples of what we do here. Internal and external ballistic, thermal, structural, and thermodynamic analysis on state-of-the-art computer workstations are also done here. The facilities also support the design and development of underwater warheads. Computer software capabilities include analysis of complex fluid motion, non-classical structural deformation, and fluid/structure interaction to assess the performance of various underwater warhead/explosives designs against surface and undersea targets. This capability is unique in DOD. In addition to product design, manufacturing processes and technologies are developed concurrently to assure cost-effective producibility. The process development encompasses a variety of unit operations (mixing, extrusion, casting, curing, machining, etc.) configured for maximum product and process flexibility.

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

This complex includes the following specialty equipment:

- High shear vertical mixers (1 pint to 150 gallon)
- Horizontal sigma blade mixers (1/2 pint to 100 gallon)
- Solvent and solventless extrusion presses (2 inch to 12 inch)
- Cowles dissolver
- Rolling mills for solventless propellants
- 3 mixer/extruders for continuous processing
- Injection loader for high solids explosives
- Composite braiding machine
- Cryogenic grinding/mixing process
- 2 fluid energy mills for nitramine and oxidizer grinding
- Curing ovens and environmental chambers

b. Uniqueness of Facility:

DoD's only capability at a single location for:

- Development and scale-up of any type of propellant, explosive, or pyrotechnic which may be required for weapons application,
- Development of new processes and manufacturing technology for any type of propellant, explosive, or pyrotechnic, and
- Development of the processes to manufacture new propulsion units and warheads.

Hands-on process technology experience which is invaluable to Navy when industry manufacturers have technical problems.

c. Difficulty to Move or Replicate:

- More than 120 buildings. Complex, expensive, sensitive equipment and controls.
- Relocated equipment would require an extensive start-up, checkout and qualification process to ensure that it was functioning in a safe, reliable, and environmentally compliant manner.
- Environmental controls and permit process for a relocated facility would be extensive.

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

CHEMICALS PROCESSING COMPLEX (\$90M)

a. Describe facility and primary purpose:

The primary purposes of the Chemicals Processing Complex (CPC) are to produce and process a variety of energetic chemicals for the DoD for use in solid rocket motors, warheads, mines, torpedoes, and other ordnance items. The four major plants comprising the CPC and their primary purposes are:

- Biazzi Nitration Plant produces OTTO Fuel II and NG used in Torpedoes and Missiles
- Moser Nitration Plant is a multi-product plant for chemicals used in Mines and Warheads
- Pelletized Nitrocellulose (PNC) Plant produces PNC used in underwater warheads/explosives
- High Bulk Nitroguanidine (HBNQ) Plant produces HBNQ used in Missiles

This complex:

- is used for scale-up of energetic chemicals and ingredients.
- provides hands-on experience to support Navy's smart-buyer capability.
- serves as back up when industry cannot or will not produce these chemicals.
- provides Industrial base assistance through extensive experience in chemical synthesis, scale-up, process development, and production of a variety of products. IHDIV has developed processing procedures for use throughout DoD and industry.
- is part of the mobilization base and has surge capacity.

b. Uniqueness of Facility:

- Moser, PNC, and HBNQ are unique facilities. Biazzi is currently the only producer of OTTO Fuel II.
- This is a very versatile/reconfigurable complex that has produced and can produce a wide variety of critical energetic ingredients/chemicals.

c. Difficulty to Move or Replicate:

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

- Buildings are constructed around processing vessels, tanks and other equipment which causes costly relocation
- Because of the large number of closed vessels and piping in this complex the equipment must undergo thorough decontamination for removal/shipping.
- Relocated equipment would require an extensive start-up, checkout and qualification process to ensure that it was functioning in a safe, reliable, and environmentally compliant manner.
- Special construction/costly environmental controls required to accommodate explosive/hazardous nature of products.
- Extensive environmental permitting process required for nitroglycerin and nitrate esters toxic air and water pollutants if relocated to another location.
- Complex, expensive, sensitive equipment and controls.

NITRAMINE GUN & HIGH ENERGY PROPELLANT COMPLEX (\$90M)

a. Describe Facility and Primary purpose:

This facility was originally built to make high energy casting powder for the Polaris and Poseidon missiles, and can still meet this need if required. The primary purpose of the facility, at this time, is to provide development/production life cycle support for high energy casting powders, and high energy/low vulnerability propellants for a wide variety of guns and artillery used by the various services. This complex:

- is a test bed to scale up processes and products to meet the specialized operating needs of gun and missile programs,
- is used to produce qualification lots and complete low rate initial production (LRIP) to prove out product producibility, and qualify products and processes, and
- is a component of the mobilization base and has surge capacity.

The complex includes the following equipment:

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

- 2 - 150 gallon horizontal mixers, specially equipped for high energy propellant
- 2 sets of 12 inch blocking, straining and extrusion presses
- 1000 to 5000 pound blending barrels
- 2 large scale fluid energy mill facilities to grind nitramines

b. Uniqueness of Facility:

- Only source of insensitive high energy gun propellant and the potential source of gun propellant for the Naval Surface Fire Support program.

c. Difficulty to Move or Replicate:

- Buildings are constructed around processing vessels, presses, and other equipment, making them very costly to relocate.
- Extensive explosives decontamination required before equipment could be moved.
- More than 70 buildings, many covered with earthen mounds.
- Special construction required to accommodate explosive nature of products.
- Hazardous nature of processes/products requires expensive process and product requalification.
- High explosives and volatile organic compounds require costly environmental controls.

EXTRUDED PRODUCTS FACILITY (\$85M)

a. Describe Facility and Primary Purpose:

This is the only government owned, government operated (GOGO) plant in the country for the manufacture of extruded propellant grains for solid rocket motors. It's capabilities include:

- Extruding composite and double base propellant grains
- Assembling/reworking rocket motors and rocket motor igniters
- Assembling safe and arm devices
- Gun primer disassembly, inspection, and assembly
- Machining 1.3 propellants from 1" to 13" diameter

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

- Mixing/Processing capability for pyrotechnic materials
- Igniter assembly

This complex includes the following equipment:

- (7) 15 inch horizontal solventless extrusion presses
- 15 inch blocking press
- Milling and Wrapping equipment to machine and inhibit grains
- Real-Time Radiographic Machine

This facility is used to conduct development, production, and rework/regrain programs. These programs include Propellant Actuated Devices/Aircrew Escape Propulsion Systems (PAD/AEPS), JATO (Jet Assisted Take-Off) Rocket Motors for launching targets/UAV's/aircraft, the Tri-service 2.75" rocket and the Navy's 5" Zuni rocket, ASROC, APOBS, and the MK22 Line Throwing Rocket utilized by the Mine Clearing Line Charge (MICLIC) system. This facility has mobilization responsibilities for the MK22 rocket and the 2.75" rocket's propellant grain.

b. Uniqueness of Facility:

One of only two active extruded solventless double-base processing facilities in the U.S., and DoD's only GOGO. Only active facility in the U.S. extruding propellant grains with diameters *larger* than 2.75", such as those in the MK22, ASROC, and the MK117 JATO rocket motors.

When the Radford Army Ammunition Plant's 2.75" rocket line had an explosion which shut down operations, Indian Head responded by producing 2.75" grains at a rate of 30,000 units per month until the Radford Plant could be rebuilt.

c. Difficulty to Move or Replicate:

- 90 buildings, many requiring contingency blast containment measures such as frangible roofs, thick reinforced walls, barriers, and earthen barricades. Because of the hazardous nature of energetic materials the facilities require costly environmental compliance controls, and special safety features such as lightning protection and conductive flooring.

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

- Equipment removal would require dismantling many of the buildings.
- Some critical equipment, such as spiral wrapping machines for inhibiting propellant grains, are no longer manufactured.
- Most of the equipment is large and heavy.
- Some equipment such as real-time x-ray and high frequency ovens require sensitive handling/shipping and recalibration if relocated.
- Extensive environmental permitting process required for Nitroglycerin Toxic Air Pollutants and wastewater if relocated to another state.

COMPOSITE PROPELLANT/PBX PROCESSING FACILITIES - (\$130M)

a. Describe Facility and Primary Purpose:

This complex encompasses state-of-the-art equipment spread over 30 primary processing buildings and numerous support buildings, designed to:

- Mix and cast composite propellants and plastic bonded explosives (PBX)
- Cast and machine double-base propellants
- Assemble rocket motors, warheads, igniters, and explosive land/water mine countermeasure systems
- Maintain the necessary security for classified warheads.

Some of the equipment includes:

- 300 and 420 gallon vertical mixers
- Several casting bells to permit loading a variety of motors and warheads with minimal tooling changes
- Fine grinding facilities for oxidizers
- Lining facilities for warheads and motors
- Vented Suppressive Shield (100 pounds of TNT capability)
- Solid Feed System to supply mixers
- Abrasive Blasting System to handle Rocket Motors up to 18 inches in diameter and 12 feet in length.
- Radiographic Inspection System

Although the facilities support manufacturing programs, they are also used to perform process scale-up and low rate initial production (LRIP) for

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

developing/validating the technical data packages for rocket motor, warhead, and explosive MCM manufacture.

Programs supported by this facility include Aircrew Escape Propulsion Systems (AEPS), JATO (Jet Assisted Take-Off) Rocket Motors for launching targets/UAV's/aircraft, DEMNS, APOBS, Shallow Water Mine Countermeasures, Visual Cues, and the Navy's Standard Missile and underwater weapons warheads programs. This facility is the only qualified source for Standard Missile warheads and Navy underwater warheads, SR121 JATO, VANDAL Target, Smokey Sam/Sagger, and is part of the mobilization base for JATO propulsion systems under the single manager for conventional ammunition (SMCA).

b. Uniqueness of Facility:

This is the Navy's only composite propellant/PBX facility with *production* capability. An important consideration for energetic processing is to be able to produce the products as they will be produced once they go to industry in order to reduce cost and risk in the private sector. This capability permits IHDIV to continue to be the Navy's premier technical resource for resolving composite propellant/explosive production problems at DoD contractors' plants. This has been demonstrated over the years with numerous calls from Program Managers to assist contractors in resolving rocket motor problems. Examples include assisting Thiokol with Standard Missile, UTC/CSD with Tomahawk, and Hercules with Sidewinder.

The production capability allows IHDIV to act as an emergency back up source for any type of missile or warhead, e.g. Sidewinder, Tomahawk.

Crane Army Ammunition Activity (CAAA) was selected as the producer for the Navy low rate initial production (LRIP) of the PBXN-106 loaded MK 64 projectile which was released to production in 1991. Indian Head played a large role in transitioning this item to the production environment based on experience gained in qualifying the item for release to the fleet. Indian Head provided assistance to CAAA in establishing the facility needed to load and assemble 5"/54 projectiles. Indian Head provided extensive assistance in resolving difficulties encountered in startup of production.

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

The Navy recently needed additional rocket motors for the Vandal target program. The contractor proposed using a new propellant in Talos rocket motors. Indian Head's expertise saved the Navy substantial amounts of time and money by deciding to retrain the Talos rocket motors with the original propellant. This saved qualification and development costs and eliminated the technical risk of using a different propellant.

Indian Head is also providing the expertise to assist in a Production Readiness Review for Standard Missile SM-2 Block-IV.

c. **Difficulty to Move or Replicate:**

- More than 30 principal processing buildings requiring contingency blast containment measures such as thickened walls, barriers, and earthen barricades. Because of the hazardous nature of energetic materials, the facilities require costly environmental compliance controls and special safety features such as lightning protection and conductive flooring.
- Equipment removal would require dismantling many of the buildings.
- Critical equipment is large and heavy.
- Complex, expensive, sensitive equipment and controls.
- Relocated equipment requires extensive start-up, checkout, and qualification process to ensure it functions in a safe, reliable, and environmentally compliant manner.
- Costly product requalification at new site.
- Extensive environmental permitting process required if relocated to another state.

ORDNANCE DEVICE DEVELOPMENT and PROTOTYPING (\$18M)

a. **Describe Facility and Primary Purpose:**

IHDIV holds the tri-service charter for support of Cartridge Actuated Devices/Propellant Actuated Devices (CAD/PAD). These devices perform vital functions such as stores ejection, flare and chaff deployment, sequencing, and propulsion functions in aircrew escape and weapons. The charter includes the entire life cycle, R&D through fleet support. This complex houses the research, development, design, engineering, and prototype activities to enable the development and transition to service use

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

of emerging technologies. One example is the advanced laser initiation system. The complex also houses the expertise to establish and validate safety and technical requirements through development of design and product specifications. Indian Head has the capability to manufacture, load, assemble, disassemble, and rework cartridges, ballistic power systems, CADs, PADs, and AEPS for all services and FMS customers. Additionally, this capability provides the expertise to:

- qualify industry as producers of man-rated items,
- provide solutions to industry manufacturing problems,
- ensure smooth transition from development to production,
- develop methods to increase environmental compliance, safety, productivity, and quality,
- act as manufacturer of last resort,
- provide rapid response to in-service/fleet problems, and
- support R&D efforts in a timely, cost-effective manner.

The complex includes the following specialized equipment:

- Laboratories for advanced development of CAD/PAD laser initiation systems,
- CAD/PAD manufacturing facilities for highly sensitive materials
- Iowa Loader for manufacturing Primers used in Aircrew Escape Systems.
- Modeling and analysis equipment
- PAD Reclamation Equipment
- CAD Automated Thread Chaser
- Laser Welder

b. Uniqueness of Facility:

- Only in-house DoD capability to manufacture, load, assemble, disassemble, and rework Ordnance Devices.
- Acquisition management role coupled with a full spectrum capability permits IHDIV to be a "smart buyer" of man-rated Ordnance Devices for DoD.
- Manufacturing capability for small volume, unique devices that are no longer in U.S. service, but are needed to support Foreign Allies.

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

c. Difficulty to Move or Replace:

- Multiple buildings, with special construction for handling of sensitive, energetic materials.
- Environmental permitting and pollution control equipment costly and time consuming.
- Costly products/process requalification at new site due to numerous man-rated items.
- Separation of acquisition, logistics, and in-service functions from the product development and manufacturing functions will result in reduced quality of service to the customers.

ORDNANCE TEST AND EVALUATION COMPLEX (\$45M)

a. Describe Facility and Primary Purpose.

This complex is made up of five major components:

- Rocket motor ballistic test facility
- Tomahawk functional ground test facility
- Cartridge Actuated Device (CAD) test facility
- Environmental test facility
- Non-destructive test facility

This complex provides comprehensive capability to environmentally condition and test propulsion systems and aircraft/weapon system energetic components. Includes tri-service cartridge and aircrew escape components. The combination of these facilities provides IHDIV the total capability to support research, development, scale-up, production, quality evaluation, and malfunction investigation programs for ordnance items. Performs contractor lot acceptance and surveillance testing. In addition to testing contractor's end items, this complex is also used for test technology development. A recent example is the Tomahawk Missile-in-the-Loop (TMIL) static test which was developed by Indian Head to combine closed-loop guidance testing with a propulsion test. This new test has reduced the cost by 30%, or \$1.2 million, in three years. **The IHDIV Functional Ground Test (FGT) Team was the recipient in April 1994 of a TQL**

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

Flag Award presented by the Cruise Missiles Program Executive Officer.

This complex includes the following specialized equipment:

- Rocket/Missile Motor, Propellant, Gun, CAD/PAD Test Bays
- Large conditioning chambers (one for Cook-off Testing)
- Specialized Indian Head-designed rocket test stand built specifically for g-force determination
- Specialized rocket catapult (ROCAT) (two component) test stand
- Multi-component test stand (6-degrees of freedom)
- Under Seat Rocket Motor test stand
- Simulated Altitude and Underwater Functional Test Chambers

b. Uniqueness of Facility:

- Unique Tomahawk Functional Ground Test (FGT) capability and only government owned multi-component test stand for the Tomahawk Booster. Tri-service cartridge and aircrew escape components expertise.
- The complex contains a number of firing bays used for rocket motors from 2.75" to 3 feet in diameter and up to 10 feet in length and 500,000 lbs of thrust. Because testing is integrated with the scale up and production capabilities at Indian Head, the utilization of the test facilities is typically greater than a stand alone test facility.

c. Difficulty to Move or Replicate:

- More than 35 buildings make up this complex.
- Special construction required to accommodate explosive nature of products.
- Environmental controls and permit process for a relocated facility would be extensive.
- Extensive equipment installation, calibration, and check-out at new site.

CHEMICAL/PHYSICAL CHARACTERIZATION (\$28M)

a. Describe Facility and Primary Purpose:

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

This complex serves the entire site by providing specialized tests. Testing and analysis of energetic materials is required to determine their identity, chemical and physical properties. The properties being analyzed include composition, stability, density, particle size, mechanical properties, and burning rate. Our chemists also use these facilities to analyze air and water samples as part of IHDIV's aggressive environmental compliance program. The facilities, which include a recently inaugurated 22,000 sq.ft. chemical laboratory complex, include modern analytical equipment, comprehensive explosive and propellant machining capability, and sophisticated test sets to support IHDIV's life-cycle responsibilities for energetics.

Gun propellant surveillance studies are conducted in this facility to determine the safe storage and shelf life of the propellant; propellant samples from every lot of Navy gun propellant manufactured in the last 50 years are monitored in this facility. Identification and characterization of samples of unknown energetic materials, such as those downloaded from foreign ordnance by EOD technicians, is also performed in this facility in support of foreign material exploitation programs.

The following list represents some of the capabilities/equipment in this facility:

- Gas/Liquid/Ion Chromatography
- Fourier Transform Infrared Spectrometry
- Gas and liquid chromatographs linked to mass spectrometer
- Plasma Spectrography
- Supercritical Fluid Extraction and Chromatography
- Scanning Electron Microscopy with energy dispersive X-ray
- Nuclear Magnetic Resonance Spectrometry
- Capillary Electrophoresis
- Acoustic emission strand burning
- High pressure closed-bomb testing
- Ballistic evaluation rocket motors
- State-of-the-art high rate propellant tension/compression tester
- Explosives and Propellant Boring Mill
- Rapid response mobile laboratory for field testing of propellants (deployed during Desert Storm)

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

b. Uniqueness of Facility:

This facility provides a comprehensive chemical and physical analysis/characterization capability for energetics that is as complete or superior to that of any other DoD energetic facility. It supports all types of energetic materials.

c. Difficulty to Move or Replicate:

- Complex includes 17 primary buildings plus support facilities
- Buildings must be specially constructed and sited for handling energetics
- Environmental controls are required and an environmental permit process could be extensive if relocated to another state.
- Sensitive equipment that requires calibration and check-out at new site.

IN SUMMARY

IHDIV has invested hundreds of millions of dollars to build a modern, full spectrum, and environmentally viable capability for energetics at one site. Recent investments in environmental compliance alone exceed \$46 million. This is a capability that will always be needed by DoD. Due to declining ordnance procurement budgets, lack of commercial markets, and rising environmental and liability costs, these capabilities are rapidly shrinking in the private sector. IHDIV's life-cycle support capability for any type of energetic, and its high concentration of energetics facilities and expertise, make it the Navy/DoD's most effective alternative to preserve an organic critical mass for energetics.

4. *Map of the installation to include elements listed in 2 and 3:*

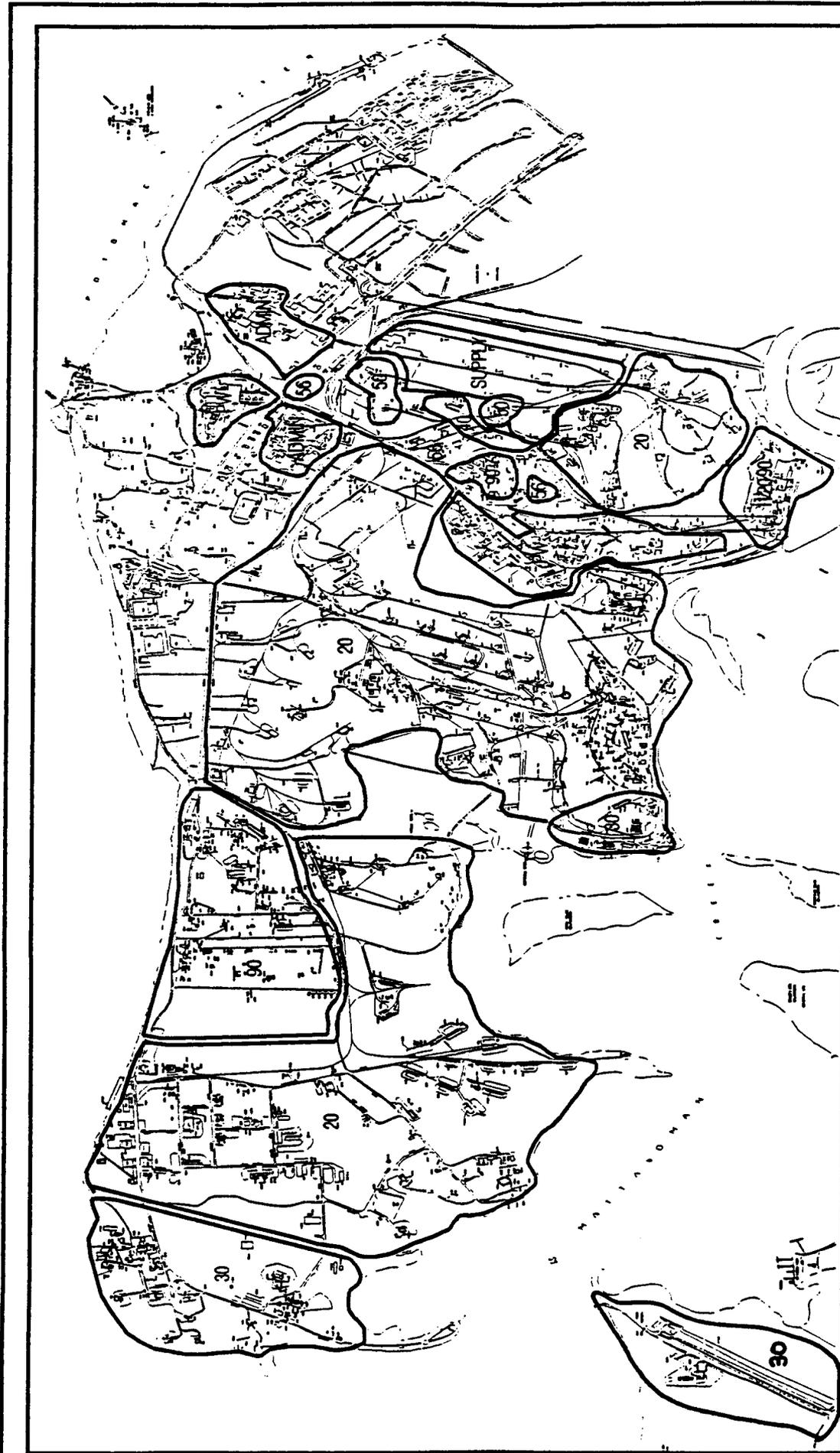
- a. Annotate buildings to show location of each organizational element.*

Reduced map (8.5 x 11) on next page for Indian Head Site Organizational Usage.

See attachment (2): Detailed MAP - Indian Head ORGANIZATIONAL USAGE.

See attachment (3): Detailed MAP - Yorktown, VA Site ORGANIZATIONAL USAGE AND MAJOR ENERGETICS FACILITIES.

DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS



ENERGETICS CROSS SERVICE ANALYSIS
DATA REQUIREMENTS
ORGANIZATIONAL USAGE AREAS MAP

INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND
UNITED STATES NAVY

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

b. Show buildings with equipment/facilities which would be difficult to move or replicate. List such equipment with initial cost. Provide an estimate of the replacement cost of the facilities.

- Energetics Materials Research (\$42M)
- Weapons Product Development (\$135M)
- Chemicals Processing Complex (\$90M)
- Nitramine Gun and High Energy Propellant Complex (\$90M)
- Extruded Products Facility (\$85M)
- Composite Propellant/PBX Processing Facility (\$130M)
- Ordnance Device Development and Prototyping Facility (\$18M)
- Ordnance Test & Evaluation Complex (\$45M)
- Chemical/Physical Characterization (\$28M)

All the above facilities would be difficult to move/replicate. Separation of the R&D capability from active production facilities and from design agent/in-service engineering functions reduces the fleet and product focus and synergy. The equipment is complex, expensive and sensitive and will require special precautions upon removal/installation and also would require extensive decontamination before it could be moved. Relocation of any of these facilities would require an extensive start-up, checkout, and qualification process to ensure that it functions in a safe, reliable, and environmentally compliant manner. There are extensive safety and environmental controls and regulations as well as Federal and State environmental permitting processes which must be complied with for energetics facilities.

Refer to response to question #3 for specific facility information. Note that initial equipment costs by facility are not available within the timeframe allowed for this datacall.

Reduced map (8.5 x 11) on following page for Indian Head Site Major Energetics Facilities.

See attachment (4): Detailed MAP - MAJOR ENERGETICS FACILITIES

See attachment (3): Detailed MAP - Yorktown, VA Site ORGANIZATIONAL USAGE AND MAJOR ENERGETICS FACILITIES.

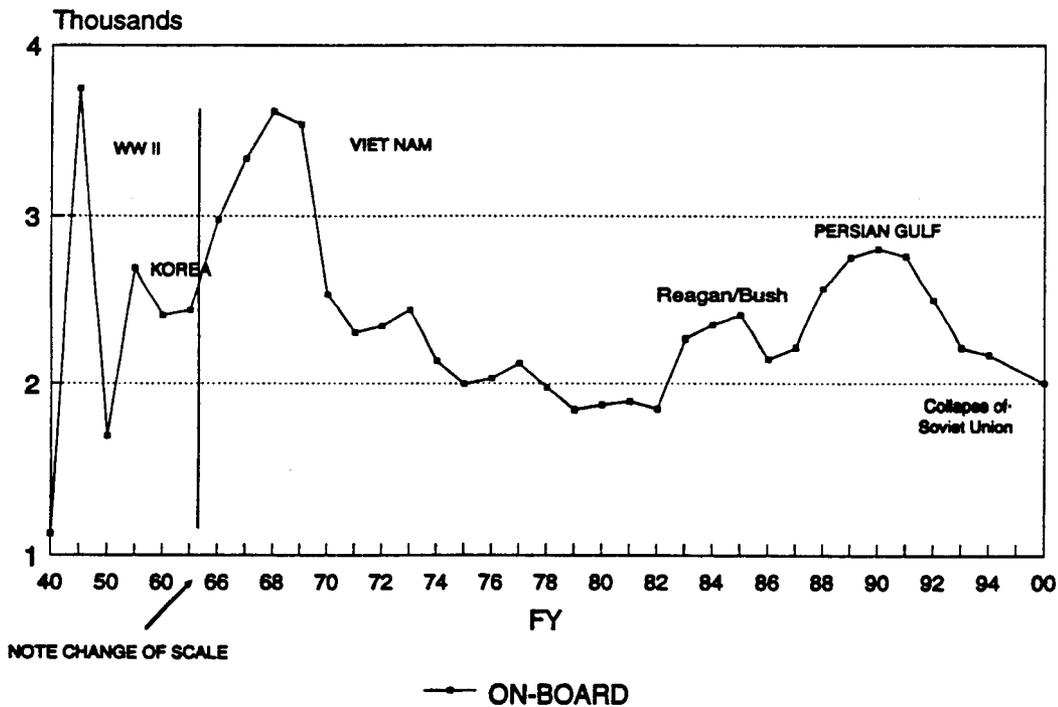
**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

5. Estimate the capacity of the activity and installation (separately) to absorb similar workyears with little or no modification of facilities. Estimate the capacity of the activity and installation (separately) to absorb similar workyears with major modifications and describe the nature of those modifications and estimated cost. Use FY97 as the baseline for such estimates.

Based on maximum staffing levels since FY86 compared to the projected workyears in FY97, IHDIV could absorb over 900 workyears of additional work without major modifications to facilities. In FY97 the Explosive Ordnance Disposal School is scheduled to move to Eglin AFB and will make available space suitable for non-hazardous operations amounting to 200 additional workyears.

The following graph depicts our ability to expand our workforce during times of mobilization/surge and national emergencies.

IHDIV STAFFING HISTORY



17 October 1994

PAGE NO. 45

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

6. *Describe the impact of BRAC 91 and BRAC 93 decisions on the activity and installation.*

BRAC-91: Indian Head became a Division of the newly formed Naval Surface Warfare Center. Indian Head's name changed from Naval Ordnance Station to Indian Head Division, NSWC. There were no functional transfers directed by BRAC-91 that affected Indian Head. Indian Head eliminated 30 indirect positions as directed by BRAC-91.

BRAC-93: BRAC-93 disestablished the Dahlgren Division, White Oak Detachment. This decision consolidated at the Indian Head Division all NSWC life cycle responsibilities for Explosives, Underwater Explosives, and Underwater Warheads. We administratively realigned (in-place) the NSWC Dahlgren Division, White Oak Detachment personnel in the Explosives Research and Underwater Warheads groups to the Indian Head Division on 3 April 1994. A number of people will physically move to IHDIV in November 1994, the remaining will move by FY97.

The Naval Sea Automated Data Systems Activity (SEAADSA) is a current tenant of the Indian Head Division, NSWC. BRAC-93 disestablished SEAADSA and realigned them to IHDIV, NSWC by FY97.

7. *Describe military department approved and programmed plans which will impact or have impacted the activity and installation.*

The Naval Surface Warfare Center has a long term energetics plan. The main objective of the plan is to maintain and strengthen the core capabilities resident within the Naval Surface Warfare Center while continuing to downsize. This effort includes a continual review of total energetics capacity to determine if excess exists and to identify further consolidation and purification issues and opportunities. A specific thrust concentrates on continuing to consolidate energetics and full spectrum life cycle capabilities at Indian Head to maximize use of our high investment facilities and equipment and to maintain a critical mass of technical expertise. Indian Head is seen as the primary technical capability for energetics. The Warfare Center also teams with other activities, private industry, and academia to tap into their specialized capabilities which further enhances the Navy's energetic capabilities.

17 October 1994

PAGE NO. 46

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

The following timeline describes specific events that have taken place or are planned to happen which further impact the consolidation of Navy energetics:

- 1988 - Navy assigned the Naval Explosives Development Engineering Group at the Naval Weapons Station Yorktown to Indian Head. As of 1994, the explosives development engineering capability remains physically located at Yorktown; the group is an Indian Head detachment. The plan is to physically relocate the detachment at the most economically feasible time.

- 1992 - Navy studied Solid Propulsion Mission Purification at China Lake and Indian Head. The study was to identify areas of overlap in solid propulsion work between China Lake and Indian Head. The study reviewed FY92 solid propulsion work, facilities/real estate/equipment, and personnel experience. No unwarranted duplication of effort was found. The table below summarizes the solid propulsion workload assigned to NSWC/IHDIV for FY92. Note that the Study did not address explosives, CAD/pyrotechnics, or specialty chemicals/ingredients work since China Lake had very limited involvement in those areas of energetics.

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

Solid Propulsion Current Workload (FY92) by Application in Workyears					
	Research	Development	Production/ Product Support	ISE	Totals
NSWC/IHD					
Missiles	0.9	10.7	85.8	79.2	176.5
Rockets	1.0	24.8	196.2	24.4	246.5
AEPS	0.5	20.5	95.9	28.8	145.8
Targets		11.6	75.6	7.8	95.0
Guns	2.2	14.2	121.7	17.9	156.1
Undirected	4.7	16.6	6.0	7.1	34.4
Total	9.3	98.5	581.3	165.1	854.2

See Attachment (1) - NAWCWPSN TM 7373, McDowell, Thomas N. "Mission Purification Solid Propulsion Report." Naval Air Warfare Center Weapons Division, China Lake, 1992.

- 1993 - Navy transferred all explosive loading from Naval Weapons Station Yorktown to Indian Head

- 1993 - BRAC transferred explosive research and development, and underwater warhead development from White Oak to Indian Head (See attachment (5) White Paper: "Consolidation of Explosives S&T in DoD", Dr. Kurt Mueller and Les Roslund, October 1993.)

- 1993 - Navy established the Naval Ordnance Center (NAVORDCEN) to consolidate ordnance support functions of the Naval Sea, Air, and Supply Systems Commands. NAVORDCEN Headquarters is located at Indian Head.

- 1994 - Naval Air Systems Command assigned Lead Commodity Engineer functions (development, qualification, in-service

17 October 1994

PAGE NO. 48

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

engineering, reprocurement efforts) to Indian Head for Cartridges, CADs, AEPS, JATOs/RATO Rocket motors, 5" Aircraft Rocket System, and Visual Cues.

- 1997 - NAVSCOLEOD moves from Indian Head to Eglin AFB, Florida, leaving approximately 50 buildings with over 213,000 gross square feet available for further consolidation of energetics functions at Indian Head.

8. Remaining tenants and other activities on the installation: name of organization, total workyears, and mission.

Naval Explosive Ordnance Disposal Technology Division (EODTD), 290 workyears, **Mission** -Provide explosive ordnance disposal technology and logistics management for the Joint Services; and develop war-essential elements of intelligence, equipment, and procedures to counter munitions, both U.S. and foreign, as required, to support Department of Defense components and the peacetime security needs of other agencies; as assigned by Commander, Naval Sea Systems Command.

Naval Ordnance Center, 109 workyears, **Mission** - The Ordnance Support Agent for Fleet CINCs, CNO, CMC, and Ordnance PMs. Coordinates Fleet requirements and issues. Administer and provide waterfront support operations. Manage ordnance "I" and "D" level maintenance and related support. Manage/integrate ordnance management information systems. Manage worldwide shorebased ordnance inventory. Manage the NAVORDCEN infrastructure.

Navy Explosive Ordnance Disposal School (EODS), 568 workyears (numbers include staff and students), **Mission** - Train U.S. Joint Service and International officer and enlisted personnel in the best methods and procedures for the detection, identification, render safe, recovery, evaluation, and disposal of explosive ordnance employed by the United States and other nations.

Defense Finance and Accounting Service (DFAS), 12 workyears, **Mission** - Provide effective and efficient finance and accounting services during times of peace and conflict.

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

Branch Medical Clinic, 39 workyears, Mission - Provide outpatient health care for military, military dependents and retirees, and comprehensive occupational health services for civilian employees. Provide preventive medicine and industrial hygiene support. Ensure active duty personnel readiness via maintenance programs, physical exams, immunizations and screening exams. Provide occupational health surveillance and certification for civil service personnel.

Branch Dental Clinic, 4 workyears, Mission - Provide a state of optimum oral health and ensure dental readiness of assigned active duty Navy and Marine Corps personnel, to enable them to accomplish their missions.

Customer Service Desk (PSD), 3 workyears, Mission - To maintain the pay and personnel records, provide pay and personnel service to officer and enlisted naval personnel and passenger transportation service to all Navy-sponsored travelers as assigned; provide commands and activities with pay, personnel and passenger transportation management information and other related support; and to perform such other functions and tasks as directed.

Defense Printing Service, 4 workyears, Mission - Responsible for the Department of Defense publishing and printing program, encompassing value-added conversion, storage, output and distribution of hard copy and digital information products and services. Value to the customer includes quality products and services, which are competitively priced, and delivered on time.

Resident Officer in Charge of Construction (ROICC), 20 workyears, Mission - The administration and management of Military and other construction contracts at the Indian Head Division, Naval Surface Warfare Center, and its tenant activities to: a) meet the customer's operational requirements, b) obtain quality facilities, c) be timely, and d) obtain the lowest reasonable cost.

NAVSEA Automated Data Systems Activity (SEAADSA), 162 workyears, Mission - To provide automated data processing central management information and data systems design, development, program maintenance support, coordination, and control of operating systems and Standard Applications Software for the Standard Shipyard Management Information System, the Naval Ordnance Management Information System, and other field and headquarters related systems; to serve as the NAVSEA Center for Automation Technology; to perform assigned management Reviews of Proposed ADP Systems, equipment, services,

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

ADP applications software, and to perform such other functions or tasks as may be directed by higher authority.

9. *Summarize your overall mission.*

Our mission statement of record is:

"Provide primary technical capability in Energetics for all Warfare Centers through engineering, fleet and operational support, manufacturing technology, limited production, industrial base support, and secondary technical capability through research, development, test and evaluation for energetic materials, ordnance devices and components, and related ordnance engineering standards to include chemicals, propellants and their propulsion systems, explosives, pyrotechnics, warheads, and simulators. Provide support including special weapons support, explosive safety and ordnance environmental support to all Warfare Centers, military departments and the ordnance industry. Execute other responsibilities as assigned by Commander, Naval Surface Warfare Center."¹

Our mission is to work on Energetic products for all areas of Naval Warfare, not just Surface Warfare, and a significant portion of our work is performed for the joint services and private defense contractors as well. Another facet of our mission is to develop production processes for explosives and propellants and to transfer these processes to the private sector. In time of war we have the technical expertise to kick-start mothballed facilities, both public and private.

This uniquely military and inherently dangerous business requires specialized expertise and very expensive facilities -- \$1.5B in Indian Head's case. IHDIV uses these facilities to provide a full spectrum Energetics capability. By "full spectrum" we mean not just a full array of Energetic products but the RDT&E, production, and sustaining engineering provided by a single set of tightly integrated experts and facilities. For example, even though many of the Navy's missile propulsion systems were developed by private contractors, it is still IHDIV which is called

¹ OPNAVNOTE 5450 dtd 23 Dec 91, Establishment of Naval Surface and Undersea Warfare Centers, Modification of Title and Disestablishment of Shore Activities and Detachments.

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

upon by program managers to resolve production or fleet use problems with the energetic materials component of the weapon systems.

While we perform a significant portion of work for the Army, Air Force and private defense contractors, we primarily work Navy unique energetics, i.e. energetics unique to surface combatants, and submarines, and Naval aircraft.

As the overall defense budget decreases and the weapons portion bears the greatest proportional decrease, Indian Head Division's importance to the DoD is greater than ever. Procurement plans for Energetics products are way down, the cost of environmental compliance is skyrocketing and large, expensive commercial facilities for weapons are becoming idle. Private companies will get out of the business, and DoD needs IHDIV's in-house resources to fill the gaps and sustain Energetics processing capability and know-how. The Navy has been planning for this and has already taken some actions to consolidate Energetics work at Indian Head.

NAVSEA's imperatives for the future ensure there are sufficient plants for explosives or similar hazardous materials. As long as we have a military, someone has to provide energetics technology and facilities to produce ordnance that performs. This is a military core capability with a liability that must be assumed by the government. NSWC Indian Head's full spectrum capability provides this in practice.

IHDIV currently represents the only organic capability to provide life cycle support for most energetics. In-house capability is critical to:

- Provide critical mass of Energetics expertise to develop, manufacture, and support energetic materials and systems for the Navy and DoD.
- Fill the void left by private sources no longer able to produce energetics due to technical, environmental, safety or liability issues or in the absence of a profit margin (see the following DuPont letter).



DuPont Specialty Chemicals

November 9, 1993

Mr. Sam Waggener
Naval Surface Warfare Center
Warhead Section Code G-22
Dahlgren, VA 22448

Dear Mr. Waggener:

We regret to inform you that DuPont will Discontinue the manufacture of explosive products in the U.S. on January 31, 1994. DuPont sold its commercial explosives business in 1933. The volume of explosives Specialties, including detonators, squibs and "Detasheet" flexible explosives has declined in recent years, and it is no longer a strategic component of the DuPont business portfolio. Explosives operations at our Falling Waters, WV and Pompton Lakes, NJ

The volume of explosives Specialties, including detonators, squibs and "Detasheet" flexible explosives has declined in recent years, and it is no longer a strategic component of the DuPont business portfolio.

January 31, 1994.

We thank you for your past patronage. If you wish to place a final order, please call Bob Russo at (800) 962-9919. If we can help answer other questions, please call me at (302) 774-8376.

Sincerely,

T. J. Enright
Business Manager

**NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS**

- Provide energetic/specialty chemicals which are not available from any other source, domestic or foreign, e.g. man-rated percussion primers for Aircrew Escape Systems, high energy gun propellant used in 105 mm tank rounds, ingredients for underwater explosives, torpedo fuel, one of two plants in the U.S. for extruded rocket motors.
- Develop advanced explosive formulations and processes for Navy and DoD.
- Advance state-of-the-art for energetic manufacturing processes and products.
- Assure transition of products effectively from laboratory scale to full production and into service use.
- Provide a foundation of technical expertise to sustain the industrial base and assist commercial sources in trouble-shooting and qualifying their processes and products.
- Assure that energetic materials from private industry satisfy government requirements.
- Analyze and recommend make/buy decisions to assure a viable cost effective defense industrial base. Serve as a "smart buyer" and when necessary as a second source.
- Provide a flexible and comprehensive technical base to respond to mobilization or surge requirements and to expedite development and introduction of new or improved products that address unforeseen threats during military emergencies such as Operations Desert Shield and Storm.

This combination of uniquely military assets makes IHDIIV the dominant force for meeting the DoD's energetic needs in the years to come.

Discussions between NAWCWPNS and NSWC Dahlgren Division have been held to address mission purification issues concerning the "warheads" and the "missiles and missile subsystems" leadership areas. These discussions used the above referenced documents as direction and as a basis for agreement and work transfer. As a result of these discussions, a draft Memorandum of Agreement and a draft Implementation Plan were written. Finalization of the agreement was, however, postponed due to issues with the Indian Head Division of NSWC. All weapon and weapon subsystems agreements between NSWC and NAWC should have a common basis to ensure a consistent approach to the support of Navy weapons and to avoid "unwarranted duplication of effort" as directed in the SECNAV Memorandum.

Initial discussions between NAWCWPNS/CL and NSWC/IHD were held on 15 and 16 January 1992 with the objective to reach a mutual agreement regarding the best way to implement the direction contained in the SECNAV Memorandum and the NAVSEA, NAVAIR, and ASN(RD&A) Agreement. Specifically, the intent was to use these discussions to start the process of preparing a transition plan similar to the draft document developed with NSWC Dahlgren Division. Indian Head Division management, however, took the position that their charter was unchanged (or perhaps expanded) and referenced the Chief of Naval Operations (OPNAV) Note 5450 dated 23 December 1991 to substantiate their position. OPNAV Note 5450 stated, in part, that the Indian Head Division was to provide a secondary technical capability for all Warfare Centers in several areas including *propellants and their propulsion systems*.

Additional discussions were held in early March 1992. NAWCWPNS/CL proposed a task to define the scope of work conducted in mission overlap areas, to agree on overlap areas for further study, and to agree on a transition plan in accordance with the SECNAV direction. Although total agreement was not reached, it was agreed that a team be formed to evaluate the solid rocket propulsion issue. Appendix A documents the charter, composition, and plan of action of the task team.

This report provides the results of the efforts to define the mission overlap areas.

DISCUSSION

APPROACH/METHOD

The solid propulsion study encompassed all solid propulsion, including missiles, unguided rockets, aircrew escape systems, targets, and guns at both activities. Data gathered included personnel experience, an assessment of facilities (real estate) and equipment involved in support of the solid propulsion work, and the current workload in solid propulsion.

Personnel experience data were used as a rough measure of comparison between the two activities, and showed workyears of experience in the solid propulsion (or a generic discipline when applicable) broken out by scientists and engineers, technicians, and skilled workers. The data were gathered by listing assigned personnel by name and recording the number of years they had been working in the appropriate discipline.

RESULTS AND DISCUSSION

The data gathered were aggregated to the Center level and displayed in tabular or graphic format. Although many different "cuts" were taken during the analysis effort, only those selected for discussion at the 23 June 1992 video teleconference are included in this report. As stated in the "Introduction," data reported herein for NSWC/IHD is incorporated by reference only, and substantiating detail is maintained in that activity's files. For NAWCWPNS/CL, the source data used to prepare the Center-level aggregation is shown in Appendix B. The order of discussion is generally in the order presented during the video teleconference. A copy of the viewgraphs used for the teleconference is included as Appendix C. Some minor changes were made to the format, but not content, of tables or graphs in this section for discussion purposes.

Personnel Experience Level

The experience level of personnel assigned to or involved with solid propulsion is summarized in Tables 1 and 2 for NAWCWPNS/CL and NSWC/IHD, respectively.

TABLE 1. Personnel Experience Level in Workyears at NAWCWPNS/CL

NAWCWPNS/CL	Research	Development	Production/ Prod. Support	In-Service Engineering	Totals
Scientists/Engineers	1095	1320	283	284	2982
Technicians	304	398	163	201	1066
Skilled Labor		184			184

TABLE 2. Personnel Experience Level in Workyears at NSWC/IHD.

NSWC/IHD	Research	Development	Production/ Prod. Support	In-Service Engineering	Totals
Scientists/Engineers	525	1302	1931	835	4594
Technicians	233	557	1384	909	3083
Skilled Labor		3979			3979

Inspection of Tables 1 and 2 shows that both activities have substantial experience in the solid propulsion area. Viewed from a combined activity perspective, almost 16,000 workyears of experience exist in solid propulsion alone between the two activities. NSWC/IHD has about 2.75 times the total experience of NAWCWPNS/CL, including a significant amount of skilled labor experience. NAWCWPNS/CL experience is concentrated proportionally in the research and development areas, while NSWC/IHD experience is concentrated in the production and ISE areas. NAWCWPNS/CL has a relatively larger proportion of scientists/engineers (when each activity's total experience base is compared), while NSWC/IHD has proportionally more in the technician and skilled labor categories. The personnel expertise summarized in Tables 1 and 2 represents a substantial asset to the Navy and would be difficult or impossible to replace.

Current Workload Evaluation by Phase

Current workload (FY92) was analyzed in considerable detail, and from several different perspectives, in order to detect any areas of unwarranted duplication of work between the two activities.

Note that, in the following discussions, an assessment of the current workload comparability to historical workload was not within the scope of the analysis. Additionally, an extrapolation of current workload data to future workload is extremely tenuous, considering the realities of today's Department of Defense budget. Accordingly, data to follow must be viewed as a "snapshot" in time, not necessarily a stable or long-term characterization.

Table 5 summarizes the workload currently assigned to each activity, spread by project phase (i.e., research, development, production/production support, and in-service engineering). The total workload assigned to NAWCWPNS/CL for FY92 is 239.71 workyears, and that assigned to NSWC/IHD is 854.2.

**TABLE 5. Solid Propulsion Current Workload (FY92)
by Application in Workyears.**

	Research	Development	Production/ Product Support	ISE	Totals
NAWCWPNS/CL					
Missiles	74.43	58.13	19.50	35.33	187.39
Rockets	15.28	0.80	1.76		17.84
AEPS		2.06			2.06
Targets		4.76			4.76
Guns	1.55	0.31			1.86
Undirected	25.80				25.80
Total	117.06	66.06	21.26	35.33	239.71
NSWC/IHD					
Missiles	0.9	10.7	85.8	79.2	176.5
Rockets	1.0	24.8	196.2	24.4	246.5
AEPS	0.5	20.5	95.9	28.8	145.8
Targets		11.6	75.6	7.8	95.0
Guns	2.2	14.2	121.7	17.9	156.1
Undirected	4.7	16.6	6.0	7.1	34.4
Total	9.3	98.5	581.3	165.1	854.2
Phase Totals	123.36	164.56	602.56	200.43	1093.91

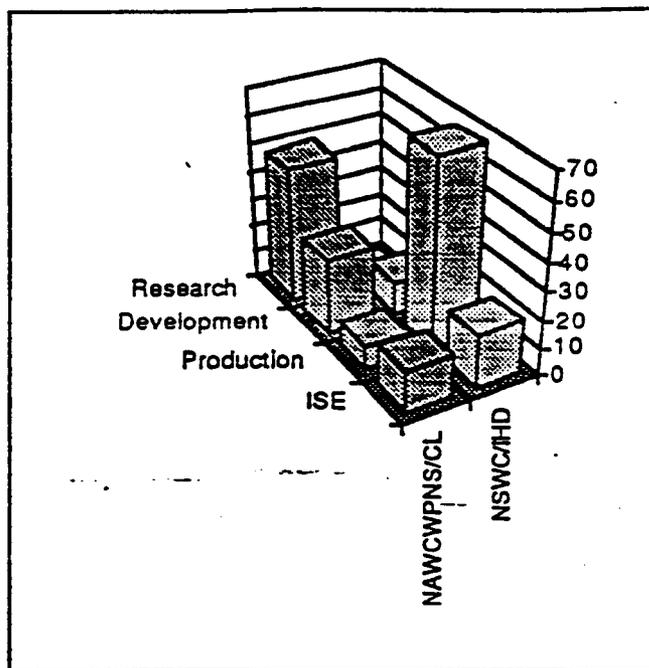


FIGURE 3. Percentage of Each Activity's Workload by Phase.

Figures 4 and 5 are an expansion of the presentation of Figure 3 and show the workload at each activity by project phase and application. NAWCWPNS/CL's workload (239.71 workyears), shown in Figure 4, is predominant in the missile application across all phases. Workload in other applications and phases is relatively minor except for the "undirected" application in the research phase. This latter effort is primarily testing and ingredients chemical analysis by the Research Department, not assignable to a specific application. NSWC/IHD's workload (854.1 workyears), shown in Figure 5, is predominant in the production and ISE phases. Notice that NSWC/IHD is predominantly involved in non-missile applications development, production, and ISE. A review of Table 5 shows almost no NAWCWPNS/CL involvement in these project phases.

Figure 6 is a summary graphic presented during the Video Teleconference that shows a two-dimensional side-by-side view of the data in Figures 4 and 5. (The y-axes in the four charts are equal so that the relative column heights visually relate to each other.) Several points made verbally during the conference using this figure are reiterated here:

- China Lake is predominant in research and development for the missile application solid propulsion work, and in research for unguided rockets. A majority of "undirected" research is conducted at NAWCWPNS/CL.
- Indian Head's "undirected" workyears are in processing technology, mostly in later project phases.
- Indian Head is predominant in all other applications and phases. Essentially all development, production, and ISE for non-missile applications is conducted at Indian Head, as are missile application production and ISE. China Lake's involvement in missile ISE is software-oriented, and includes Trident and other test and evaluation work.
- Indian Head provides joint service support for guns.
- Very little research is being conducted specifically for non-missile applications.

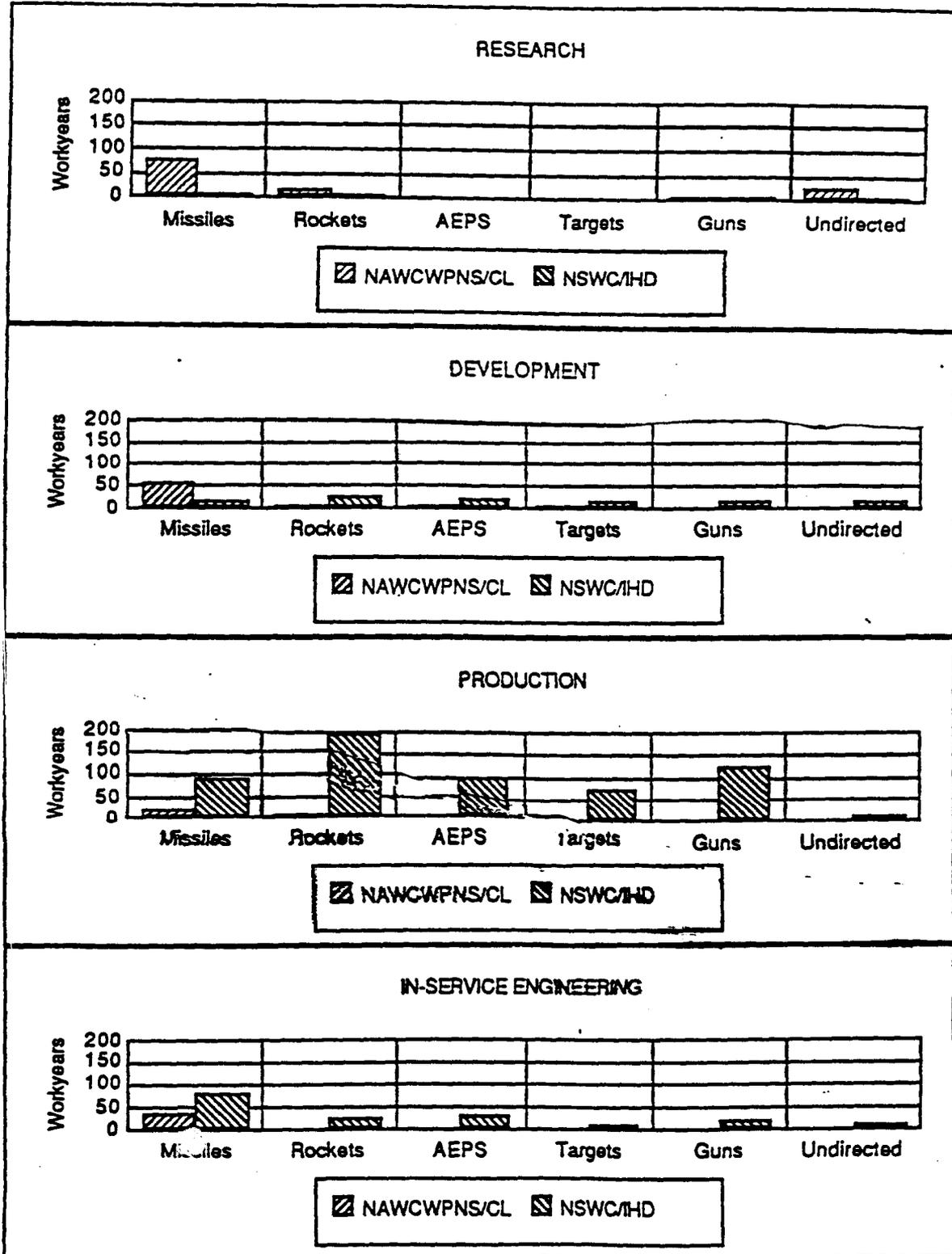


FIGURE 6. Solid Propulsion Workload by Phase.

workyears in propulsion units' development, the effort is spread across all applications (with very little in missiles), as was shown in Figure 6. No duplication of effort is seen in this area.

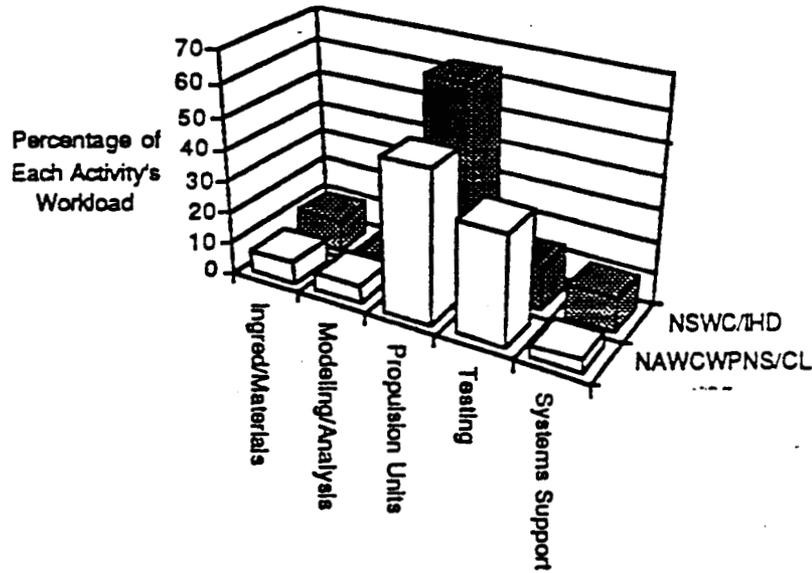


FIGURE 7. Percentage of Each Activity's Workload by Category.

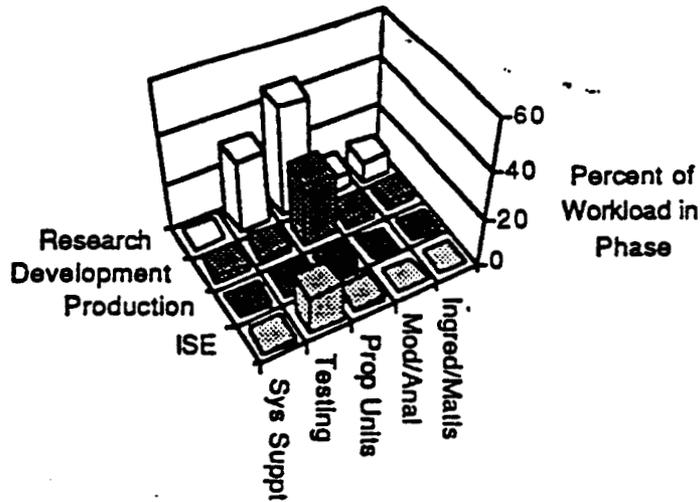


FIGURE 8. Percentage Workload in Phase Assigned to NAWCWPNS/CL

CONCLUSIONS AND RECOMMENDATIONS

The study described herein revealed no unwarranted duplication of effort. Although both NAWCWPNS/CL and NSWC/IHD are tasked with and are responsible for several areas of the broad solid propulsion discipline, the actual work assigned for the current year (FY92) is not duplicative.

NAWCWPNS/CL's predominant work in solid propulsion for missiles application is in the research and the development phases. NSWC/IHD's work in missile application is predominantly in the production/production support and ISE phases.

Moreover, NSWC/IHD's work in solid propulsion for non-missile applications (i.e., unguided rockets, aircrew escape propulsion systems, targets (JATO), and guns) focuses on the development, production/production support, and ISE phases.

Very little research work is being conducted at either activity for non-missile applications.

As was noted in the "Current Workload Discussion" section, the foregoing comments represent the situation at this time. Past workload comparisons were beyond the scope of this analysis, and extrapolation of today's situation to the future is considered extremely tenuous.

The personnel, facilities, and equipment in place at both activities represent a substantial investment for the Navy which would be difficult or impossible to replace. The unique capabilities of the two activities are listed in Appendix D.

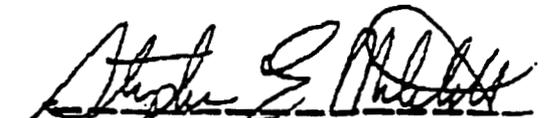
If further analysis of facilities and equipment data presented in this report is required, it is recommended that each activity conduct a reevaluation using a common methodology to ensure rigorous comparability.

Because uncertainties exist regarding the rigorous comparability of facilities and equipment data, prior to making any decisions affecting either activity, a reevaluation for confirmation is strongly recommended.

It is recommended that a Task Team be established to ensure that future (and current) work is assigned to NAWCWPNS/CL and/or NSWC/IHD to take advantage of each activity's strengths and, thereby, accomplish project goals in the most efficient manner from a Navy or Department of Defense perspective.

Plan of Action and Milestones
for NAWCWPNS/NSWC IHD
Memorandum of Agreement
for Solid Propulsion


John M. Robbins


Stephen E. Mitchell

9 Apr 92

- 2) Draft a Memorandum of Agreement establishing appropriate working relationships and involvement of the two Divisions in support of the Navy's solid propulsion and energetic materials requirements.

TASK TEAM:

NAWCWPN

John Robbins
Thom Boggs
Chuck Ledebur

NSWC IHD

Steve Mitchell
Rich Rudnicki
Jerry Barron
Dave Seroskie

APPROACH:

The Team will review references (1) through (4) to identify areas affecting the two Divisions where mission purification has been directed, or areas of apparent overlap in mission assignments.

The area of solid propulsion will be studied in detail. Current data on NAWCWPN and NSWC IHD functions, capabilities, and workload will be compiled in this area. The data will be utilized to identify "unwarranted duplication of effort," and/or complementary capabilities and facilities of the organizations. Current workload outside directed mission areas will be noted.

An Implementation Plan will be developed to establish new charters, working relationships, complementary roles and capabilities of the two Divisions toward meeting the Navy's needs in solid propulsion, and transition of existing or future out-of-mission work to the lead cognizant field activity, as appropriate. Although the study is restricted to solid propulsion, the overall needs of the DOD will be considered. The Plan will include a Memorandum of Agreement, and an implementation schedule for any changes or transitions agreed upon.

The Team will meet periodically at China Lake or Indian Head, as required. Team members will carryout individual assignments at their respective sites. Communication will be maintained through telephone and facsimile transmission of data. A midterm progress report to NAWCWPN 03 and NSWC IHD TD will be conducted via video teleconference. The final report will be completed not later than 5 June 1992.

MILESTONES:

30 MARCH	Kickoff Meeting	CL
28 APRIL	Status Meeting (Boggs & Mitchell)	IH
12 MAY	3rd Team Meeting	IH
22 MAY	Midterm Report to NSWC IHD TD and NAWCWPN 03	VTC
4 JUNE	Final Report	CL
TBD	Report to NAWC HQ/NSWC HQ	Washington

NAWCWPNS TM 7373

Code	Bldg	Name	Sq Ft	Cur Val	Sq Ft	Cur Val
				* Based on PW Reports		Based on Code's estimate
3211	10560	Propulsion Lab	3002	\$1,921K		
	13100	Energetic Materials Lab D SL (see also 3891)	2554	\$2,046K		
	13060	Chemical Lab	2465	\$1,044K		
	13460	Environmental Cycling Chambers	902	\$822K		
	13470	Fuels Lab	993	\$394K		
	--	Misc Magazines, Storage, etc.	2591	\$738K		
		3211 Sub Total	12507	\$6,965K		
3212	01053	Branch HQ mobile home	2160	\$32K		
	10633	Branch HQ office building	1260	\$343K		
	10630	Thermal Analysis Lab	3810	\$1,679K		
	10653	Cookoff Test Site Control Room	225	\$66K		
	10654	Field Test Sample Assembly	225	\$61K		
	10652	Main Test Site	288	\$9K		
	10981/	"67A" cookoff test site and control room.	3375	\$36K		
	10671					
		3212 Sub Total	11343	\$2,226K		
3214	15560	Analytical Lab	4989	\$3,609K		
	15564	Physical Properties Lab	1790	\$345K		
		3214 Sub Total	6779	\$3,954K		
		Sub-Total 321 Energetic Mat's Div	30629	\$13,148K		
3272		See Code 3272 Facilities Backup	89603	\$57,454K		
3273		Actuator Lab included with 3272 (Bldg 10690)				
	10170	FME Complex - Main building	1410	\$1,495K		
	10171	FME Complex - Dock A	819	\$391K		
	10172	FME Complex - Dock B	819	\$355K		
	10173	FME Complex - Inspection Bldg	1015	\$130K		
	01046	FME Complex - Trailer (-01053)	1800	\$32K		
	--	Portable Magazines (3)		\$45K		
		3273 Sub Total	5863	\$2,448K		
		Sub-Total Code 327 Prop Sys Div	85466	\$59,902K		
3847	02660	Composite Winding Facility (w/ 35904)	2400	\$175K		
	00006	Compos. Fab. Lab (Room 150H Mike Lab)	1583	\$822K		
		(value based on ratio of total Mike lab)				
	02466	Materials Eng Lab (Room 2000)	3135	\$361K		
		(value based on ratio of total Bg 02466)				
		Sub-Total Code 359/06	7118	\$1,358K		
381	01400	Laser Initiator/Propulsion Init			620	\$93K
385	00005	Ingrd Synthesis/Characterization			6584	\$883K
		Strand Steel 5 " " "			500	\$70K
		Storage Magazines " " "			1300	\$104K
389	31600	Engineering Sciences Bldg	6333	\$809K		
3891	31619	Small Scale Test - Control Room	900	\$119K		
		Small Scale Test - 9 Gun Tubs			2169	\$306K
	31599	Pyro Lab	400	\$101K		
	15952	INDT Facility	589	\$331K		
	15953	Long Term Surveillance	589	\$130K		
	13100	Formulation Bldg (see also 3211)	1740	\$240K		

Equipment Value Summary

Code	Name	Value
3211	Propellant Technology Br	\$892K
3212	Thermal & Process Eval Br	\$396K
3214	Properties Analysis Br	\$1,054K
3271	Missile Performance Br	\$473K
3272	Ordnance Processing Br	\$12,687K
32721	Composites and Plastics Lab	\$2,017K
3273	Systems Technology Br	\$277K
35904	Composites Fabrication Facility	\$3,500K
3647	Materials Engineering Lab	\$1,500K
38	Research Dept	\$11,889K
3914	Sim Lab	\$27,150K
621	Ordnance Div	\$43,893K
	Total	\$105,728K

NAWCWPNS TM 7373

Equipment Value Code 3212

Code 3212 Equipment List	Year Purch	Then-Year	Approx
	Factor	Acq Cost	Cost 1991 \$
Laboratory and Field Test Areas			
Mettler TA 2000C Thermoanalyzer System	84	\$144K	\$182K
acq 3-15-84 for \$143967	0.7899		
Perkin-Elmer Thermoanalysis System	84	\$66K	\$83K
acq 9-18-80 and 3-9-84 for \$65936	0.7899		
Perkin-Elmer Calorimeter	67	\$7K	\$30K
acq 10-2-67 for \$7315	0.2452		
Perkin-Elmer Spectrophotometer	84	\$12K	\$16K
acq 2-16-84 for \$12342	0.7899		
Columbia Scientific Accelerating Rate Calorimeter	84	\$85K	\$107K
acq 3-15-84 for \$84895	0.7899		
Varian Gas Chromatograph	89	\$8K	\$8K
acq 8-24-89 for \$7720	0.9254		
Finnigan Quadrupole Mass Spectrometer	89	\$130K	\$140K
acq 8-24-89 for \$129789	0.9254		
Honeywell System 10 Data Acquisition Systems (2)	91	\$11K	\$11K
acq 2-6-91 for \$10910	1		
	Total	\$319K	\$396K

NAWCWPNS TM 7373

21)	Heats of combustion/explosion	1984	4000.00	0.7807	\$5.12K	
	21a) pH Meter				\$1.74K	
Physical Properties (tensile tests)						
22)	Instron Tensile Testers (dog-bones) -	1985	27000.00	0.8049	\$33.54K	
	22a) Instron (Peels and Poker Chips)	1972	18280.00	0.2880	\$63.47K	
	22b) Recorder	1989	2462.00	0.9211	\$2.67K	
	22c) Oven	1965	3905.00	0.2189	\$17.84K	
	22d) Temperature Recorder	1967	1695.00	0.2404	\$7.05K	
	22e) Data Aquisition	1978L	29117.00	0.5065	\$57.49K	
23)	Tinius Olsen (60,000 lbs, 20 in/min)	-1965	30260.00	0.2189	\$138.24K	
24)	MTS (5000 lbs, 500 in/min)	1990	124556.00	0.9596	\$129.80K	
Ovens for Ageing Tests						
25)	Oven	1961	2360.00	0.2153	\$10.96K	
	Oven	1990	8963.00	0.9596	\$9.34K	
	Oven (Lab)	1984	1170.00	0.7807	\$1.50K	
	Oven (Lab)	1984	1170.00	0.7807	\$1.50K	
	Vacuum Oven				\$3.26K	
	Vacuum Oven				\$3.26K	
	Oven	1990	8963.00	0.9596	\$9.34K	
	Temperature Chamber	1984	2924.00	0.7807	\$3.75K	
	Temperature Chamber	1984	2924.00	0.7807	\$3.75K	
					Total	\$1,054K

NAWCWPNS TM 7373

Equipment Value Code 3272

15950	Motor Assembly Bldg				
	Roll mill				\$36K
	Spray Liner				\$100K
	Sling liner				\$200K
	Walk-in oven with spin tables				\$100K
	2 Grievess ovens				\$60K
	2 Vacuum systems				
	2 Lathes				\$66K
	Drill press				\$24K
	Grinder				
	Solvent Cleaning Room				
	10-gal blend pot				\$75K
	Mandrel puller				\$25K
	Heavy scale				\$8K
	3-ton hoist				\$42K
	Hydraulic press				\$30K
	Large assembly room (back up to cast pt)				
	Grit blaster				\$60K
	Dumdt cleaning tank				\$30K
	Vapor degreaser				\$70K
				Sub-Total	\$926K
15980	Oxidizer Prep Bldg				
	Raymond Mill				\$100K
	Mikrosomizer grinders				\$80K
	Fluid Energy Mill (future location)				\$210K
				Sub-Total	\$390K
	150-Gallon Mix Complex				
15810	Control Bldg				
15811	Machinery Bldg				
15812	Mix Support Bldg				
15813	150-Gal Mix Bldg				
15814	Support Bldg				
15815	Machinery Bldg				
				Sub-Total	\$1,400K
15760	50-Gallon Mix Complex				
	50-gal mixer				\$1,150K
15780	Oven/Control Room for 50-gal				
	Oven for Freon recovery				
	Oven with spin tables				
Dock	4 SWECO vibro energy grinders				\$340K
				Sub-Total	\$1,490K
15741	Mixing Bldg				
	1-gal and 5-gal mixers				\$560K
15742	Mixing Bldg				
	25-gal Day mixer				\$810K
15743	Mixing Bldg				
	30-gal Baker-Perkins mixer (being installed)				\$1,050K
15744	Oven				
	Walk-in oven for tray drying				
15730	Raw Material Prep Bldg				\$1,000K
	Explosives processing building, 11 operating rooms with blowout walls				
15720	Casting Plt				
	Dock has cure oven				
10530	Control Bldg				
	15" Extrusion press				\$2,500K
10570	Machining Deck P SL				
	5 Lathes				\$340K
	2 Milling machines				\$290K
	2 Drill presses				\$50K

NAWCWPNS TM 7373

Equipment Value Code 3273

Code 3273 Actuator Lab Significant Equipment			
	Replacement value of bar coded equipment		\$277K
Power Supply Systems			
	Hydraulic Power Supply - 40 GPM at 3000 psi		
	High Pressure pneumatic supply to 10,000 psi		
	Variable DC electrical power supply - 100 Ampe at 200 Volts		
	Simulated aircraft power supply at 400 Hz		
	Central 28-volt DC system		
Load Stands			
	Variable programmable hydraulic load stand provides computer controlled pre-programmed torque profile independent of actuator position		
	Custom-made Tomahawk load stands (3-axis) simulates aero loads, inertia, or both		
	Numerous torsion bar load stands		
	Dynamometer for motor-only torque-speed testing		
Data Acquisition Systems			
	Tektronics 2640 Fourier Analyzer		
	HP 3852 Data Acquisition and Control Unit		
	Gould high frequency recording system (strip charts)		
	IBM 80286 with DT-2801A high speed data acquisition card		
	Two channel Digitizing Oscilloscopes		
Software Tools			
	ASCL non-linear simulation package		
	Tutsim non-linear simulation package		
	MATRIX x system design, non-linear simulation		
	Matlab data analysis, control design		
	P-Spice electronic circuit simulation program		
	Derive symbolic algebra and calculus		
	Program CC control systems analysis		
	MathCAD data analysis package		
	AutoCAD computer aided design		
	CADkey computer aided design		
	Fortran, C, C++, Pascal, Ada, Assembly		
Miscellaneous Equipment			
	64 cu ft temperature chamber -65°F to 400°F		
	Extensive assortment to sensors, gauges, meters and other instruments		
	Many smaller power supplies and multimeters		
	Isolation chamber for hazardous experiments		

Equipment Value Code 38

Research Department - Major Equipment		
Solid Propulsion R&D		Value, \$K
Research Department - Major Equipment		
Solid Propulsion R&D		Value, \$K
385		
Gas Chromatographs (3)		\$120K
High Part. Lic. Chromatogram		\$115K
GC/MS Mass Spectrometer		\$100K
GC/LC/FAB/MS (Mass. Spect.)		\$500K
Ion Chromatograph		\$35K
Air Plasma Spectrometer		\$100K
Atomic Absorption Spectrometer		\$66K
Solution State Nuc. Magnetic Resonance Spectrometer		\$500K
Solid State NMR		\$300K
Fourier Transform Infra Red Spectrometers (3)		\$400K
Fourier Transform Raman Spectrometer		\$65K
Infra Red Microscope		\$55K
Thermal Analysis		\$240K
Impact Tester		\$30K
GPC/LALLS		\$150K
Preparative GPC		\$70K
Anionic-Polymer Binder Polymerization Equipment		\$50K
Cationic-Polymer Binder Polymerization Equipment		\$30K
	SUB-TOTAL 385	\$2,926K
3891		
Laboratory Equipment		\$1,400K
CO2 Laser		
ARC Image		
HWC Window Bomb		
Vanquard Motion Picture Analyzer		
Associated Electronics, photographic equip.		
Eight PCs with Peripherals		
Computer Facility Equipment		\$420K
VAX 8250		
2 More VAX Computers		
IHP 7550 Plotter with Network		
Control Room Equipment		\$100K
Electronic Test Control		
Photographic Equipment		
Oscilloscope Recorders		
Firing Circuit Control		
Lock Out Boxes		
Gun Tub 1		\$140K
Instron Testers (2)		
Hydrostatic Compression Tester		
Tensile and Shear Dilatometers		
Computers (2)		
Control Equipment		
Gun Tub 2		\$55K
High Pressure Pellet Press		
Permeability Test Apparatus		
Electronic Controllers		
Photographic Equipment		
Hood and Oven		
Gun Tub 3		\$20K
Sample Preparation Apparatus		
Dog-Bone Cutter		
Miscellaneous Balances		
Gun Tub 4		\$230K
High Pressure Window Bomb Combustion Apparatus		
High Speed Photographic Equipment		
High Pressure Pump and Accumulator System		
Gun Tub 5		\$150K

Equipment Value Code 3914

3914 SimLab Equipment Summary		Acq Cost, K\$
Computers		
	9 Silicon Graphics	\$1,800K
	7 Micro VAX II	\$350K
	5 Micro VAX III	\$450K
	1 VAX 780	\$500K
	2 VAX 750	\$600K
	4 Analog EAI 780	\$2,400K
	2 Analog EAI 2000	\$500K
	7 AD-100	\$5,300K
	4 AD-10	\$800K
	3 AD-RTS	\$300K
	2 PIXAR (Imaging)	\$200K
	6 Flight Tables	\$2,800K
	3 Anechoic Chambers	\$2,500K
Tgt Sim	4 RF	\$3,250K
	4 IR/EO	\$1,000K
	3 Image	\$2,000K
Test /ADP	Various scopes, peripheral discs,	\$2,400K
	Star Cluster, RF Signal Gen, Recorders, PC's	
	Total	\$27,150K

NAWCWPNS TM 7373

NAWCWPNS Workload by Application

CODE/TASKING	APPLICATION	MANYEARS				
		RES	DEV	PROD	ISE	TOT
359 Sparrow, AMRAAM, Sidewinder, Phoenix	Missiles	2.24		2.24		4.48
359 Tomahawk, BOA, Point Defense, Standard Missile	Missiles	1.92				1.92
359 Standard Missile Harpoon Booster, Air Weapon Block, HARM	Missiles					
389 Engineering Sciences Division	Missiles	3.00				3.00
389 Engineering Sciences Division	Missiles	5.20				5.20
389 Engineering Sciences Division	Missiles	1.00				1.00
389 Engineering Sciences Division	Missiles	2.00				2.00
621 Penouin	Missiles		1.13			1.13
621 I275	Missiles				5.65	5.65
621 Hellfire	Missiles				1.24	1.24
621 HARM	Missiles				0.23	0.23
621 IVLA	Missiles				0.45	0.45
621 IFSSB	Missiles				4.55	4.55
621 IAMS	Missiles		0.18			0.18
621 Polaris	Missiles			8.50		8.50
621 Poseidon	Missiles	1.83				1.83
621 Trident I	Missiles				6.06	6.06
621 Trident II	Missiles				0.25	0.25
621 Pulse Motor	Missiles	0.10				0.10
621 Roll Motor	Missiles	0.23				0.23
621 BOA	Missiles		0.06			0.06
621 SICBM	Missiles		2.11			2.11
621 AMRAAM	Missiles		0.20			0.20
621 SRAW	Missiles		1.36			1.36
621 Tact Rainbow	Missiles		0.03			0.03
621 Shrike	Missiles				0.45	0.45
621 Minuteman II	Missiles			0.63		0.63
621 Reserve	Missiles				0.03	0.03
621 JATO	Missiles				0.95	0.95
621 Sidewinder	Missiles				1.06	1.06
621 Talos	Missiles				0.06	0.06
621 Maverick	Missiles				0.23	0.23
621 Tomahawk	Missiles				9.95	9.95
621 ASROC	Missiles				0.07	0.07
3205 Code 32 Technology Office	Missiles	2.00				2.00
3211 IL2 Propulsion Block Formulation	Missiles	1.20				1.20
3211 IL2 Propulsion Block Formulation (Fuel, Insulation)	Missiles	0.50				0.50
3211 IL1 IR	Missiles	0.50				0.50
3211 IL3 BMAD Propulsion & Consulting	Missiles	6.70				6.70
3211 IAEGS, Sidewinder, MX-111 (Agng, Bonding)	Missiles			0.40		0.40
3214 Properties Analysis Lab	Missiles		6.00			6.00
3270 SLBM Technology Survey	Missiles	0.70				0.70
3270 SLBM Technology Search	Missiles	0.70				0.70
3270 Cruise Missile Propulsion -MK111	Missiles		1.00			1.00
3270 IMMPT ATD	Missiles	0.60				0.60
3271 AAWS Performance	Missiles		0.25			0.25
3271 ISEA BEAR	Missiles		0.10			0.10
3271 Phoenix Propulsion Upgrade	Missiles		0.81			0.81
3271 AIM-8 Aero Drag	Missiles		0.57			0.57
3271 AAAAM Performance	Missiles		0.54			0.54
3271 IESSM Performance	Missiles		0.69			0.69
3271 SLBM Technology Search	Missiles	0.29				0.29
3271 Propulsion Systems Analysis	Missiles	1.00				1.00
3271 IMMPT ATD	Missiles		0.22			0.22
3271 Theater Ballistic Missile Defense	Missiles		0.34			0.34
3271 Short Range Missile	Missiles	0.48				0.48
3271 Theater Ballistic Missile Defense (B&P)	Missiles	0.15				0.15
3272 Standard Missile 2 Block 4	Missiles		0.10			0.10
3272 Phoenix	Missiles		0.50			0.50
3272 Maverick Composites	Missiles	0.10				0.10
3272 Advc-4 Composite Case	Missiles	1.15				1.15
3272 IMMPT Lithium Sensor	Missiles	0.10				0.10
3272 Cook-Off Sensor B&P	Missiles	0.10				0.10
3272 Plastic Case B&P	Missiles	0.45				0.45
3272 BMAD	Missiles	4.20				4.20
3272 AMRAAM	Missiles		0.10			0.10
3272 Sidewinder	Missiles			0.50		0.50
3272 AAAAM	Missiles		0.30			0.30
3272 Sidewinder Consulting	Missiles			0.30		0.30
3272 Sidewinder	Missiles		0.38			0.38

NAWCWPNS TM 7373

CODE	TASKING	APPLICATION	MANYEARS				TOT
			RES	DEV	PROD	ISE	
3687	SRAW	Missiles		0.10			0.10
3687	Tomahawk Cruise Missile	Missiles			0.20		0.20
3687	RAM	Missiles			0.10		0.10
3687	AIM-9M	Missiles				0.25	0.25
3687	AIM-9 Mods	Missiles	0.15				0.15
3687	AMRAAM	Missiles		0.10			0.10
3687	SRAM-2 (Before cancellation)	Missiles		0.30			0.30
35904	Altrame Block (High temperature composites)	Missiles	2.00				2.00
35904	Propulsion Block (Low hazard case design)	Missiles	1.00				1.00
35904	Various programs	Missiles		5.00	2.50	2.50	10.00
35904	MMPT ATD	Missiles	1.00				1.00
35904	IMAD	Missiles	3.00				3.00
35904	Other miscellaneous propulsion efforts	Missiles	2.00				2.00
		ST Missiles	74.43	58.13	19.50	35.33	187.39
359	ARS	Rockets		0.10			0.10
621	20# Motor	Rockets	0.75				0.75
621	Quarter-scale Sidewinder	Rockets	1.23				1.23
621	Hybrids	Rockets	0.75				0.75
621	5" EVA	Rockets	11.48				11.48
621	SEC mtr	Rockets	0.04				0.04
621	SNORT motors	Rockets			0.16		0.16
3272	Advanced Rocket System	Rockets		0.20			0.20
3272	18" Test Track Booster	Rockets			1.60		1.60
3273	Advanced Rocket System-Source Selection	Rockets		0.50			0.50
3273	IMAD	Rockets	0.75				0.75
3273	B&P Plastic Case	Rockets	0.10				0.10
3687	ARS	Rockets	0.18				0.18
		ST Rockets	15.28	0.80	1.76		17.84
3272	ADAPTIVE SEAT PROPULSION	AEPS		1.00			1.00
3273	ADAPTIVE SEAT PROPULSION	AEPS		0.35			0.35
3273	ATCS	AEPS		0.71			0.71
		ST AEPS		2.06			2.06
621	SLAT	Targets		0.03			0.03
3270	SLAT	Targets		2.50			2.50
3270	TARGETS	Targets		1.00			1.00
3271	SLAT PERFORMANCE	Targets		0.13			0.13
3273	SLAT	Targets		0.50			0.50
3274	SLAT	Targets		0.10			0.10
3687	SLAT (before cancellation)	Targets		0.50			0.50
		ST Targets		4.76			4.76
3211	Gun propellant	Guns	0.50				0.50
3211	Propulsion block, Marine Corps block, (projectile design)	Guns	1.00				1.00
3271	Rocket Assisted Projectiles	Guns		0.31			0.31
3687	20mm, 25mm	Guns	0.05				0.05
		ST Guns	1.55	0.31			1.86
389	Engineering Sciences Division	Undirected	8.30				8.30
389	Engineering Sciences Division	Undirected	17.50				17.50
		ST Undirected	25.80				25.80
		Totals	117.06	66.06	21.26	35.23	239.71

NAWCWPNS TM 7373

CODE	TASKING	REVISED MAJOR CATEGORY	MANYEARS				TOT
			RES	DEV	PROD	ISE	
3274	Rocket Assisted Projectile	Motor Eng		0.50			0.50
3274	Sea Bear	Motor Eng		1.90			1.90
3274	AMRAAM	Motor Eng		2.20			2.20
3274	Phoenix	Motor Eng		2.20			2.20
3274	AAAM	Motor Eng		0.10			0.10
3274	Reduced Observables Technology	Motor Eng	1.70				1.70
3274	Advanced IIR	Motor Eng	0.10				0.10
3274	6.2 SRM (F-Pole)	Motor Eng	0.30				0.30
3274	Reduced Observables Technology 6.2	Motor Eng	3.90				3.90
3274	Penguin	Motor Eng			0.50		0.50
3274	IMMPT ATD	Motor Eng	1.50				1.50
3274	Sidewinder IM (EMCSB)	Motor Eng		1.60			1.60
3274	SLAT	Motor Eng		0.10			0.10
388	Engineering Sciences Division	Motor Eng	1.00				1.00
359	Sparrow, AMRAAM, Sidewinder, Phoenix	Motor Eng	2.24		2.24		4.48
359	Tomahawk, BOA, Point Defense, Standard Missile	Motor Eng	3.52				3.52
359	Standard Missile Harpoon Booster, Air Weapon Block, Har	Motor Eng					
359	ARS	Motor Eng		0.10			0.10
3272	Advanced Composites	Motor Eng	0.10				0.10
3272	Advanced Composite Case	Motor Eng	1.15				1.15
3272	IMMPT Lithium Sensor	Motor Eng	0.10				0.10
3272	Cook-Off Sensor B&P	Motor Eng	0.10				0.10
3273	B&P Plastic Case	Motor Eng	0.10				0.10
3274	Advanced Composite Case	Motor Eng	0.30				0.30
3274	Advanced Composite Case IM	Motor Eng	0.40				0.40
35904	Airframe Block (High temperature composites)	Motor Eng	2.00				2.00
35904	Propulsion Block (Low hazard case design)	Motor Eng	1.00				1.00
35904	Various programs	Motor Eng		5.00	2.50	2.50	10.00
35904	IMMPT ATD	Motor Eng	1.00				1.00
35904	IMAD	Motor Eng	1.00				1.00
		51 Motor Eng	34.27	34.38	6.14	3.65	78.44
3211	6.2 Propulsion Block Formulation	Formulation	1.20				1.20
3211	6.2 Propulsion Block Formulation (Fuels, Insulation)	Formulation	0.50				0.50
3211	6.1 IR	Formulation	0.50				0.50
3211	6.3 IMAD Propulsion & Consulting	Formulation	6.70				6.70
388	Engineering Sciences Division	Formulation	3.00				3.00
3211	Gun propellant	Formulation	0.50				0.50
3272	ADAPTIVE SEAT PROPULSION	Formulation		1.00			1.00
3272	Standard Missile 2 Block 4	Formulation		0.10			0.10
3272	Advanced Rocket System	Formulation		0.20			0.20
		51 Formulation	12.40	1.30			13.70
3272	Plastic Case B&P	Process/Tool	0.45				0.45
3272	IMAD	Process/Tool	4.20				4.20
3272	AMRAAM	Process/Tool		0.10			0.10
3272	Sidewinder	Process/Tool			0.50		0.50
3272	AAAM	Process/Tool		0.30			0.30
3272	Sidewinder Consulting	Process/Tool			0.30		0.30
3272	Sidewinder	Process/Tool		0.38			0.38
3272	ESSM	Process/Tool		0.21			0.21
3272	ISLM Technology Survey	Process/Tool	0.10				0.10
3272	Advanced IIR	Process/Tool	0.45				0.45
3272	Propulsion Control	Process/Tool	0.10				0.10
3272	6.2 VLS	Process/Tool	0.25				0.25
3272	Reduced Signature	Process/Tool	1.80				1.80
3272	FME Various	Process/Tool		0.40			0.40
3272	Stock Snel	Process/Tool		0.20			0.20
3272	ISRAW	Process/Tool		0.50			0.50
3272	Misc PEP Processing	Process/Tool		4.00			4.00
3272	18" Test Track Booster	Process/Tool			1.60		1.60
3272	Miscellaneous Composites	Process/Tool		3.00			3.00
3273	Misc SBR	Process/Tool	0.15				0.15
35904	Other miscellaneous or omission efforts	Process/Tool	2.00				2.00
		51 Proc/Tool	8.50	8.08	2.40		20.98
		51 Prop Units	58.17	44.77	8.54	3.05	114.53
388	Engineering Sciences Division	Testing	2.00				2.00



DEPARTMENT OF THE NAVY

NAVAL AIR WARFARE CENTER
WEAPONS DIVISION
CHINA LAKE, CALIFORNIA 93555-6001

IN REPLY REFER TO:
5216
Ser 327/7351
13 Jul 92

From: Director, Weapons Directorate
To: Commander, Naval Surface Warfare Center Indian Head Division (TD)

Subj: SOLID PROPULSION MISSION PURIFICATION

- Ref:
- (a) SECNAV Memorandum RDR&E, Engineering and Fleet Support Activities Consolidation of 12 Apr 91
 - (b) OPNAVNOTE 5400, Establishment of the Naval Surface and Undersea Warfare Centers, Modification of Title and Disestablishment of Shore Activities and Detachments of 23 Dec 91
 - (c) OPNAVNOTE 5400, Establishment of the Naval Air Warfare Center, Modification of Title and Disestablishment of Shore Activities and Detachments of 23 Dec 91
 - (d) COMNAVAIR/COMNAVSEA Agreement on Missile Leadership Assignments of 11 Mar 91
 - (e) NAWCWPNS ltr 5216 327/19 of 31 Mar 92
 - (f) Naval Weapons Center/Naval Ordnance Station General Memorandum of Agreement (MOA) on Missile Propulsion Development and Support of 12 May 87

Encl: (1) Videoteleconference Briefing Charts of 23 Jun 92

1. The purpose of this letter is to document the conclusions and recommendations of the Solid Propulsion Mission Purification Task Team. The Team was tasked by Naval Air Warfare Center Weapons Division (NAWCWPNS) Weapons Director and Naval Surface Warfare Center Indian Head (NSWC IHD) Technical Director on 5 March 1992 to identify both duplicative and complementary mission areas, as defined in references (a) through (d); to identify unique capabilities; and to draft a Memorandum of Agreement (MOA) establishing appropriate working relationships and involvement of the two Divisions in support of the Navy's solid propulsion and energetic materials requirements. Reference (e) documented the Task Team's approach and promulgated its Plan of Action and Milestones.

2. On 23 June 1992 the Task Team presented its findings to NAWCWPNS Weapons Director and NSWC IHD Technical Director via Videoteleconference (VTC), enclosure (1). Principal conclusions are summarized below:

a. In the missile solid propulsion area, NAWCWPNS and NSWC IHD are working predominantly in Research and Development, and production/in-service engineering (ISE), respectively. This is in consonance with reference (f).

b. In the guns, rockets, target and aircraft assisted takeoff (JATO), and aircrew escape propulsion (AEPS) areas NSWC IHD is predominant for development, production, and ISE. There is almost no research work on-going. NAWCWPNS is involved to only a minor degree.

NAWCWPNS TM 7373

Subj: SOLID PROPULSION MISSION PURIFICATION

e. Identify points of contact to pursue joint efforts Task Team
in the environmental and service life areas.

5. Mr. Robbins and Mr. Mitchell will meet in late July or early August
1992 to finalize the Task Team Report, and to initiate discussions on Action
Items relating to joint ventures and cooperative programs.


D. A. GOSS
Acting

Copy to:
NSWC IED (26, 5830, 620, 630)

Blind Copy to:
P2020 (Ledebur)
03
32 Orz
3201
327
3273 (McDowell)
3442 w/o encl
389
621

Writer: J. Robbins, 327, 939-7210
Typist: J. Witwer, 6/30/92



SRM TASK TEAM CHARTER

- DEVELOP A LIST OF AREAS OF MISSION OVERLAP OR COMMON INTEREST FOR FURTHER STUDY
- FOR MISSILE SRM DETERMINE AREAS OF REQUIRED, COMPLEMENTARY, AND UNWARRANTED DUPLICATION
- DRAFT A MOA OR IMPLEMENTATION PLAN

NAWCWPNS TM 7373



CONSOLIDATION & MISSION PURIFICATION APPROACH

- DEVELOP CAPABILITIES INDEX BY TECHNICAL AREA, BOTH PERSONNEL AND FACILITIES
- DEVELOP WORKLOAD DATA BY PROGRAM PHASE FOR SOLID PROPULSION APPLICATIONS
- IDENTIFY AREAS OF OVERLAP OR DUPLICATION
- DRAFT M.O.A. OR IMPLEMENTATION PLAN

NAWCWPNS TM 7373



SOLID PROPULSION MISSION PURIFICATION STATUS

- IDENTIFICATION OF OVERLAP AREAS DONE
- SOLID PROPULSION (INCL MISSILES, ROCKETS, AEPS, TARGETS & GUNS)
- SPECIAL WEAPONS SUPPORT
- SIMULATORS
- COLLECTION OF WORKLOAD DATA DONE
- COLLECTION OF CAPABILITIES DATA DONE
 - PERSONNEL
 - FACILITIES & EQUIPMENT
- IMPLEMENTATION PLAN OR M.O.A. PENDING
 - DIRECTION ON HOW TO PROCEED REQUESTED



NSWC IHD YEARS OF EXPERIENCE

	RESEARCH	DEVELOPMENT	PRODUCTION	ISE
SCIENTISTS/ ENGINEERS	525.5	1301.9	1930.7	834.6
TECHNICAL	232.6	556.6	1384.0	909.4
SKILLED LABOR		3979.0		

NAWCWPNS TM 7373

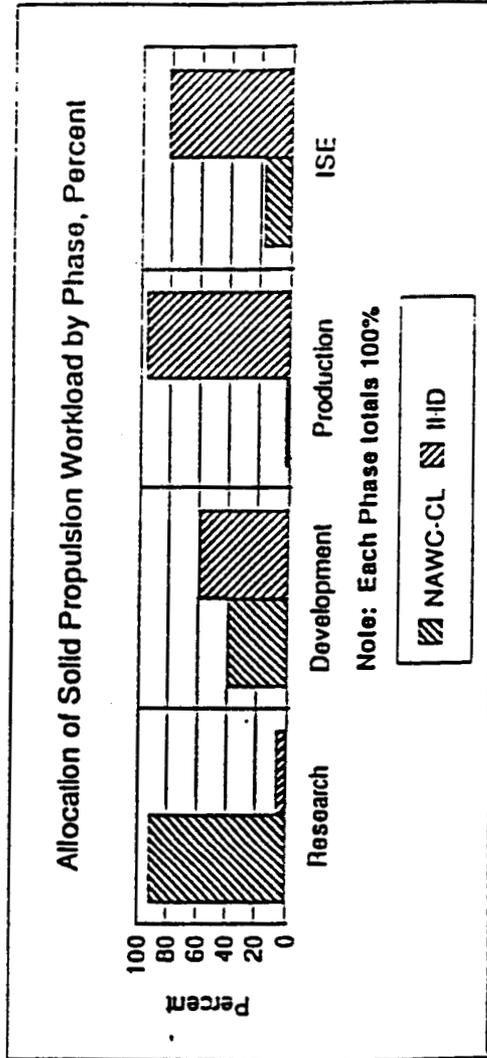
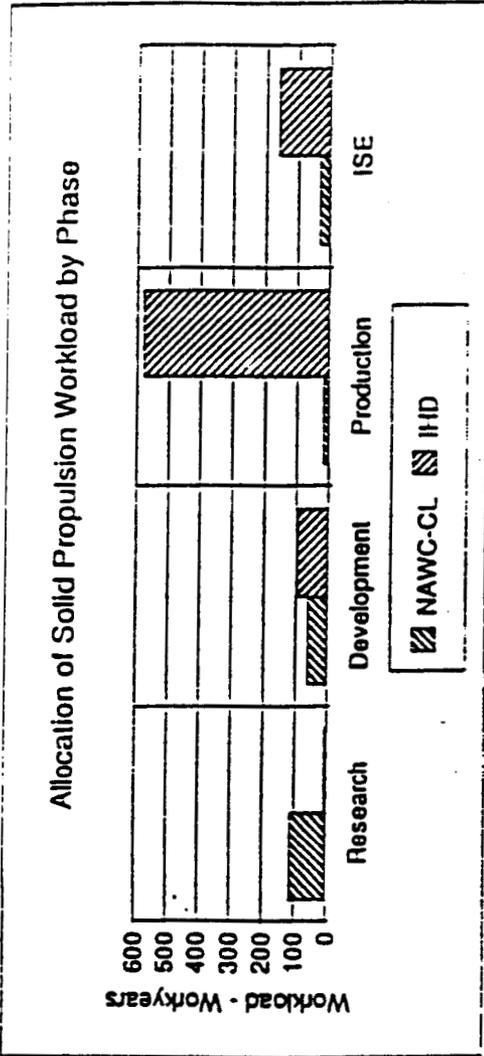


SOLID PROPULSION EQUIPMENT

(LAB EQUIPMENT, HARDWARE, ETC.)

	<u>Approx Value</u>
Code 3211 Propellant Technology Branch	\$892K
Code 3212 Thermal & Process Evaluation Branch	\$396K
Code 3214 Properties Analysis Branch	\$1,054K
Code 3271 Missile Performance Branch	\$473K
Code 3272 Ordnance Processing Branch	\$12,687K
Composites and Plastics Lab	\$2017K
Code 3273 Systems Technology Branch	\$277K
Code 35904 Composites Fabrication Facility	\$3,500K
Code 3647 Materials Engineering Lab	\$1,500K
Code 38 Research Department	\$11,889K
Code 39 Sim Lab	\$27,150K
Code 621 Ordnance T&E Division	\$43,893K
Total	\$105,728K

NAWCWPNS TM 7373





SOLID PROPULSION WORKLOAD

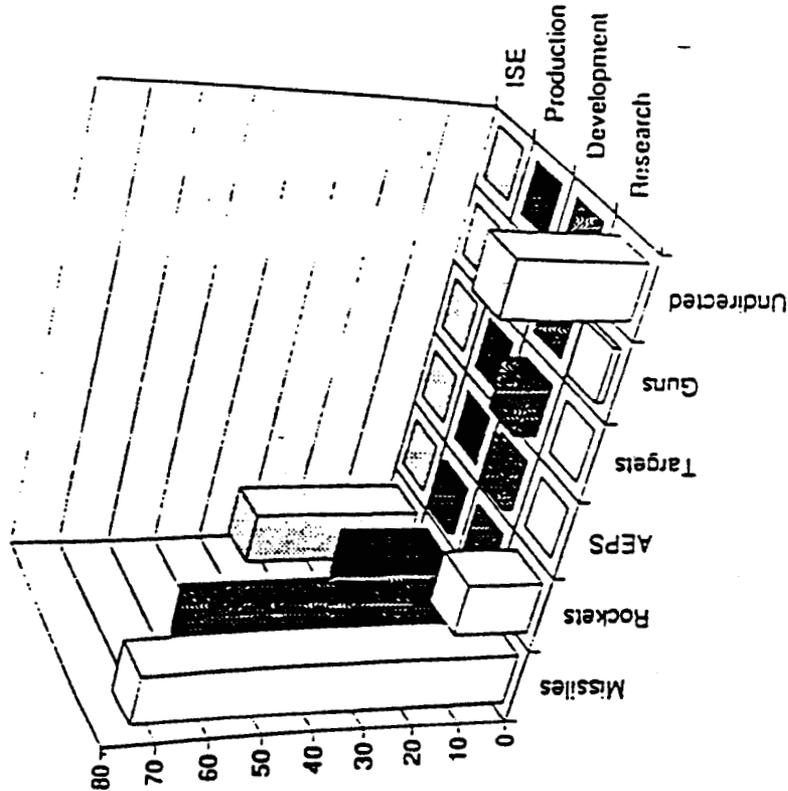
WORKYEARS by APPLICATION

	RESEARCH	DEVEL	PROD'N	ISE	TOTALS
MISSILES	74.43	58.13	19.50	35.33	187.39
ROCKETS	15.28	0.80	1.76	0	17.84
AEPS	0	2.06	0	0	2.06
TARGETS	0	4.76	0	0	4.76
GUNS	1.55	0.31	0	0	1.86
UNDIRECTED	25.80	0	0	0	25.80
TOTALS	117.06	66.06	21.26	35.33	239.71

69

NAWCWPNS TM 7373

SOLID PROPELLSION WORKLOAD - NAWC-CL

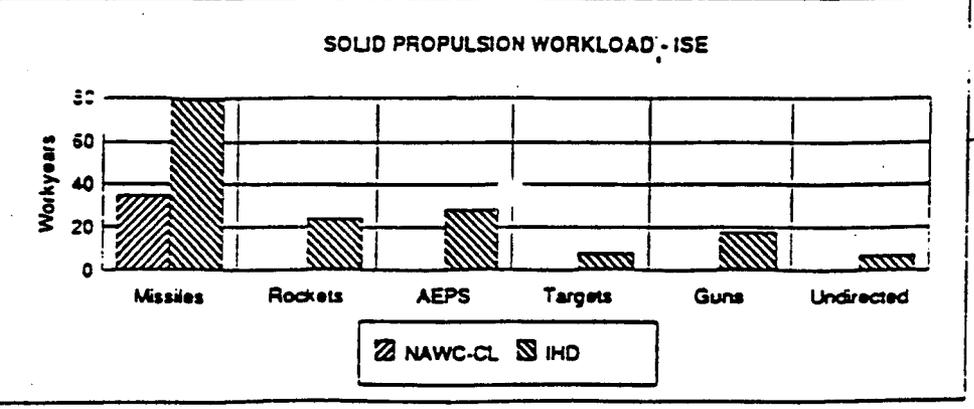
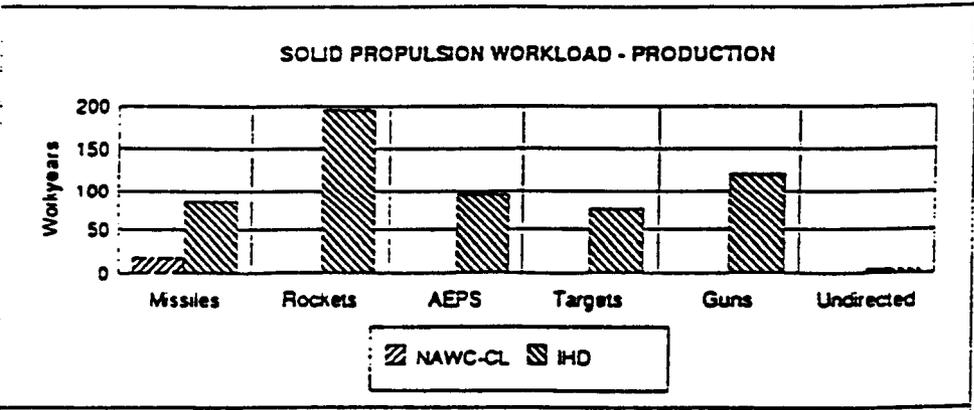
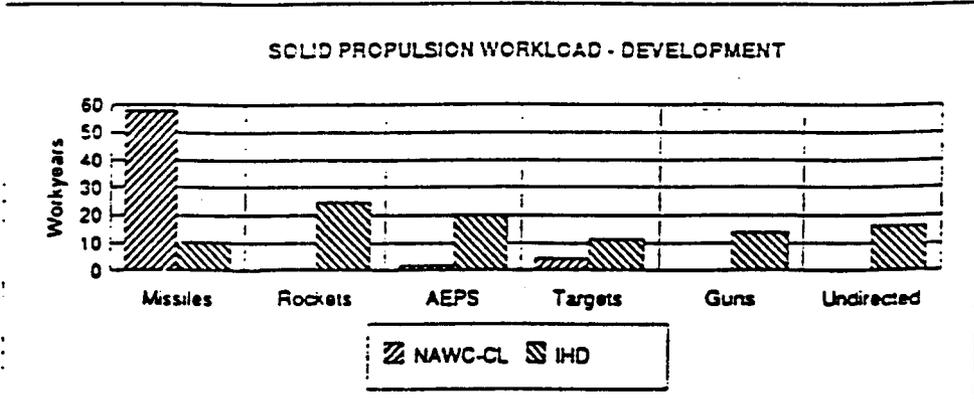
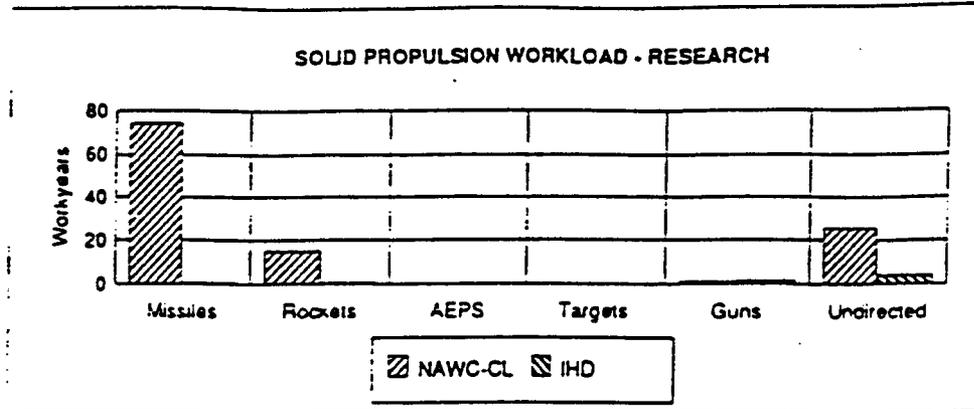


Workyears - 239.71



Wkld Brgrpls by Ph - Wkyrs

6/22/92





NSWC IHD SOLID PROPULSION TASKING WORKYEARS by CATEGORY

	Res	Dev	Pro	ISE	Tot
Ingredients/Materials	5.8	11.8	66.0	4.6	88.2
Modeling/Analysis	0.5	6.1	8.4	3.1	18.1
Propulsion Units	1.0	52.5	438.3	51.2	543.0
Testing	2.0	18.6	47.4	46.6	114.6
System Support	0.0	9.5	21.1	59.6	90.2
Totals	9.3	98.5	581.2	165.1	854.2

NAWCWPNS TM 7373

75



SOLID PROPULSION MISSION PURIFICATION NAWC UNIQUE CAPABILITIES

- SYNTHESIS OF HIGH ENERGY DENSITY MATERIALS
- MOLECULE TO PILOT PRODUCTION SINGLE-SITE CAPABILITY
- COMBUSTION RESEARCH AND DIAGNOSTICS
- COMBUSTION INSTABILITY, EXPERIMENTAL AND ANALYTICAL
- REDUCED SIGNATURE
- INSENSITIVE MUNITIONS
- THRUST VECTOR CONTROL
- LARGE MOTOR STATIC TESTING
- REAL-TIME RADIOGRAPHY
- IR/RCS/VISUAL PLUME MEASUREMENT
- HIGH HAZARD MOTOR TESTING
- COMPUTER TOMOGRAPHY
- COMPOSITE CASE WINDING FACILITY
- MISSILE ACTUATION CONTROL LAB
- COMPOSITES/PLASTICS LAB
- CAD/M
- 1,000,000 ACRES OF REAL ESTATE
- 1,700 SQUARE MILES OF AIRSPACE

77

NAWCWPNS TM 7373



CONSOLIDATION & MISSION PURIFICATION CONCLUSIONS & RECOMMENDATIONS

- IN THE MISSILE AREA, NAWC & NSWC ARE WORKING PREDOMINANTLY IN R&D AND PRODUCTION/ISE, RESPECTIVELY
- IN OTHER SOLID PROPULSION AREAS, NSWC IS PREDOMINANT; NAWC IS INVOLVED TO ONLY A MINOR DEGREE
- BOTH THE CHINA LAKE & INDIAN HEAD SITES POSSESS UNIQUE EXPERTISE & FACILITIES, WHICH WOULD BE DIFFICULT OR IMPOSSIBLE TO REPLACE
- RECOMMEND THAT THE TASK TEAM ISSUE A FINAL REPORT TO NAWCWPNS 03 & NSWC IHD TD DETAILING FINDINGS
- RECOMMEND THAT THE TASK TEAM BE RECONSTITUTED AS VEHICLE TO MAINTAIN CONTINUING DIALOG BETWEEN NAWC & NSWC
- RECOMMEND THAT WE SEEK TO IDENTIFY POTENTIAL JOINT VENTURES
- RECOMMEND THAT WE TRY TO INVOLVE EACH OTHER MORE IN SUPPORT ROLE, FOR OUR LEAD PROJECTS; AND TRY TO SELL THIS APPROACH OF DOING BUSINESS TO THE CUSTOMERS
- REFERRED TO HIGHER LEVEL --- NEW M.O.A. OR IMPLEMENTATION PLAN

79

NAWCWPNS TM 7373

NAWCWPNS/CL Unique Capabilities

The unique capabilities of the Naval Air Warfare Center, China Lake, Ca., include the following:

- Synthesis of high energy density materials.
- Molecule to pilot production single-site capability.
- Combustion research and diagnostics.
- Combustion instability, experimental and analytical.
- Reduced signature.
- Insensitive munitions.
- Thrust vector control.
- Large motor static testing.
- Real-time radiography.
- IR/RCS/visual plume measurement.
- High hazard motor testing.
- Computer tomography.
- Composite case winding facility.
- Missile actuation control laboratory.
- Composites/plastics laboratory.
- CAD/M
- 1,000,000 acres of real estate
- 1,700 square miles of airspace.

October 1993

PREPARED BY: Dr. Kurt Mueller and Les Roslund

WHITE PAPER

TITLE: CONSOLIDATION OF EXPLOSIVES S&T IN DOD

PURPOSE OF WHITE PAPER: This White Paper is provided to tell why the Navy should perform conventional explosives S&T for all three military services.

INTRODUCTION: The shrinking DOD budget has recently reduced funds available for explosives S&T work and is expected to increasingly reduce such funds in the future. DOD cannot afford the luxury of potentially over-lapping efforts and separate Service programs in which the reduced individual efforts may fall lower than critical mass levels. Right now is the appropriate time to restructure and consolidate the presently multi-Service efforts in DOD into one effort. This one effort should be performed by the NAVY at NSWC to serve all of the explosives S&T needs of Navy, Army and Air Force. Amongst the three Services, the Navy (at NSWC) has the dominant share of the full spectrum in-house expertise in conventional explosive science, as well as facilities and equipment to perform all of the required explosives S&T work. NSWC capabilities range from the chemical synthesis of new energetic molecules at the gram level onward through testing of explosive performance at up to the 50-pound level under strictly and carefully controlled chemical, physical and environmental conditions, and includes mixing of new explosives at the pilot plant level of up to 150 gallons.

CURRENT SITUATION: All Services have some degree of in-house activity addressing explosives technology. Each Service program attempts to focus upon mission essential work. Four locations are involved (ARDEC, NSWC, NAWC, WL/EGLIN). Coordination is informal and of varied intensity. Funding is a problem for all. Impression of duplication of facilities and effort is a problem. Facility upgrades have been inconsistent; staffing problems are also present, particularly the hiring and retention of 'world class' experts. Technology transition is perceived to be slow.

REASONS TO COMBINE: Long term potential for savings (S&Es, facilities, maintenance, instrumentation, support personnel).
- A single site for new facilities can upgrade capabilities.
- Total investment in these technologies is not large enough to sustain separate Service expertise.

RATIONALE FOR NAVY LEAD:

STAFFING - Navy has the staffing to do the work. In recent years, Navy has retained the strongest Service commitment to in-house expertise in explosives technology. Navy lead in explosives development is recognized throughout the world. Navy capabilities and expertise for explosives that can be used in underwater warheads and fuzing are unique and are essential as a part of any future arrangement. Navy capabilities in explosives for missile warhead and fuzing are fully suited to present and future needs.

Navy capabilities in detonation science of military explosives are unique and are essential to guide use of current explosives and to define benefits of new explosive concepts. Navy expertise is recognized nationally and internationally. Project RELIANCE integrates national resources for explosives work, and the RELIANCE Explosives and Warheads Panel is chaired by the Navy (T. Smith of NSWC). TTCP integrates international explosives S&T and the TTCP explosives WAG-11 is chaired by Navy. Navy S&Es coordinate their work nationally to make best use of the national resources, and coordinate internationally to take maximum advantage of savings that can accrue from cooperative development efforts amongst allied nations. Navy national leadership role in explosive technology is also demonstrated by high acceptance under peer review in activities such as the International Detonation Symposium (Table 1).

FACILITIES - NSWC has facilities suitable for performance of all work required for the development of new explosives, starting from the chemical synthesis and proceeding through to the mixing of pilot plant quantities of explosive compositions. A listing of NSWC facilities for explosive development work is given in Table 2.

FULL SPECTRUM AND VERTICALLY INTEGRATED PROGRAM - Navy expertise is present for all features of explosive development, including new ingredients, formulating and mixing, processing, scale-up, fundamentals of energy release, energy coupling, sensitivity, explosive output predictions and modeling, testing at all scales and in all environments, and cooperation with munition programs to achieve technology transition. Navy has long history of dedicated 6.1 and 6.2 programs in explosives, and in recent years has had a strong advanced development program for explosives as part of the IMAD Program.

COMPARISON OF EXPLOSIVES EXPERTISE AND ACTIVITY AMONGST THE THREE SERVICES - Table 3 provides a summary of the respective three-Service levels of expertise and activity in the set of disciplines that comprise full-spectrum development of explosives. The Navy has by far the strongest investment in the fundamental sciences. The Army 6.1 Chemical Synthesis program is also widely respected. All underwater explosive development has been performed by the Navy, as would be expected. At the 6.2 level, both Navy and Army have substantial expertise, and there is significant Air Force capability in selected areas.

COMPARISON OF SERVICE FACILITIES AVAILABLE FOR EXPLOSIVES DEVELOPMENT AND TESTING - Table 4 provides an estimate of the respective suitability of the facilities of NSWC, ARDEC and Eglin AFB for performance of all DOD work. Each agency is equipped to perform significant portions of the total work load. However, the NSWC capability is clearly the strongest.

INSENSITIVE MUNITIONS LEADERSHIP - Insensitive Munitions is a major technology thrust for all Services. Navy was the instigator

TABLE 1. COMPARISON OF PARTICIPATION LEVELS OF THE SERVICES
IN THE SERVICE SPONSORED DETONATION SYMPOSIA (1965-1993)

The International Detonation Symposium is a forum which periodically convenes for information exchange in the fields of detonation and explosion sciences. Participation requires approval via peer review for candidate presentations, and quite clearly shows the levels of activity in explosives sciences of the Services and others. A survey of Service participation amongst the sources of Detonation Symposium papers (1965 to 1993) is shown below. Note that this symposium is jointly sponsored by ONR, NAVSEA, NSWC, ARDC, BRL, AFATL, and DOE laboratories.

SYMPOSIUM NUMBER	PAPERS PRESENTED BY SERVICE				
	ARMY PICATINNY	BRL	NAVY NSWC	NWC	AIR FORCE EGLIN
10TH (1993)	3	2	15	3	1
9TH	1	6	18	3	1
8TH	5	10	7	1	1
7TH	3	9	11	1	0
6TH	3	4	7	0	0
5TH	1	4	8	0	0
4TH (1965)	0	1	8	0	0

H. Explosive Component Design Facilities

- Primary explosives synthesis lab
- Primary explosive drying and milling
- Pressing facility for explosive component loading
- Detonator welding facility
- Detonator testing facilities

I. Environmental Testing Facilities for Components

- Computer controlled vibration tables
- Drop, impact, shake-rattle-roll for fuzes
- Temperature cycling
- Salt Fog testing
- Ordnance ejection rack simulators

* Note: The NSWC facilities called out in this table are those that are physically located at White Oak or Indian Head or Yorktown unless otherwise noted. Under BRAC 93, the White Oak capability is scheduled for a time-phased re-location to Indian Head.

NOTES TO AID INTERPRETATION OF TABLE 3.

This table is based on information from a variety of sources, including the most recent data calls of Project RELIANCE, recent JOCG Explosives and Propellants Sub-Group reviews of Service programs, DOD funding descriptions and plans, and informal discussions with technology leaders of all of the Services.

Service 6.1, 6.2, and 6.3A programs are included to demonstrate Service interests in full S&T activity in explosives development.

Navy 6.2 activity addressing underwater explosive technology is included because of the importance of that work to the Navy, despite the fact that other Services have no expertise in this area to compare with. Any plan for consolidation of explosives work would have to accommodate this work. The fact that the Navy will always demand strong contributions in underwater explosives technology may mandate the designation of Navy as the leader for any consolidated program in explosives development. Other Services have no expertise in this area, and are highly unlikely to be able to develop such expertise at any time in the foreseeable future.

APPENDIX A. CONSIDERATION OF INDUSTRY ALTERNATIVE

QUESTION: WHY SHOULDN'T THIS MERELY BE TURNED OVER TO INDUSTRY?

- ANSWER:
1. This S&T work is not sufficiently profitable to be very attractive to industry in the long term. We recognize that the current situation is that industry is so hungry that they will take on anything in the short term.
 2. Suitable staff expertise is not present in industry, and to build it would take a very long time, and might never occur.
 3. Suitable facilities are not currently present in any single place in industry. Some of the present Navy facilities for this work are unique. To build such facilities would always be an option, and would be costly and time-consuming. And after they were built, who would staff them?
 4. The suitable role for industry in this technology is the role of recent history; namely, that the industry capabilities are used as much as possible to help DOD as the respective DOD labs perform their work.
 5. For the S&T work, the DOD labs need to be doing significant 'hands-on' work in order to keep DOD equipped to be a smart buyer for present and future.
 6. At present, by far the best people for the work, and the most suitable facilities, are within the DOD labs for S&T work in the disciplines needed for explosives development.

WHY NAVY? - TRACK RECORD/ RESPONSIVENESS

• EXPLOSIVES TO SERVICE USE (1980 - 1993)

NAVY

ARMY

AIR FORCE

DOE

N-107 (CL)

-NONE-

AFX-708

-NONE-

N-109 (IH)

AFX-760

N-110 (IH)

N-111 (IH)

N-7 (IH)

N-9 (IH)

DXN-1 (IH)

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)

Dr. Ira M. Blatstein

NAME (Please type or print)

Ira M Blatstein

Signature

Technical Director

Title

10/28/94

Date

Naval Surface Warfare Center

Activity

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

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title G. R. STERNER
Commander

Naval Sea Systems Command

Activity

G. R. Sterner

10/28/94

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)

W. A. Earner

Signature

Title

11/17/94

Date

DATA CALL #12, AMEND 1
LJCSG PRESENTATION
INDIAN HEAD
"ENERGETICS"

NSWC IHDIV brief to the Laboratory Joint Cross-
Service Group Datacall 12 Amend 1 Energetics
Cross-Service Analysis given Thursday, 20 October 1994

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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

ACTIVITY COMMANDER

CAPT. W. J. NEWTON
NAME (Please type or print)

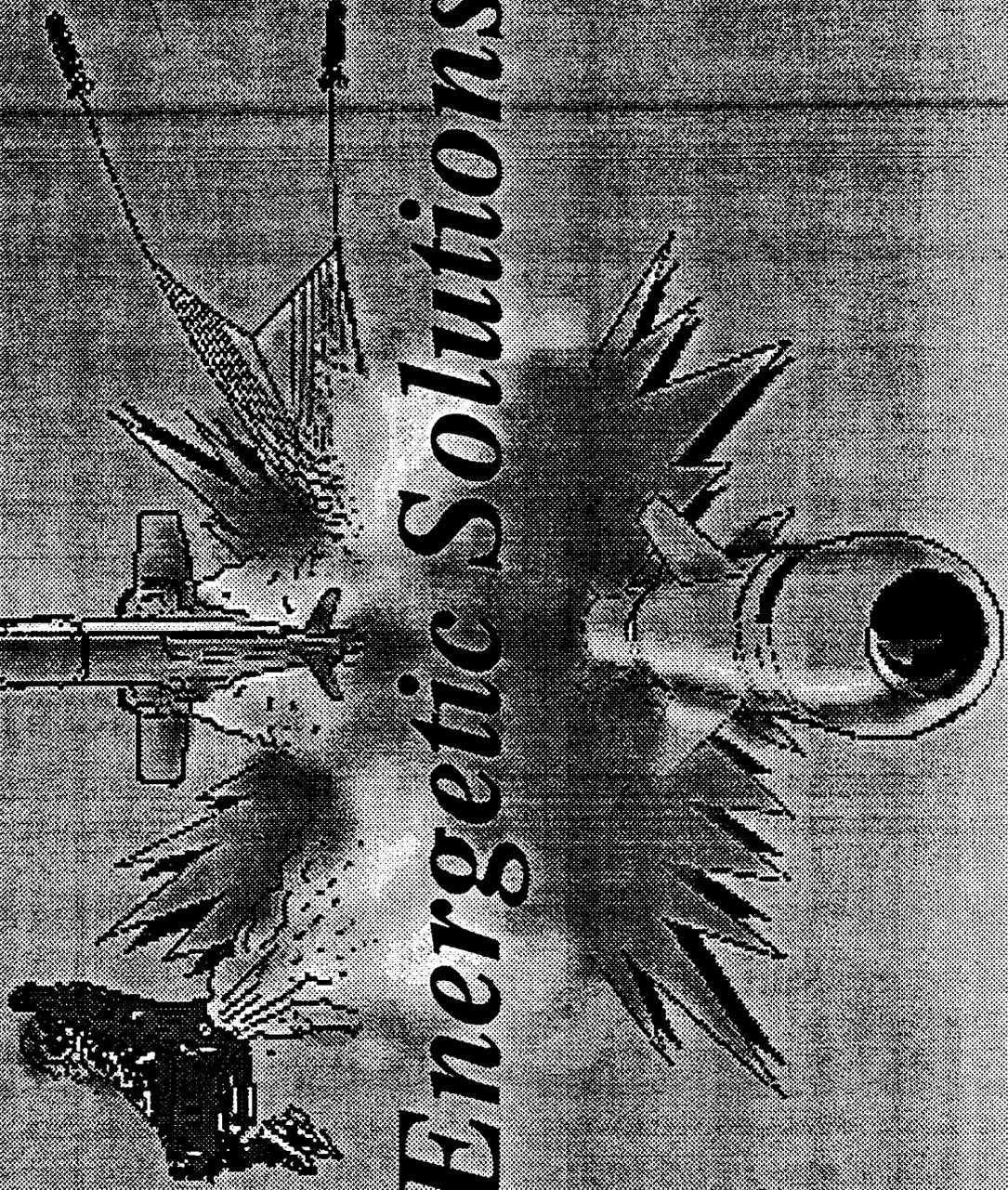
W. J. Newton
Signature

COMMANDER
Title

27 OCT 94
Date

INDIAN HEAD DIVISION, NSWC
Activity

**Indian Head Division
Naval Surface Warfare Center**



Energetic Solutions



Naval Sea Systems Command



Mission

Naval Sea Systems Command

- Full spectrum energetics
 - Develop explosives for all services
 - Manufacturing technology
 - Tri-service CAD/PAD
 - Only source for some energetic materials
 - Transfer processes to industry and kick start industry in time of war
 - Warm manufacturing base



Naval Sea Systems Command

Energetics Consolidation

- Assigned Naval Explosive Development Engineering Group at NWS Yorktown to Indian Head
- Transfer of all explosive loading from NWS Yorktown to Indian Head
- Indian Head/China Lake solid propulsion mission purification study
- Transfer of explosive development and underwater warhead development capability from White Oak to Indian Head - BRAC 93
- Naval Ordnance Center established at Indian Head

Uniquely Military "Energetics"



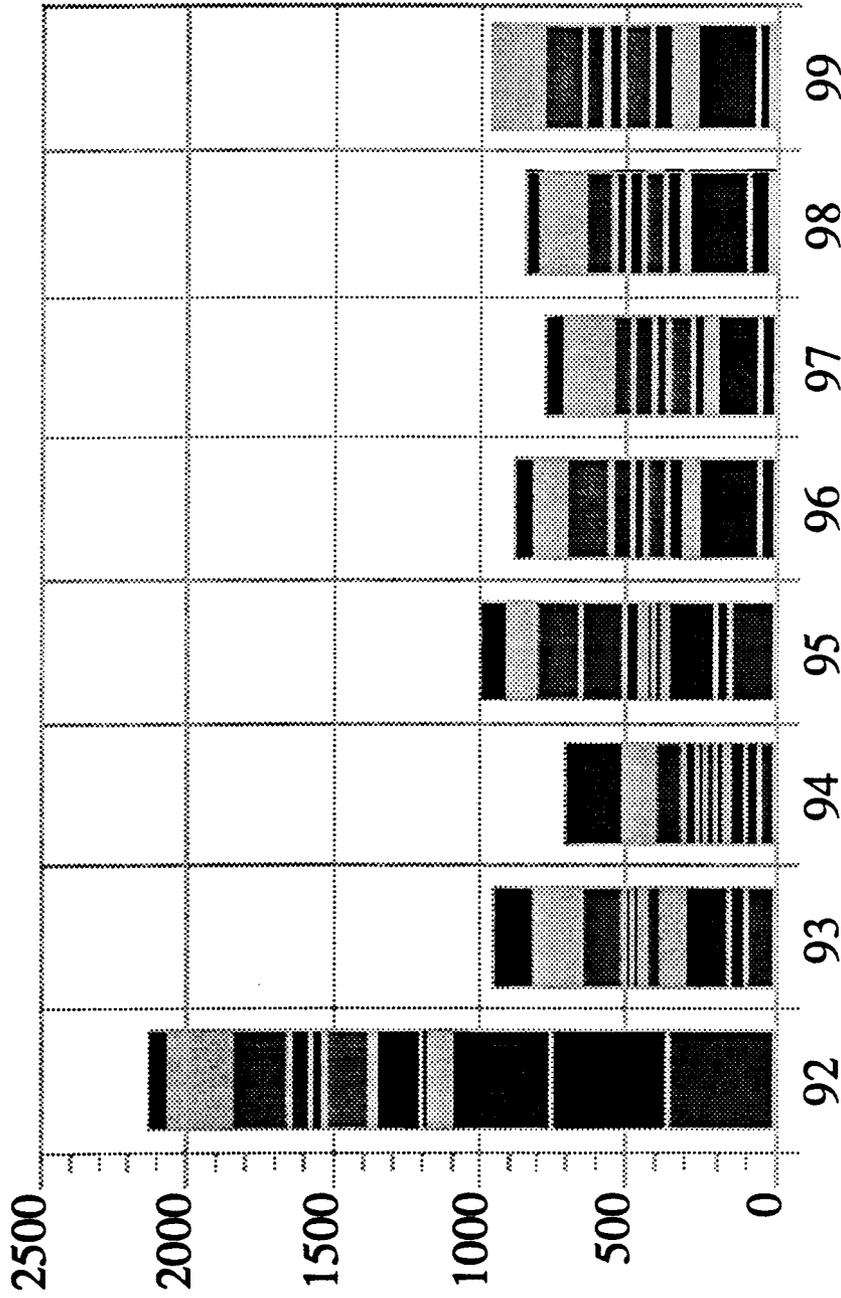
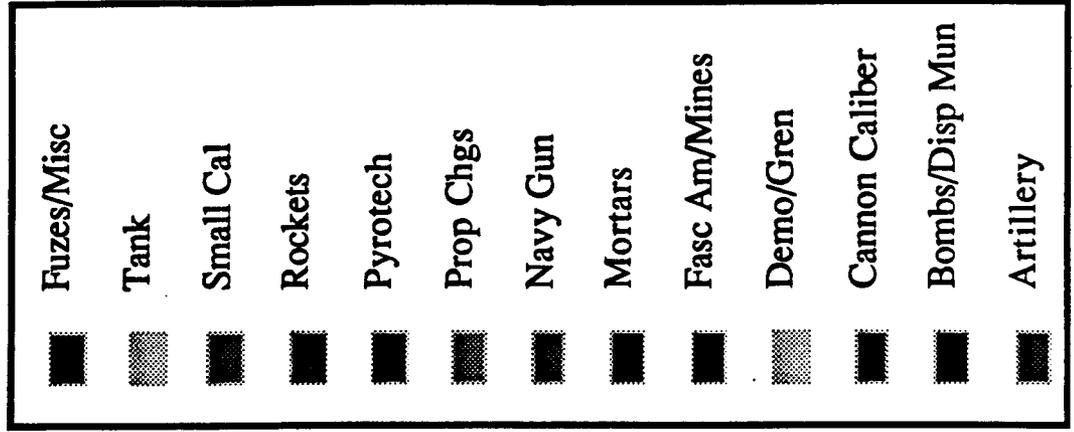


The Energetics Business

Naval Sea Systems Command

- No commercial market
- Specialized expertise
- Expensive facilities
- Production volume down
- Environmental compliance up
- *Eroding technical and industrial base*

DOD Munitions Budget



Ref: DOD's April 1994 Report to Congress on the DOD Munitions Industrial Base



DuPont Specialty Chemicals

November 9, 1993

Mr. Sam Waggener
Naval Surface Warfare Center
Warhead Section Code G-22
Dahlgren, VA 22448

Dear Mr. Waggener:

We regret to inform you that DuPont will Discontinue the manufacture of explosive products in the U.S. on January 31, 1994. DuPont sold its commercial explosives business in 1933. The volume of explosives Specialties, including detonators, squibs and "Detasheet" flexible explosives has declined in recent years, and it is no longer a strategic component of the DuPont business portfolio. Explosives operations at our Falling Waters, WV and Pompton Lakes, NJ plants will cease at the end of January.

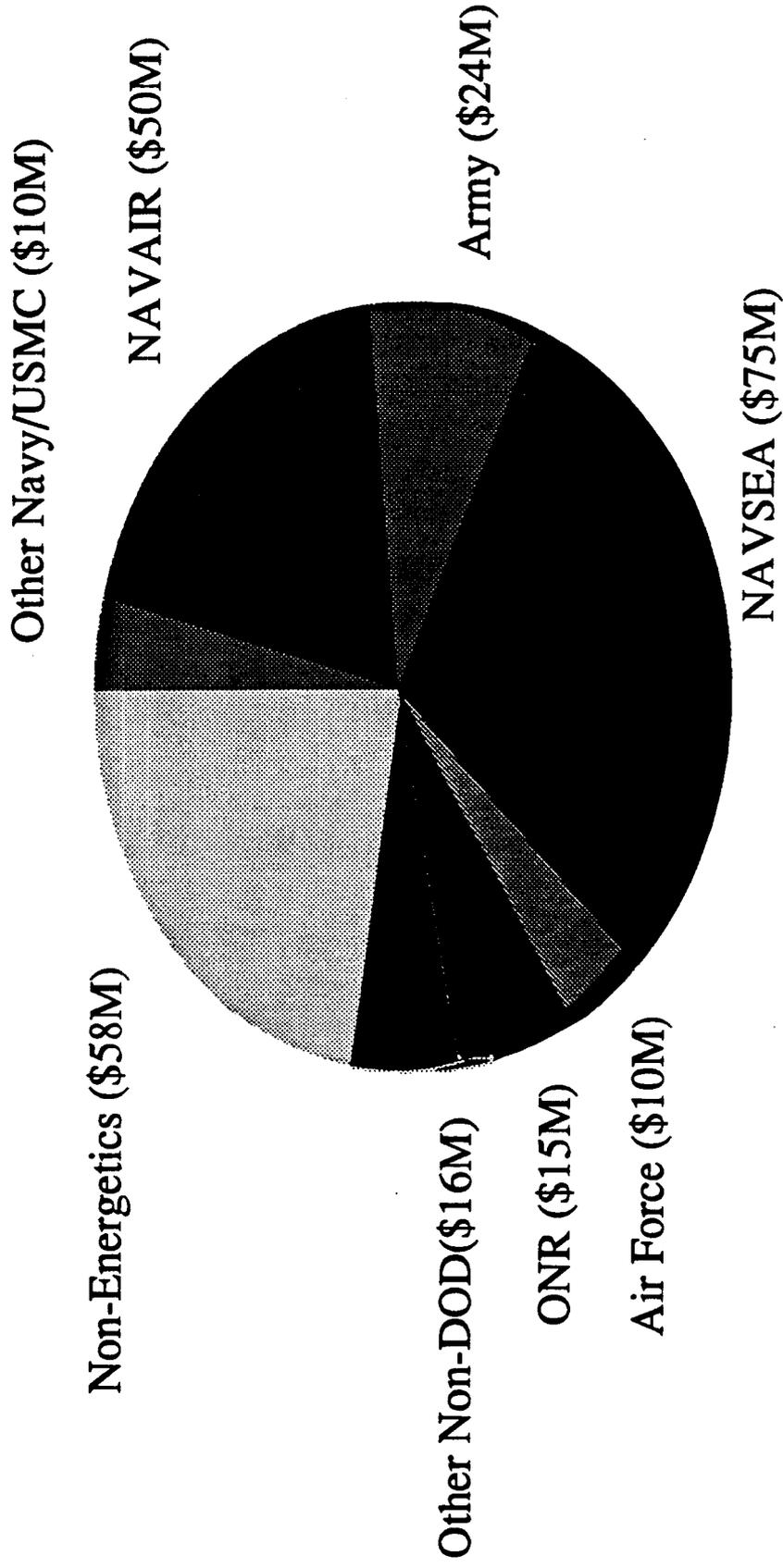
The volume of explosives Specialties, including detonators, squibs and "Detasheet" flexible explosives has declined in recent years, and it is no longer a strategic component of the DuPont business portfolio.

We thank you for your past patronage. If you wish to place a final order, please call Bob Russo at (800) 962-9919. If we can help answer other questions, please call me at (302) 774-8376.

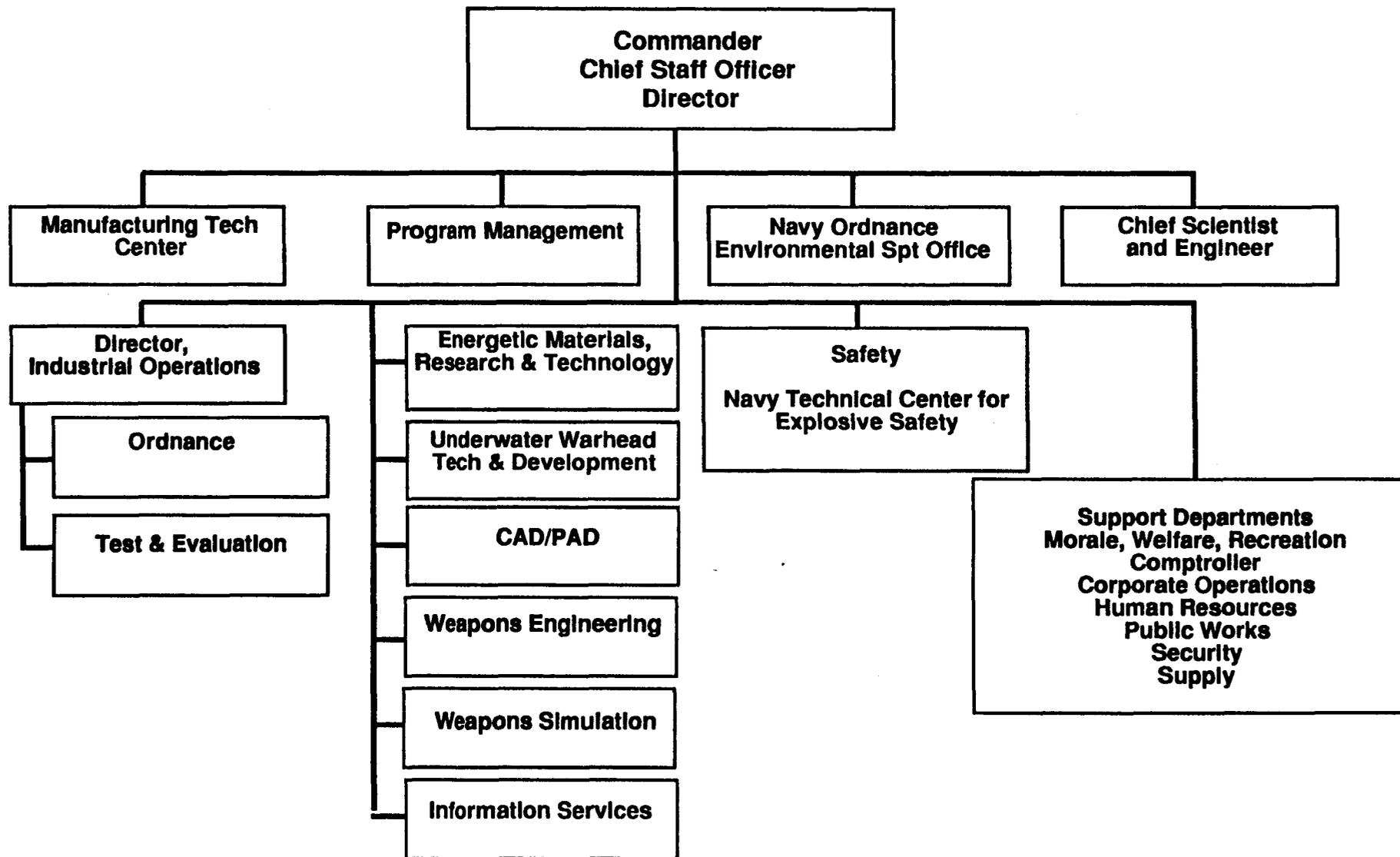
Sincerely,

T. J. Enright
Business Manager

FY 93 Sponsor Base



Total funding FY 93 = \$258 million (does not include \$48 million RCP's)



**Commander
Chief Staff Officer
Director**

**Manufacturing Tech
Center**

Program Management

**Navy Ordnance
Environmental Spt Office**

**Chief Scientist
and Engineer**

**Director,
Industrial Operations**

Ordnance

Test & Evaluation

**Energetic Materials,
Research & Technology**

**Underwater Warhead
Tech & Development**

CAD/PAD

Weapons Engineering

Weapons Simulation

Information Services

Safety

**Navy Technical Center for
Explosive Safety**

**Support Departments
Morale, Welfare, Recreation
Comptroller
Corporate Operations
Human Resources
Public Works
Security
Supply**

Energetic Materials Research & Technology

PLATE AND DETONATOR BEFORE SHOT



EXPANDING BUBBLE



MAXIMUM SIZE



COLLAPSE



- New energetic molecules
- Designer explosives
- Extruded composite propellants
- Continuous processing
- New explosives
- Environmental research

Underwater Warhead Development



- Mk 50 torpedo warhead
- Elastic explosives for MCM nets
- Torpedo defense
- Effectiveness modeling
- Ship survivability
- Safe and arming

Cartridge Actuated Device/ Propellant Actuated Device



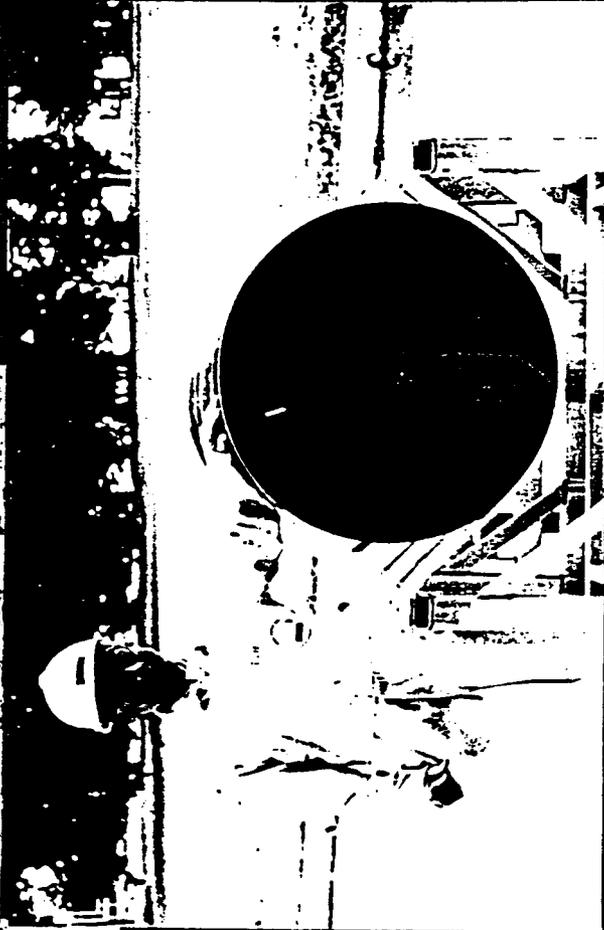
- * New ejection seat
- * Laser initiation
- * Controllable propulsion
- * Tri-service acquisition
- * Lead-free propellant

Weapons Engineering

- Advanced rocket system
- Rockets engineering agent for Army SM
- Standard missile - qualify second sources
- Missile propulsion ISE
- Explosive CM design
- Propellant - "Naval gun fire support"

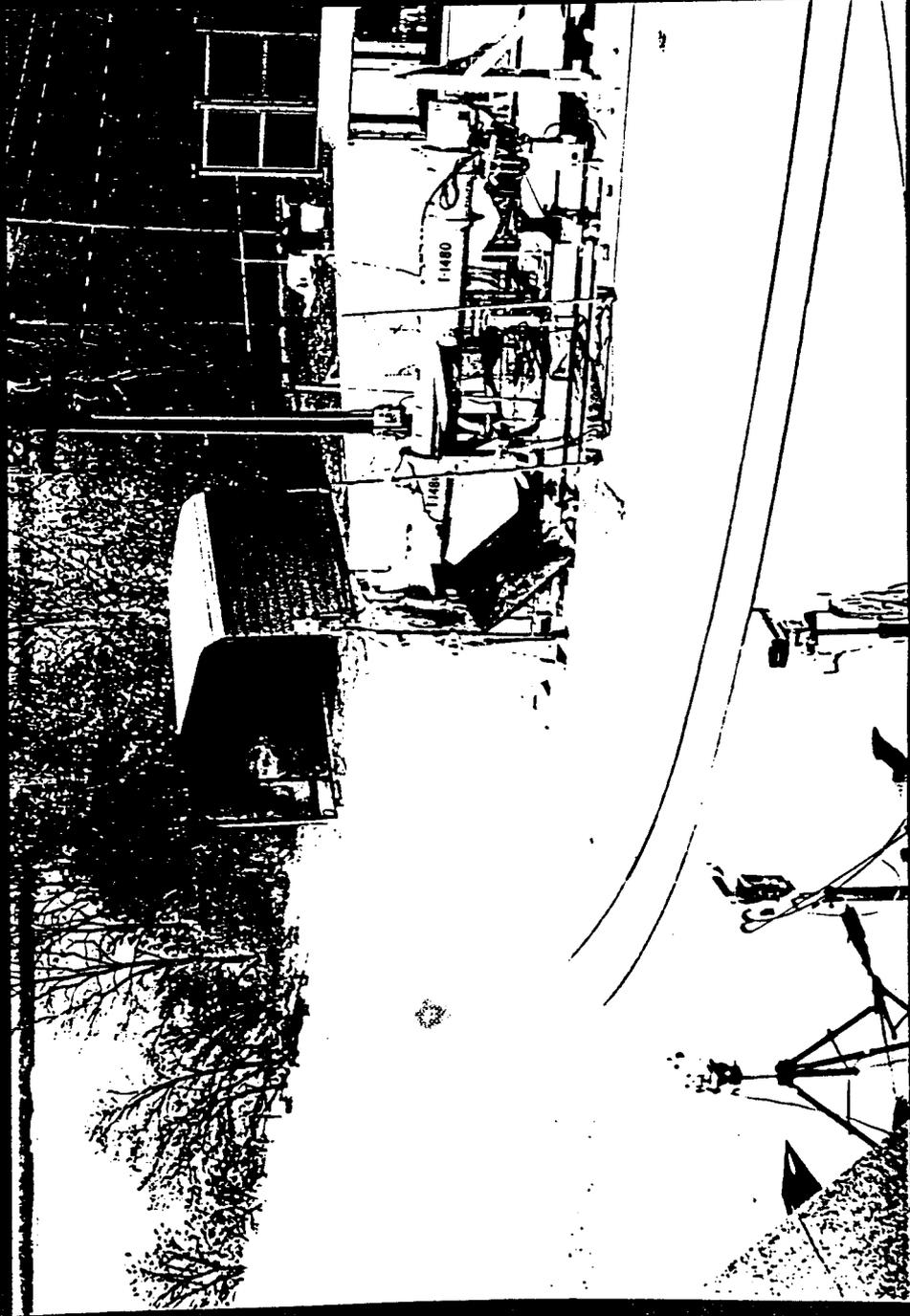


Ordnance



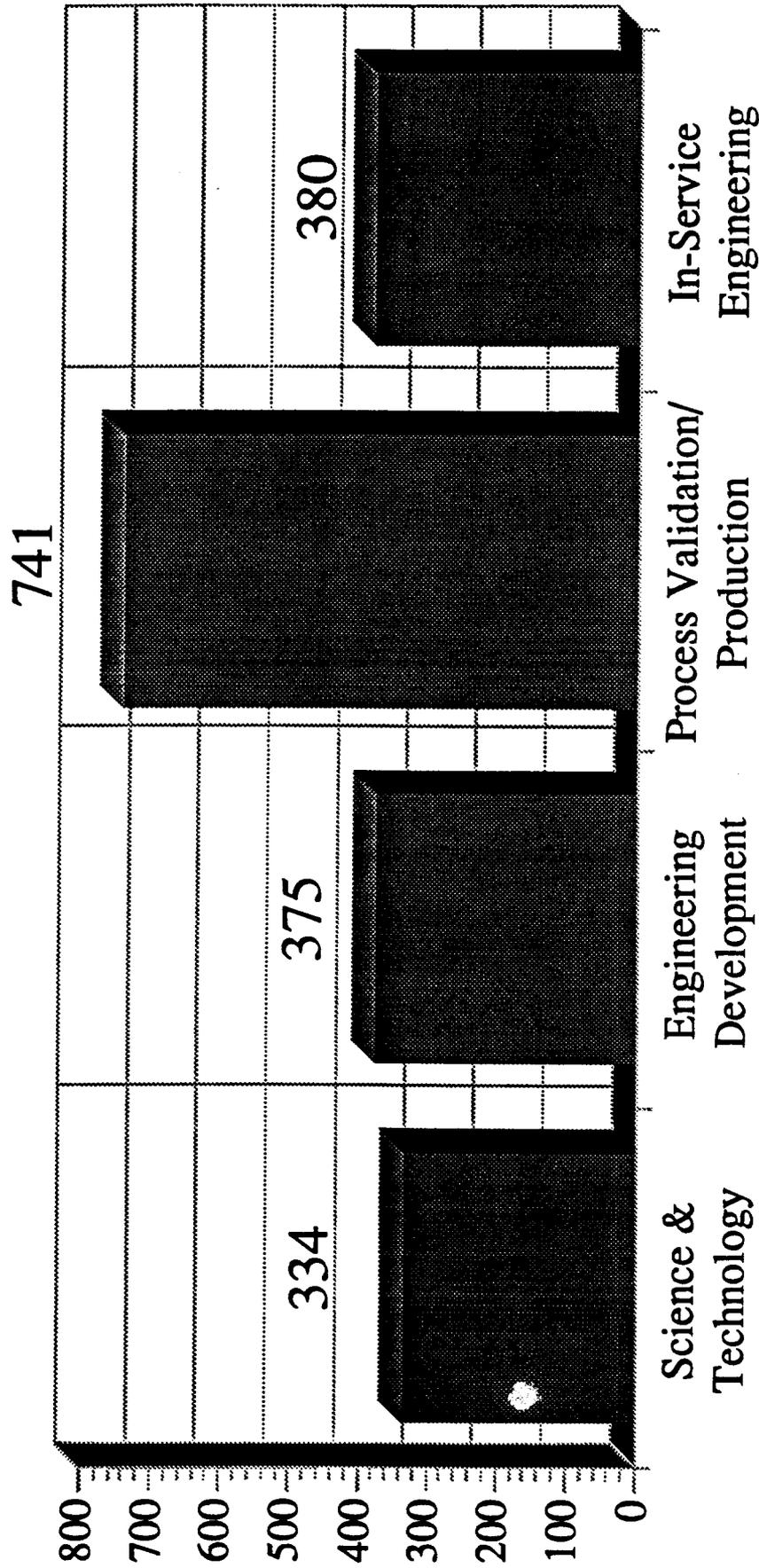
- ◆ Torpedo warheads and Otto Fuel
- ◆ High energy gun propellant
- ◆ Standard missile warhead
- ◆ Underwater explosive ingredients
- ◆ CAD/PAD manufacture
- ◆ CSD lacquer - D5 missile

Test and Evaluation



- Man-rated CAD/PAD
- Tomahawk functional ground test
- Propellant stability
- Missile and warhead x-ray
- Lot acceptance
- Missile stockpile surveillance

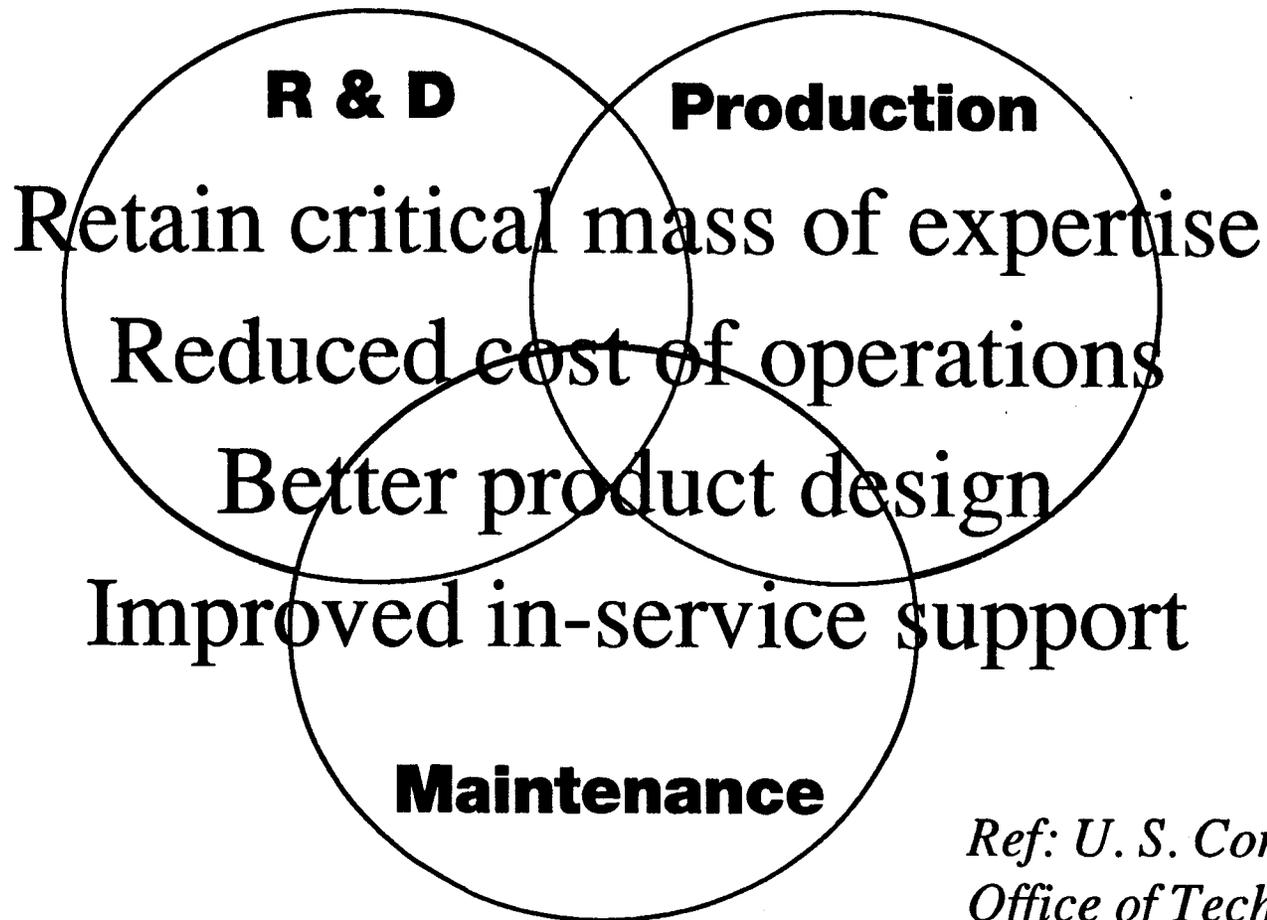
FY 93 Energetics Workyears by Lifecycle





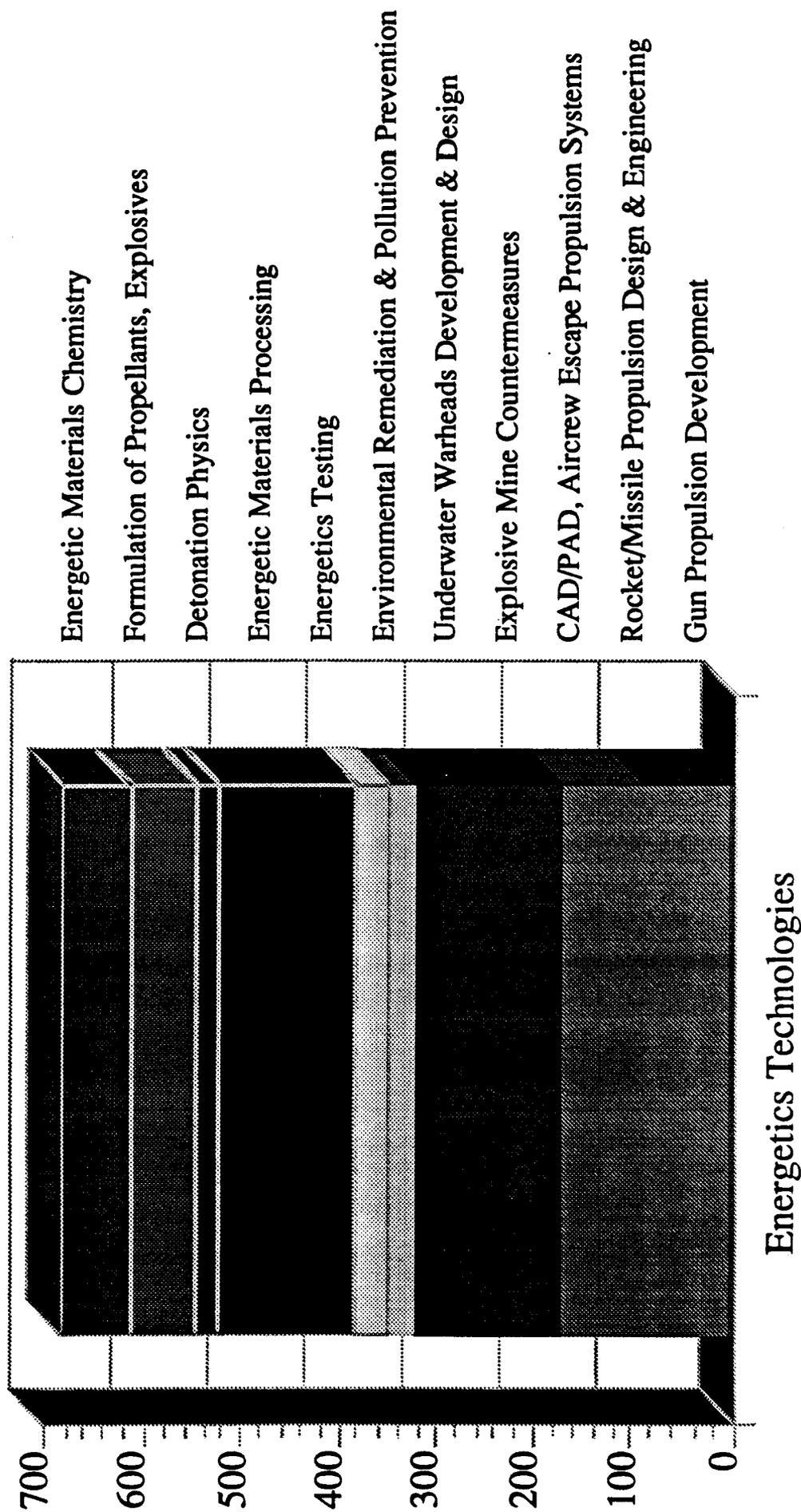
Naval Sea Systems Command

Life Cycle Consolidation

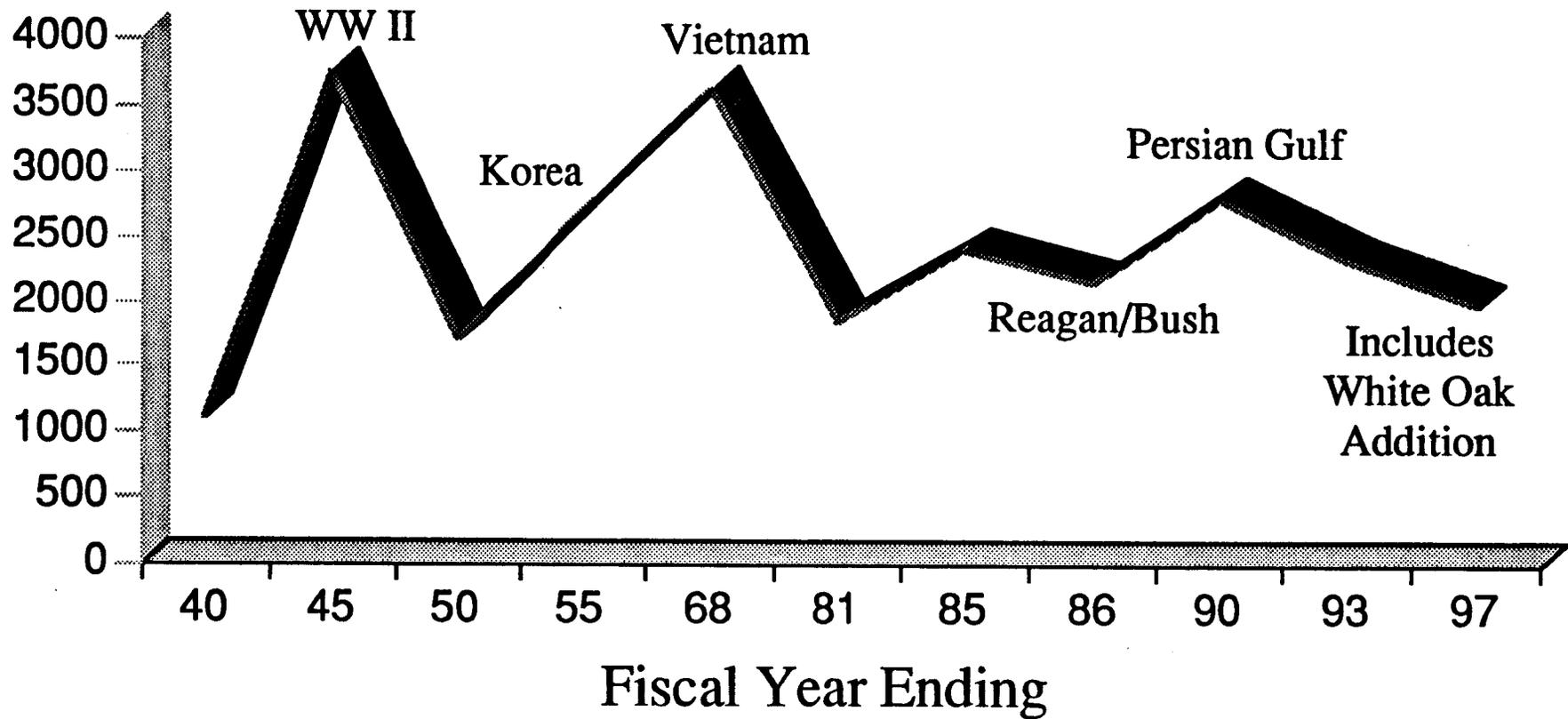


*Ref: U. S. Congress,
Office of Technology Assessment,
Building Future Security*

Expertise



IHD Staffing History





Naval Sea Systems Command

- "... The U.S. Navy's Indian Head Division, NSWC, has been awarded the 1994 U.S. Senate Productivity Award . . ."

*Senator Barbara A. Mikulski,
Senator Paul S. Sarbanes*

Indian Head Division

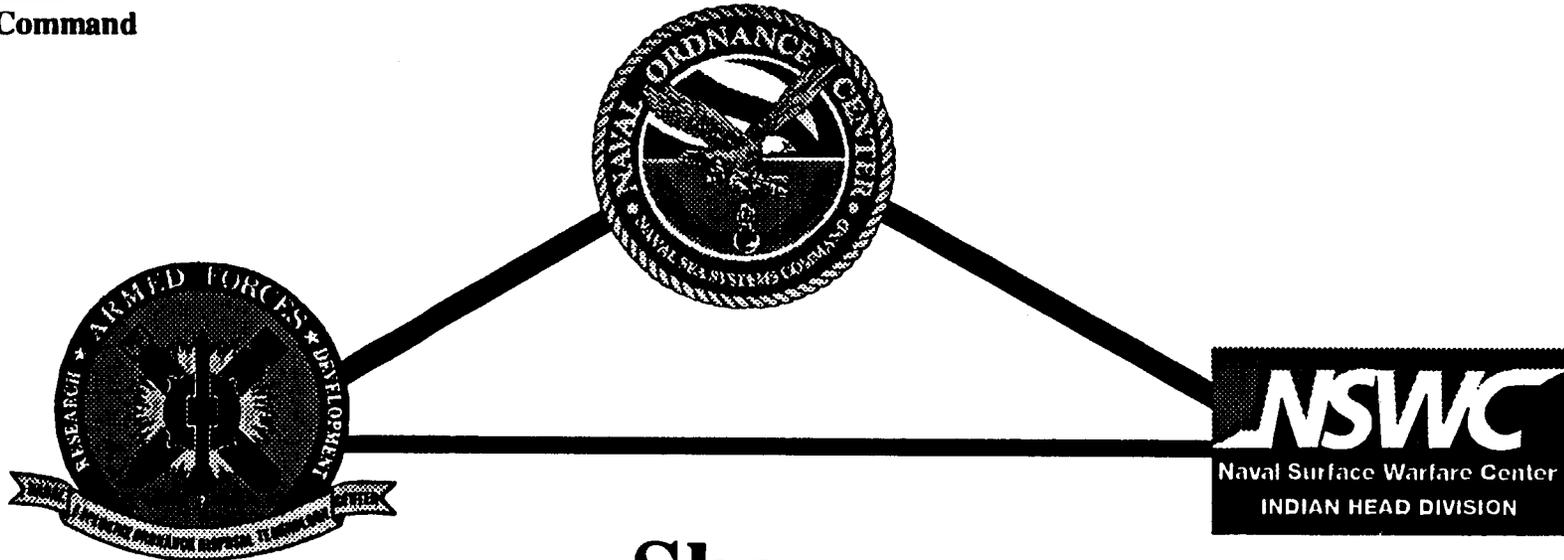


- 1,600 buildings
- 3,500 acres
- 1.5 billion



Tenants

Naval Sea Systems Command



Share

Explosive Technology

Navy Ordnance Environmental Support Office

Navy Technical Explosive Safety Center

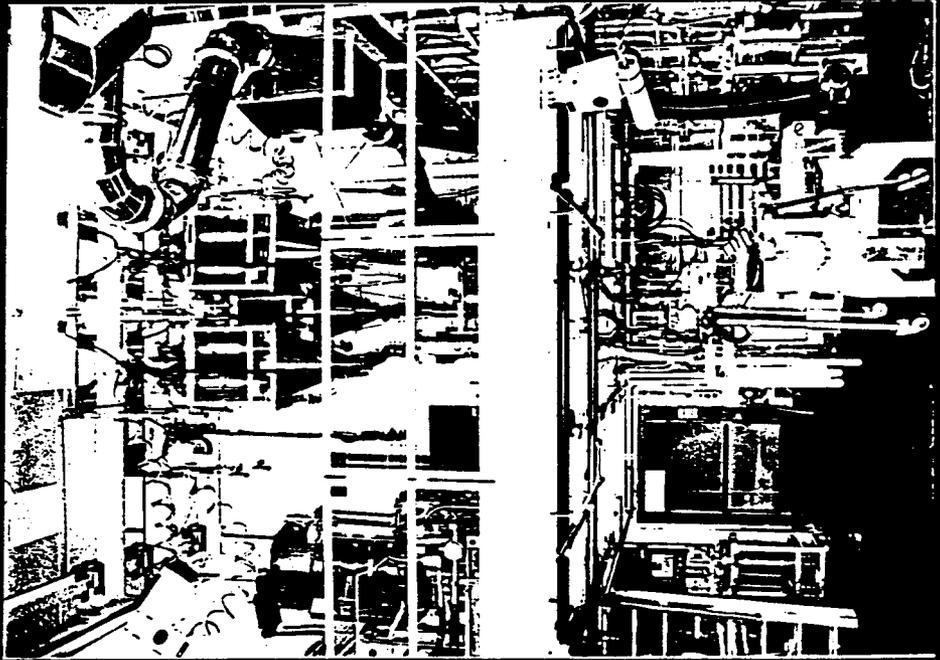
Qualified Personnel Pool

Energetics Research Laboratory



\$42 million

Weapons Product Development

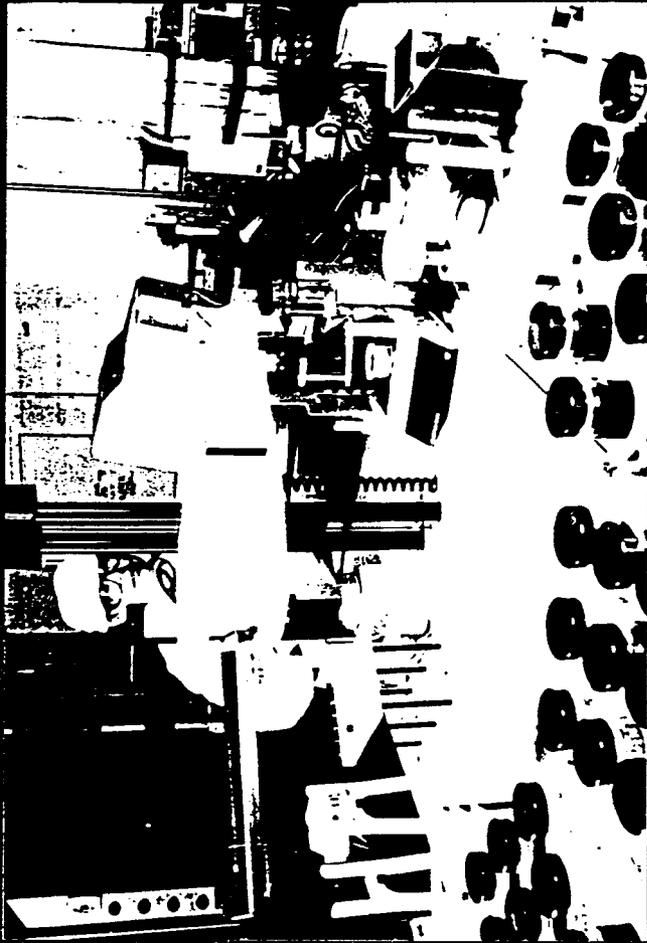


\$135 million

Chemical/Physical Characterization

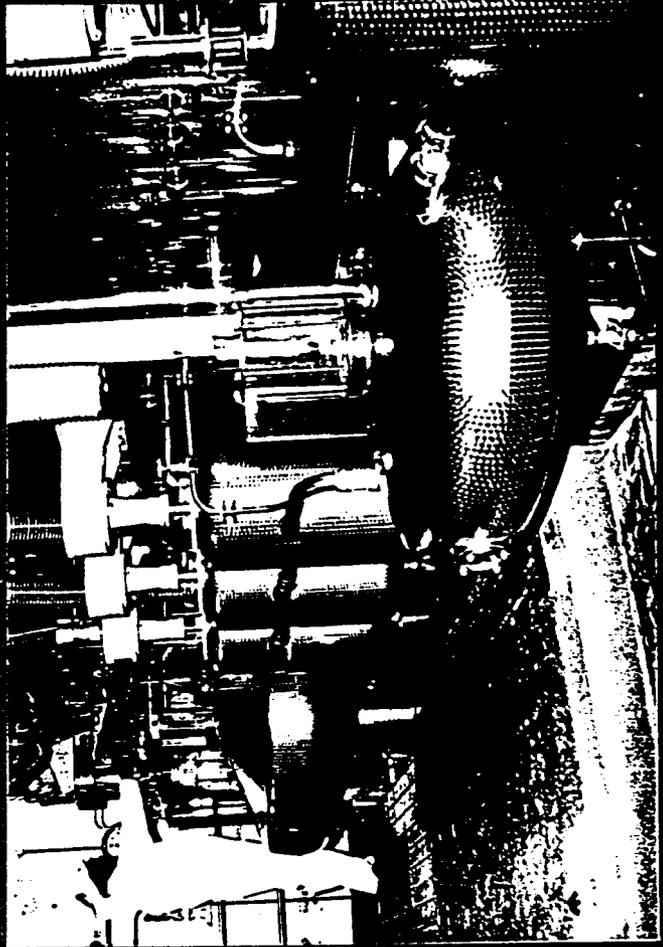
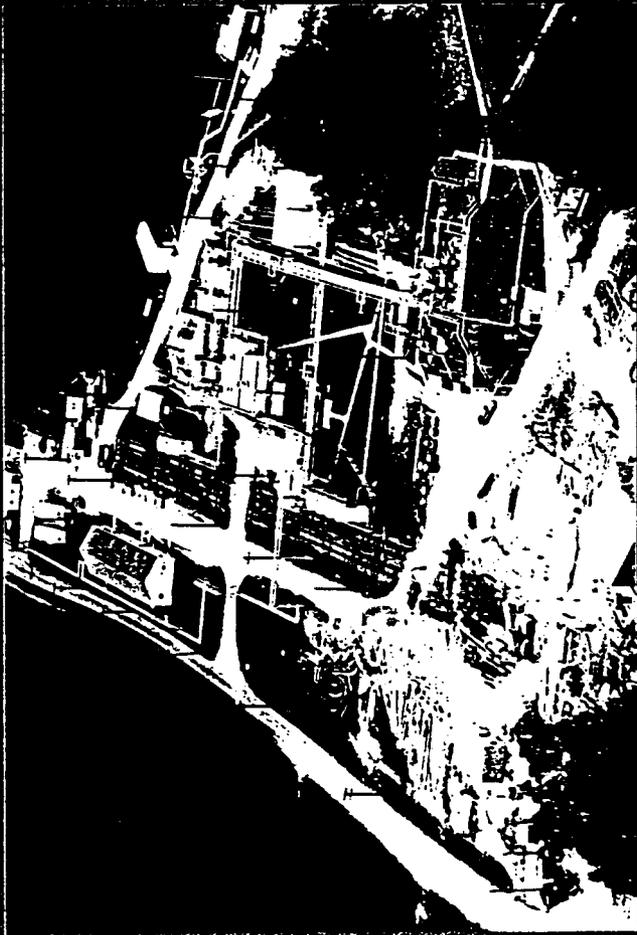


\$28 million

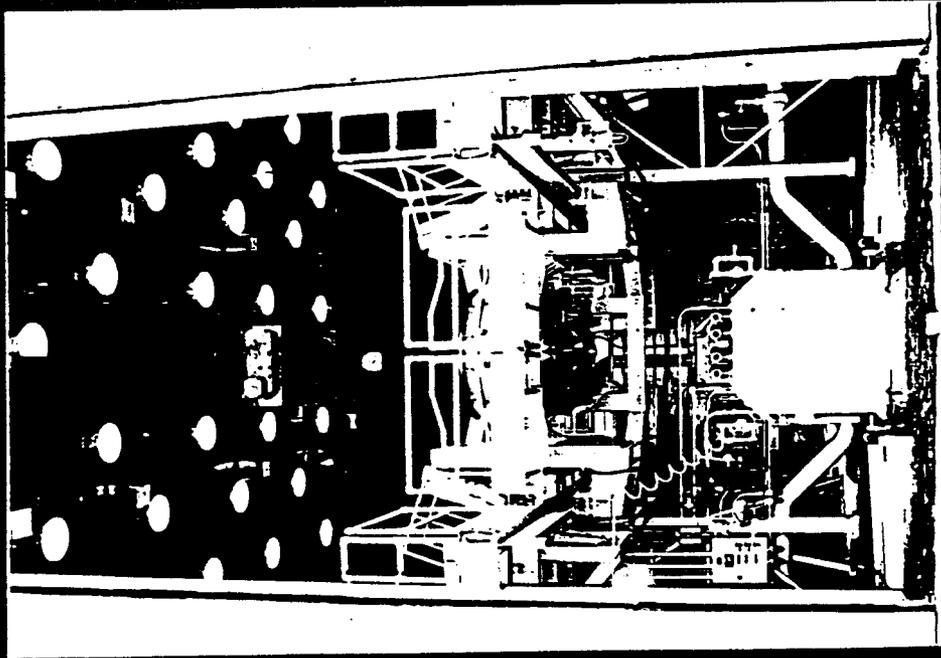


Chemical Processing/Nitration Complex

\$90 million



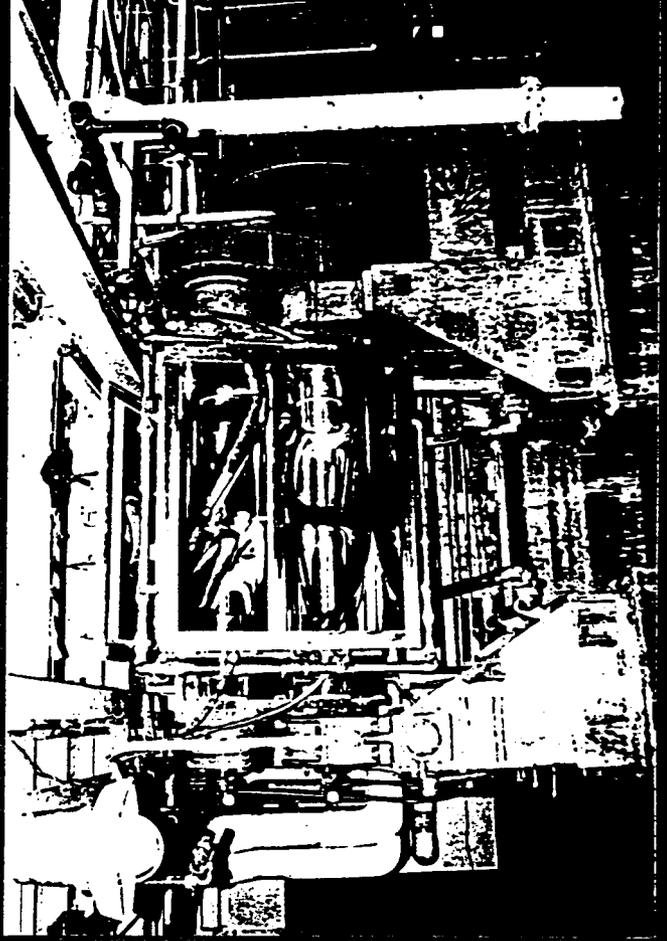
Composite Propellant/PBX Processing



\$130 million

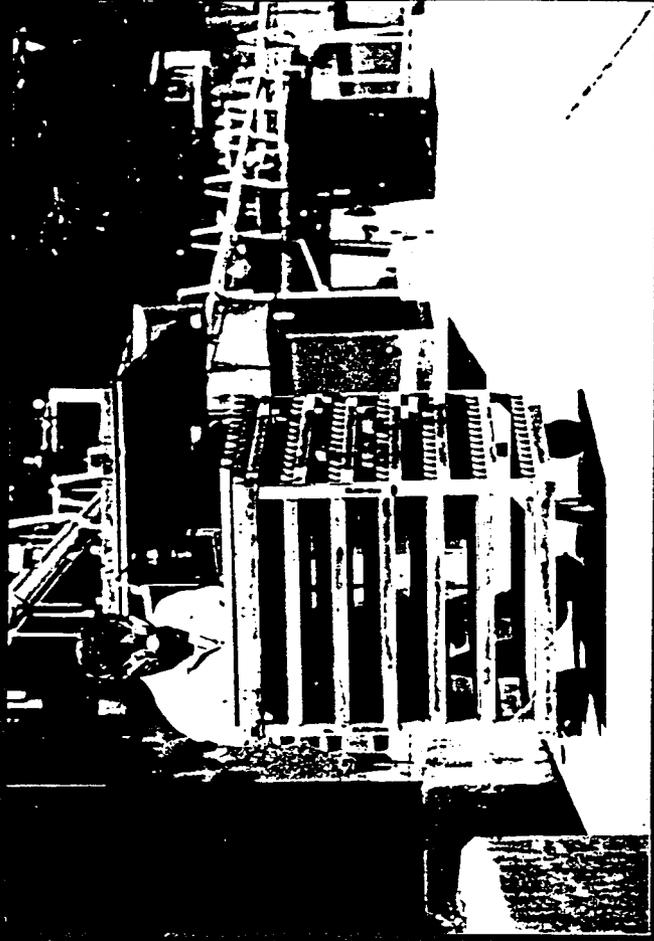
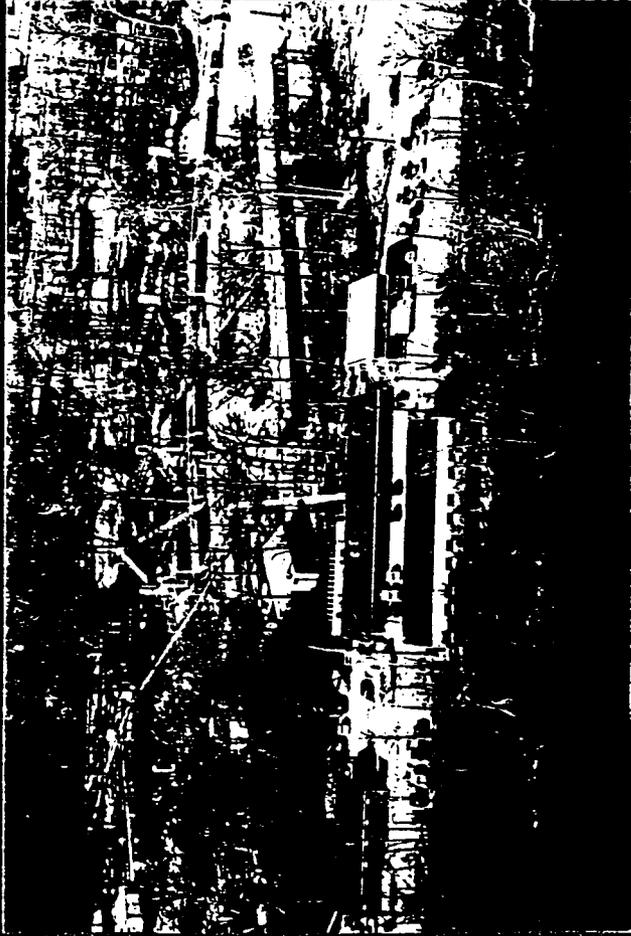
Nitramine Gun & High Energy Propellant Complex

\$90 million



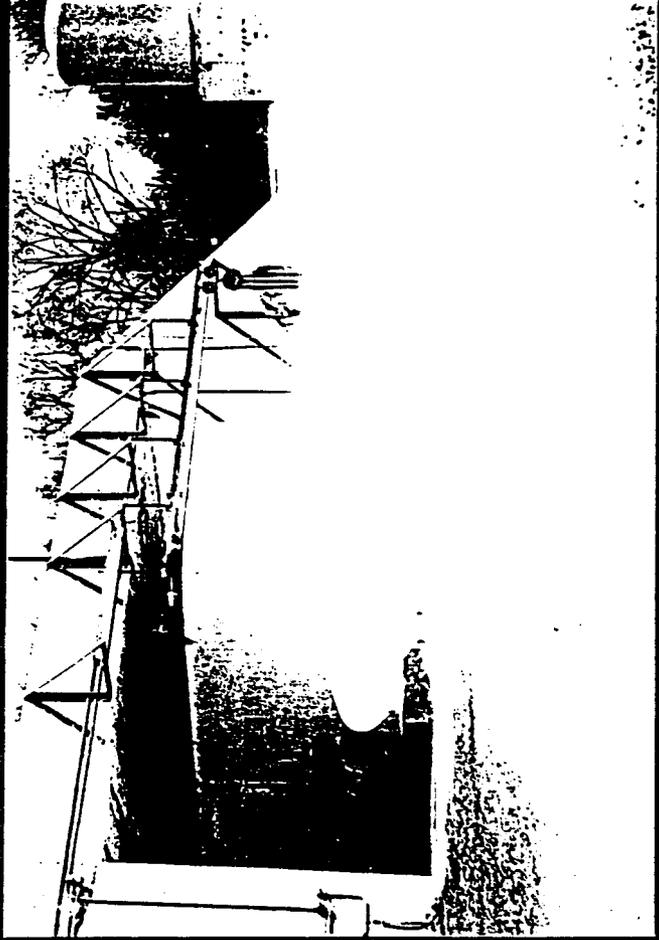
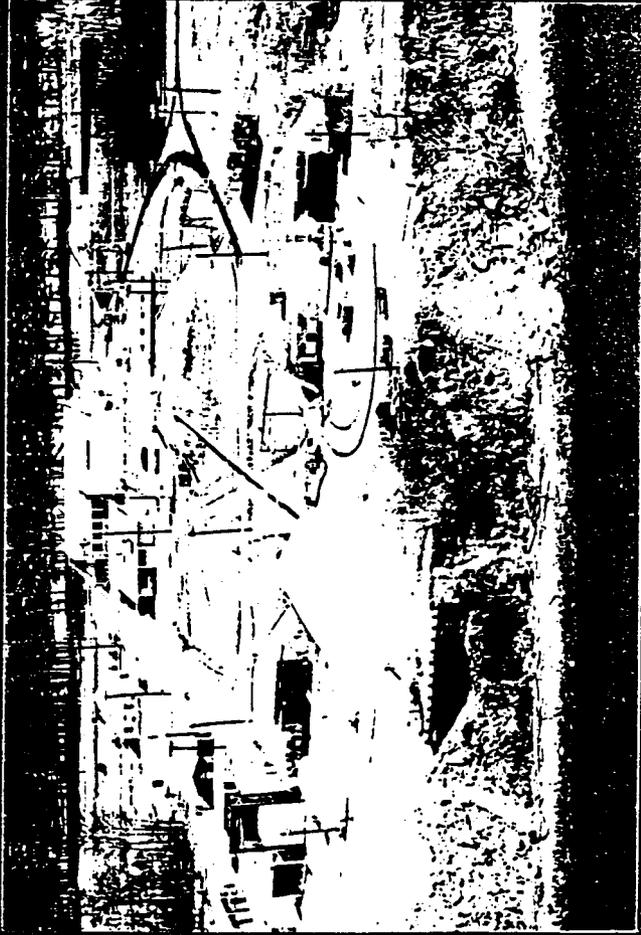
Extruded Products Facility

\$85 million



Ordnance Test & Evaluation Complex

\$45 million





Naval Sea Systems Command

Unique Facility Examples

Chemical Processing Complex - \$90 million

Otto Fuel II -	torpedoes
PNC	torpedoes, mines and mine countermeasures
HBNQ	standard missile
MAPO	torpedoes, aircrew escape devices, standard missile
HNS	aircrew escape devices
NG Lacquer	trident missile

Ordnance Devices Development & Prototyping - \$18 million

Primers, rocket catapults, delay cartridges	aircrew escape, stores separation, booster separation
Tri-Service Charter for 1200+ devices, RDT&E, last resort mfg., fleet support	

Nitramine Gun and High Energy Propellant Facility - \$90 million

Nitramine gun propellant	army tank ammunition, future Navy Guns
--------------------------	----------------------------------------

Extruded Products Manufacture - \$85 million

One of two sources for extruded products	2.75" rocket, mine countermeasure propulsion
------------------------------------------	----------------------------------------------

Energetic Materials Research and Weapons Project Development & Scale-Up - \$177 million

Starter Cartridge Propellant	harpoon missile
Extruded MTV	Mk 22 line throwing rocket, JATOs
R&D and scale-up any energetic material	has potential to affect all energetic applications



Facts

Naval Sea Systems Command

- Navy has the broadest range of energetic requirements. Underwater explosives, insensitive munitions, marines, naval air, air and surface targets
- The critical mass of energetics expertise and facilities is at Indian Head
- The Navy's explosives development program is the largest by far in DOD
- Indian Head's facilities are the right size for efficiently meeting DOD's reduced production needs



Naval Sea Systems Command

Facts

- Indian Head is presently performing tri-service work
- It would be prohibitively expensive to move Indian Heads capability
- Indian Head provides a warm base for mobilization
- Indian Head could perform the energetics R & D and engineering work for the DOD without major investment in facilities

1. ENERGETIC SOLUTIONS

The Indian Head Division is a niche organization concentrating its work in the area of Energetics. We work primarily at the subsystem and component level and are different than other military technical organizations in this regard. We are also different in that we develop solutions to military problems and also manufacture items you can take to war.

2. MISSION

Our mission is "full spectrum" and I use this term in two ways. Full spectrum in that we span the equipment life cycle-- research, development, manufacturing technology, scale up to full production processes, in-service engineering and demil support. And full spectrum in the sense that we work on the full range of energetic products rather than concentrating on a few as do most of the private companies.

Our energetics work is not limited to surface warfare. We work for all Naval Warfare areas as well as Army, Air Force, Marines and the private sector. We are the only source for some materials such as ingredients for underwater explosives. Once we develop or modify manufacturing processes we have the mission to transfer them to industry, to help them when they have problems and to kick start the industry and Army plants in time of war. An important benefit of our ability to scale up to full production process is that this makes us a warm base for mobilization if war breaks out. It could take a year or two to get a moth balled big production plant rolling.

3. ENERGETICS CONSOLIDATION

The Navy has been taking various actions to consolidate energetics work at Indian Head.

Five years ago the Naval Explosive Development Engineering group at Naval Weapons Station Yorktown was reassigned to Indian Head. This forty man group is part of our Research and Technology Department and will be moved to Indian Head as workload decreases makes it affordable to move equipment.

A few years ago the volume of explosive loading at NWS Yorktown reduced to the point where the maintenance costs were unaffordable so they were dropped out of the loading business with all Navy explosive loading concentrated at Indian Head.

When the Warfare Centers were formed, Indian Head and China Lake conducted a joint study of work in the area of solid propulsion. The study showed that Indian Head had about 3.5 times the work years in solid propulsion and concluded that the mix of work made sense based on the respective expertise and facilities at the two sites.

BRAC 93 transferred the Explosive Development and Underwater Warheads Development capability from White Oak to Indian Head. This became a reality on 1 April 1994, creating a closer bond between research and engineering scale up of explosives, preserving White Oak's expertise and enhancing Indian Head's "full spectrum" capability.

And in December 1993 the Naval Ordnance Center was established at Indian Head enhancing the connection between the engineering capabilities of the Warfare Center and ordnance management responsibilities of the NOC.

4. UNIQUELY MILITARY

Energetics is a uniquely military business.

5. THE ENERGETICS BUSINESS

The companies in the energetics business are, by and large, separate from the weapon systems contractors. They have no commercial market to "transition to". The business that supports the mining industry with explosives is unsophisticated and dominated by producing a cheap product. With the military production volume way down and the cost of environmental compliance sky rocketing "energetics" has become the business to get out of. There is just no pay off for retaining the massive facilities and specialized expertise required.

6. MUNITIONS BUDGET

This chart will give some feeling for the decrease in volume seen by the industry. The FY94 levels are less than one third of the FY92 levels; and the FY92 levels were only half of the peak in 1985.

7. DUPONT

This letter from Dupont is just one of many such cases where industry is deserting the business. I like their delicate wording, "---no longer a strategic component of the Dupont business portfolio".

Another good example of the situation deals with the explosive HNS to cut the canopy of aircraft before pilot ejection. To produce the DoD's yearly requirement of less than 1000 pounds generates 40,000 pounds of hazardous waste. Consequently there are no producers in the United States.

8. QUOTES

These unique capabilities of the energetics business are certainly understood as demonstrated by these quotes from this years NRAC Study and the NAVSEA policy imperatives which relate to BRAC. The need to retain and consolidate uniquely military functions and to insure a source of supply is available.

9. SPONSOR BASE

In FY93 we received about \$300M from a large variety of sponsors. About 80% was energetics related. We get like amounts from NAVSEA and NAVAIR, Army funding in rockets and gun propellants, Air Force dollars in the areas of aircrew escape and sled rockets, explosives and warheads from ONR, the Marines primarily in land mine countermeasures, and from a variety of private contractors for whom we act as supplier or subcontractor for items and services they can't get else where.

10. ORGANIZATION CHART

This chart shows how we are organized. This year we were funded under the Manufacturing Technology Program as the Center of Excellence for Energetics Manufacturing Technology.

I will give you a few examples of the products for the six Departments having over 100 workyears each in energetics.

11. ENERGETIC MATERIALS RESEARCH AND TECHNOLOGY - 277 Workyears (Energetics)

The majority (6 of 9) of the new explosives introduced into weapons across the services over the last fifteen years were developed by this group.

Designer Explosives are ones who's reaction can be tailored to the release profile you want extruded composites will allow for high energy rockets which can be economically produced.

Continuous processing is a more efficient and safer method of manufacture. And we are investigating such things as micro-organisms that eat nitroglycerin.

12. UNDERWATER WARHEAD DEVELOPMENT -- 146 Workyears

This Department performs 6.2/6.3/6.4 Warhead related work for underwater applications. One major accomplishment in recent years is the unconventional MK50 Torpedo Warhead.

13. CAD/PAD -- 154 Workyears

This work involves tri-service life cycle responsibility for energetic devices for air crew escape and for other devices for stores release, explosive cutting, etc.. They develop new and better performing man rated items. Some items which are difficult to produce or which present significant safety liability are produced at Indian Head. At least 90 percent of the items are contracted out.

There is much work going on in this department as well as others to change propellants to be more environmentally benign such as getting rid of lead ballistic modifiers.

14. WEAPONS ENGINEERING -- 181 Workyears

Here we perform a variety of engineering developments such rocket propelled explosive nets for Mine countermeasures; production support tasks and in-service engineering work for a variety of missile propulsion subsystems such as Standard Missile and Tomahawk, and rockets for the Army Single Manager.

15. ORDNANCE --516 Workyears

This organization has the most expensive facilities; for establishing full scale production processes and for manufacturing at a low rate. The picture is a Vandal Rocket grain which is used as a target.

Most of our manufacturing is done as a result of cost efficiency or emergency. If we develop an scale up a particular warhead or propellant the production requirements volume may not warrant establishing a large facility elsewhere. In the case of the M43 high energy propellant for tank rounds we were completing development when Desert Storm came along and the Army asked us to start producing. In the case of the 2.75 inch rocket we geared up production when the Radford Plant had an explosion.

16. TEST AND EVALUATION -- 164 Workyears

We have an array of test capabilities for the properties of propellants and explosives, for CADs and PADs, static motor tests and complete x-ray. The photo shown here is a Tomahawk functional ground test where the missile functions are all exercised without the expense of a flight test.



17. WORKYEARS BY LIFE CYCLE

This chart shows the distribution of workyears over the life cycle. One of our Army customers liked the idea that he could get advice on manufacturing processes from a technical organization that actually produced.

18. LIFE CYCLE CONSOLIDATION

Consolidating energetics at one place allows us to retain a critical mass of technical expertise, to apply this expertise to the full range of problems and to share facilities across Research, Production and Maintenance. The Congressional Office of Technology Assessment drew the same conclusion on their review of the private sector supporting Defense.

19. EXPERTS

We have the full range of the types of technical experts required to perform energetics work and in sufficient quantity to keep this expertise alive.

20. PRODUCTIVITY AWARD

Indian Head has been downsizing and consolidating in reaction to the decreasing DoD for the last four years. And while doing this we have improved our productivity.

21. STAFFING HISTORY

Personnel levels at Indian Head have dropped about 900 (approx. 30%) since FY 91. This graph is to depict that by FY 97 we will have the capacity to take on more work in terms of people; 1000 workyears more to return to the FY 91 levels; and several thousand more before reaching the surge requirements of Vietnam. We will also have additional space if the EOD School moves out in FY 98 as planned.

22. INDIAN HEAD PENINSULA

Investment in facilities at Indian Head is on the order of \$1.5B, 1600 buildings on 3500 acres. They are isolated by Indian Head's location on a peninsula in the Potomac River. Virtually all of these facilities are involved in energetics work. They include research laboratories, testing facilities, prototyping, processing and disposal facilities and the support structure of chemical handling and storage, magazines and utilities (a lot of water is required for processing). And certainly not a trivial matter these days is the \$50M recently made in environmental compliance.

NSWC Dahlgren Division is only 30 miles south on the Potomac. We work closely with them on missile warheads providing their explosive development needs and manufacturing test articles. We also use their test areas for warhead performance and safety testing. The Naval Ordnance Center and its Explosive Ordnance Disposal Technology Center are co-located with us at Indian Head.

23. TENANTS

We share explosive expertise with two major tenants. The Naval Ordnance Center (NOC) and its Explosive Ordnance Disposal Technology Division (EODTD). While we create energetics the EODTD has Tri-Service responsibility for detecting ordnance and rendering it safe. We get help from them in demiling and sampling explosives from end items and we support them in explosive analysis. We supplement the NOC's ordnance management responsibilities with our energetics expertise.

Indian Head is home for the Navy's Ordnance Environmental Support Office and the Navy's Technical Explosive Safety Center. These two organizations provide extensive support to the NOC and its field activities (the Navy Weapon Stations).

Another big advantage of having the NOC and EODTD located with Indian Head NSWC is that we share a pool of personnel qualified to work in the energetics field.

The facilities and equipment required for energetics work are large, expensive and hard to move. I will now show you a few examples of some of the complexes involved.

24. ENERGETICS RESEARCH LABORATORY

In these facilities we perform the research which leads to the development and characterization of new explosives and propellants.

25. WEAPONS PRODUCT DEVELOPMENT

This is a large array of scale up building to create, test and analyze a wide variety of energetic materials. It is also where we perform our manufacturing technology tasks and the development of new or improved systems.

26. WEAPONS PRODUCT DEVELOPMENT

This shot shows facilities for modeling aerodynamic systems and the subsequent test work on an explosive mine countermeasures net deployed using two rocket motors.

27. CHEMICAL AND PHYSICAL CHARACTERIZATION

The picture shows the newest chem lab just completing construction this year. The equipment shown is a robotic system for propellant sample preparation.

28. CHEMICALS PROCESSING

A number of the capabilities in this complex are the only source for the formulations they produce. This photo is a nitration facility, one of the chemical processing complexes, where otto fuel, nitroglycerin, CSD lacquer and some of the ingredients for underwater explosives are made. Two facilities (which are one of a kind) make HBNQ and PNC, both explosive ingredients.

29. COMPOSITE PROPELLANT/PBX PROCESSING

This complex can mix or cast a broad range of warheads and rocket motors. It can simultaneously work on multiproducts which we refer to as a lean manufacturing center. Pictured is the brand new cast facility which will lead the industry for manufacturing technology.

30. NITRAMINE GUN & HIGH ENERGY PROPELLANT

This is the only plant capable of making its present product; the low sensitivity high energy Mk 43 propellant for the 105 mm tank round.

31. EXTRUDED PRODUCTS

Smaller rockets are extruded in this complex of 90 buildings; 2.75", Zuni, countermeasures rockets, pilot seat ejection, etc. It is one of two extrusion plants in the U.S., the other one located at Radford Army Arsenal.

32. TEST AND EVALUATION

We have an excellent capability for static test of rocket motors made economic by the volume of tests we perform; some 1200 per year. This involves tests for development, production acceptance and stockpile surveillance.

33.

Read the bullets. No explanation is necessary.

34. FACTS I

The next two vignettes are a list of conclusions or "facts" which add up to Indian Head being the best place for the DoD to do its technical work in energetics.

There is a critical mass of energetics expertise and facilities at Indian Head due to our focus on this particular business and the prior Navy actions to consolidate Energetics work at Indian Head.

The Navy is making the largest investment of the services in explosives development. 2 to 3 times the size of the Army Program and 10 times the Air Force Program. And almost all the new explosives introduced into weapons in the last 15 years were developed by the Navy. The reason for this, I believe, is that development over the last twenty years has concentrated on underwater explosives and insensitive formulations.

Our manufacturing capability is a by product of the engineering requirement to scale processes up to production levels and to be able to help industry with their production problems. With DoD production volume going down our plants are efficiently sized for these levels.

35. FACTS II

As I discussed earlier, we are operating in a Tri-Service mode; supporting the Army with explosive developments, rocket engineering and manufacturing, and gun propellant development and production. We are working for the Air Force under our Tri-Service responsibility for CADs and PAD's for aircrew escape systems and some missile booster work. And we are supporting the EODTD Tri-Service Activity.

The facilities to perform energetics work are very expensive to recreate and difficult to move. And there are a number of services and products we are uniquely configured to provide.

Our engineering facilities provide a warm base for mobilization and this capability has been used extensively in every conflict and as a backup when accidents occur elsewhere.

I believe Indian Head could meet the energetic technical requirements for the DoD without major investment in facilities.

205

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)

Dr. Ira M. Blatstein

Ira M Blatstein

NAME (Please type or print)

Signature

Technical Director

10/26/94

Title

Date

Naval Surface Warfare Center

Activity

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

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

G. R. Sterner

G. R. STERNER

Signature

Commander

10-29-94

Naval Sea Systems Command

Date

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

W. A. Earner

NAME (Please type or print)

Signature

Title

11/2/94

Date

94-11-21 10:03 RCVD

WC

DATA CALL # 12, AMEND 1
LJCSG QUESTIONS
INDIAN HEAD

Questions Asked during the NSW IHDIV brief
to the Laboratory Joint Cross-Service Group
Datacall 12 Amend 1 Energetics Cross-Service analysis

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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

ACTIVITY COMMANDER

CAPT. W. J. NEWTON
NAME (Please type or print)

W. J. Newton
Signature

COMMANDER
Title

25 OCT 94
Date

INDIAN HEAD DIVISION, NSW
Activity

25 Oct 94

NSWC, INDIAN HEAD DIVISION
DATA CALL 12 AMENDMENT #1
ENERGETICS CROSS-SERVICE ANALYSIS

Questions asked during the Indian Head Division, NSWC briefing to the Laboratory Joint Cross-Service Group; Energetics Cross-Service Analysis.

1. How did you get the CAD (Cartridge Actuated Device) work at Indian Head?

Answer: In 1966 the Naval Ordnance Plant at Macon, GA was closed and their 6.2 R&D work on ignition delay compositions was moved to Indian Head. In the early 70s Dahlgren Division transferred to IHDIV the engineering responsibilities for Navy CAD devices which were a good fit with IHDIV's technical expertise with rocket motor igniters and propellant actuated devices.

In 1973 a Joint Logistics Commanders (JLC) panel on Consolidation of Functions and Facilities recommended consolidation of CAD/PAD logistics, R&D, procurement, production, and ballistic test functions. The Army site at Frankford, PA and IHDIV were considered. The panel recommended consolidation at IHDIV due to larger projected annual savings based on:

- IHDIV's ability to manufacture propellant for all CAD/PAD products.
- More modern facility with lower maintenance costs.
- Army not primary CAD/PAD user; Navy was.
- Frankford was subject to encroachment by city of Philadelphia.

In July 1974 the JLC's approved tri-service consolidation at IHDIV. One hundred twenty eight billets were identified to transfer from Frankford to IHDIV.

Further consolidation of engineering functions has continued since, including a 1987 Engineering Support Working Agreement between IHDIV and the AF's Ogden Air Logistics Center, which assigned IHDIV CAD/PAD engineering responsibilities not included in the 1974 consolidation.

2. You said Indian Head developed 6 out of 9 new explosives that have been introduced into weapon systems over the last 14 years. Who developed the other three?

Answer: One by China Lake, N-107 (Harm Missile), and two by the Air Force, AFX-708 (Maverick Missile) and AFX-760 (Air Launched Cruise Missile). This list of new explosives was limit-

ed to those introduced into service use. Many more have been developed or are in the qualification stage.

3. Was the decision to move the EOD School to Eglin AFB a BRAC decision?

Answer: No. The present school curriculum is split between Eglin and Indian Head and is planned for consolidation at Eglin in FY 97 or 98 pending MILCONs. Present school size at Indian Head site is 325 military and 9 civilians.

4. Are you still making 2.75 inch rocket grains?

Answer: We just completed a production lot. In 1993 the Army SMCA, stating that remaining manufacturing orders for the MK90 grain were insufficient to sustain two active producers, announced that it would keep production going at Radford Army Ammunition Plant (RAAP) in Radford, VA. IHDIV continues to be the SMCA's back-up producer of the grain, and remains the primary tri-service engineering agent for the rocket motor. IHDIV has the lead in improving the 2.75" rocket motor and propellant and the development of the next generation rocket program.

The current 2.75" rocket motor, and its propellant grain, the MK90, were developed by IHDIV in the late 70s. IHDIV began production of the MK90 grain in 1983 under a 1982 MOA between the Navy and the Army's Single Manager for Conventional Ammunition, and helped RAAP develop its production processes soon thereafter. Radford began production in 1986, but the SMCA retained IHDIV as an active MK90 production site. In 1987 IHDIV was asked to ramp up production from 7,500 to 15,000 grains per month due to Radford's inability to meet production requirements at the time. Shutdowns at RAAP periodically left IHDIV as the only producer. Most notably, a March 1988 explosion shut down the RAAP MK90 production facilities for over a year, causing IHDIV to surge to 30,000 units/month. In 1988, the Army SMCA updated the MOAs with the Navy concerning IHDIV, and expanded them to formally include IHDIV in the Army's mobilization planning.

5. What is the size of the EOD Technical Division?

Answer: As of 30 September 1994 the EOD Technical Division's staffing consisted of 87 military and 235 civilians.

6. Does the \$50M invested in environmental projects at Indian Head solve all the problems?

Answer: We do not have an environmental problem, no consent orders, and no notice of violations. We just completed an intensive EPA multimedia inspection of our entire environmental program with no major findings. One of the inspectors commented that our program is 20 years ahead of other local activities and they should use us as a model organization. However, the Clean

Air Act is coming and we're unsure, as is the rest of the industry, what this will mean.

7. What is your ability to scale up?

Answer: We have the capability to start at the test tube level; then small mixes of a pound to 150 pounds; and finally full scale production levels. This can be done for almost any type of energetic material such as specialty chemicals, explosives, and propellants. No other public or private organization can do this.

8. What is the size of your Center of Excellence for Energetics Manufacturing Technology? Is the Army involved?

Answer: In FY 94 it was funded at \$3.4M made up of Manufacturing Technology funds; a portion of this was funded by Nunn RDT&E. The Army is involved. (The Thrust Manager for Energetics from ARDEC Picatinny is on the Board of Directors.) IHDIIV receives significant additional dollars that are applied to MANTECH efforts. IHDIIV facilities are product oriented and collectively give an unmatched capability to develop process technologies concurrently with development of products. Since the 1900's, IHDIIV has been at the leading edge in developing innovative manufacturing technology for energetics. Today we are pioneering technologies such as injection loading of PBX in a CRADA with Alliant Tech Systems, Supercritical Fluid processing of energetics through the SBIR program, and Cryogenic processing technology for sensitive pyrotechnic materials. IHDIIV's process development work coupled with our ties to industry resulted in the NAVY establishing Indian Head as the Energetics Manufacturing Technology Center of Excellence.

9. What do you mean by unique facilities?

Answer: Facilities which are the only source for some products or services or are the only facilities uniquely configured for such products. The point of this list is two-fold:

1) This ability to manufacture various items is a byproduct of Indian Head's full scale engineering capability. They are generally things that are not profitable for the private sector or which are critical military materials for which we need to maintain an in-house capability.

2) The list will change with time as new products are introduced or as industry loses capability.

10. Otto Fuel is made by a company in New Jersey and they will go out of business if they don't get another contract. Based on this how can you say that Otto fuel is unique to Indian Head?

Answer: Otto Fuel, the fuel for the MK46 and MK48 torpedoes, was developed at Indian Head in the early 1960s and

manufactured at Indian Head ever since. IHDIV also serves as the in-service engineering agent. In 1985 the backup source, Radford Army Ammunition Plant's nitration facility, was destroyed in an accident and Indian Head sought another temporary second source. The company referred to in the question, ICI/Atlas in Pennsylvania, was selected as a second source and in 1988 was qualified, at considerable expense, to make a small amount of Otto fuel. In 1990 the second source was recompeted but before a selection was made the need for Otto fuel diminished greatly and Radford had rebuilt their nitration facility at a cost of \$30-40M canceling the need for the solicited second source. (Had the selection been made, Atlas would not have been the selected company and Indian Head engineers would have had to qualify another source.) The Navy's position was that volume didn't warrant a private second source and in-house plants were needed for products in addition to Otto fuel. ICI/Atlas is not configured to make bulk (vs. drum) Otto fuel which is the logistic technique currently used.

11. We're not making Harpoon anymore. Why is starter cartridge propellant for Harpoon on the list? Are there any other errors on the list?

Answer: FMS Harpoon and SLAM (a Harpoon variant) continue to be in production. IHDIV produces starter cartridge propellant grains for FMS Harpoon and SLAM. The yearly buy is between 100-200 units.

12. The Army said they could do (manufacture?) anything that Indian Head could do. Is this true? Get together with the Army and work out who does what.

Answer: It is not true. Throughout the array of the Army Large Production Plants they have a great deal of capability and the potential to make many products, but their facilities require expensive, major additions to produce the products currently done by Indian Head. For some items, such as PNC, there is no capability.

Document Separator

BRAC-95

DATA CALL NUMBER TWELVE
(AMENDMENT NUMBER ONE)

Data for

Space and Naval Warfare Systems Command
(Headquarters)
Washington, DC

94-11-21 10:02 RCVD

WC

BRAC-95 CERTIFICATION

**Certified Data: BRAC 95 Data Call Number Twelve - Space and Naval Warfare Systems Command
(Amendment Number 1)**

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

MAJOR CLAIMANT LEVEL

W.H. Cantrell
NAME (Please type or print)

W.H. Cantrell
Signature

Commander
Title

13 OCT 94
Date

Space and Naval Warfare 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

J. B. Greene, Jr.
Signature

Title

14 OCT 1994
Date

Activity

DATA CALL TWELVE AMENDMENT ONE

1. Organization Chart (as of 30 Sep 93):

a. Show organization elements (those which report directly to the activity commander or report to a PEO.)

See attached.

b. Describe the organizational relationships especially between support organizations and PEO/PMs.

PMs in PD-50 and PD-60 receive system engineering support, financial management support and integrated logistics support from support personnel within PD-50 and PD-60. They receive additional support from SPAWAR codes as follows:

o SPAWAR 01 - comptroller support including: financial document release; advice concerning budget strategies, financial guidance and policy; review for compliance with 31 USC 1301(a) requirements for propriety; financial execution reporting responsibilities; and 31 USC 1517 responsibility for certification of accounts.

o SPAWAR 02 - contract support including: review and recommendations for acquisition plans for assigned programs; assist in development of and review source selection plans; approve business clearances; administer competition, negotiation, and award of contracts; and ensure compliance with procurement regulations and procedures.

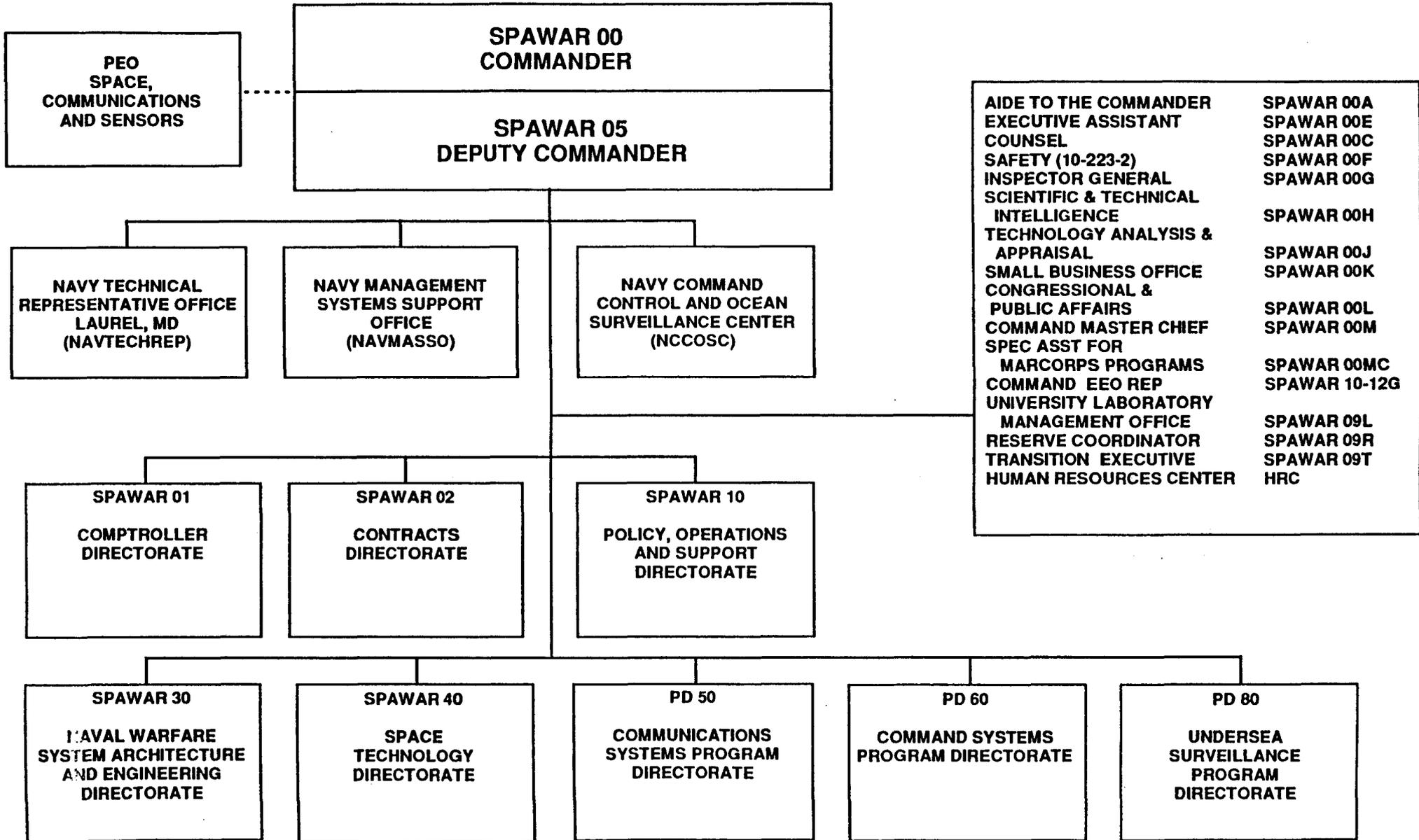
o SPAWAR 00C - legal support throughout all aspects of the acquisition process and in matters involving civilian personnel law.

o SPAWAR 10 - acquisition and logistics policy; physical and information security; telephone service; travel; purchasing; mail delivery; office equipment and supplies.

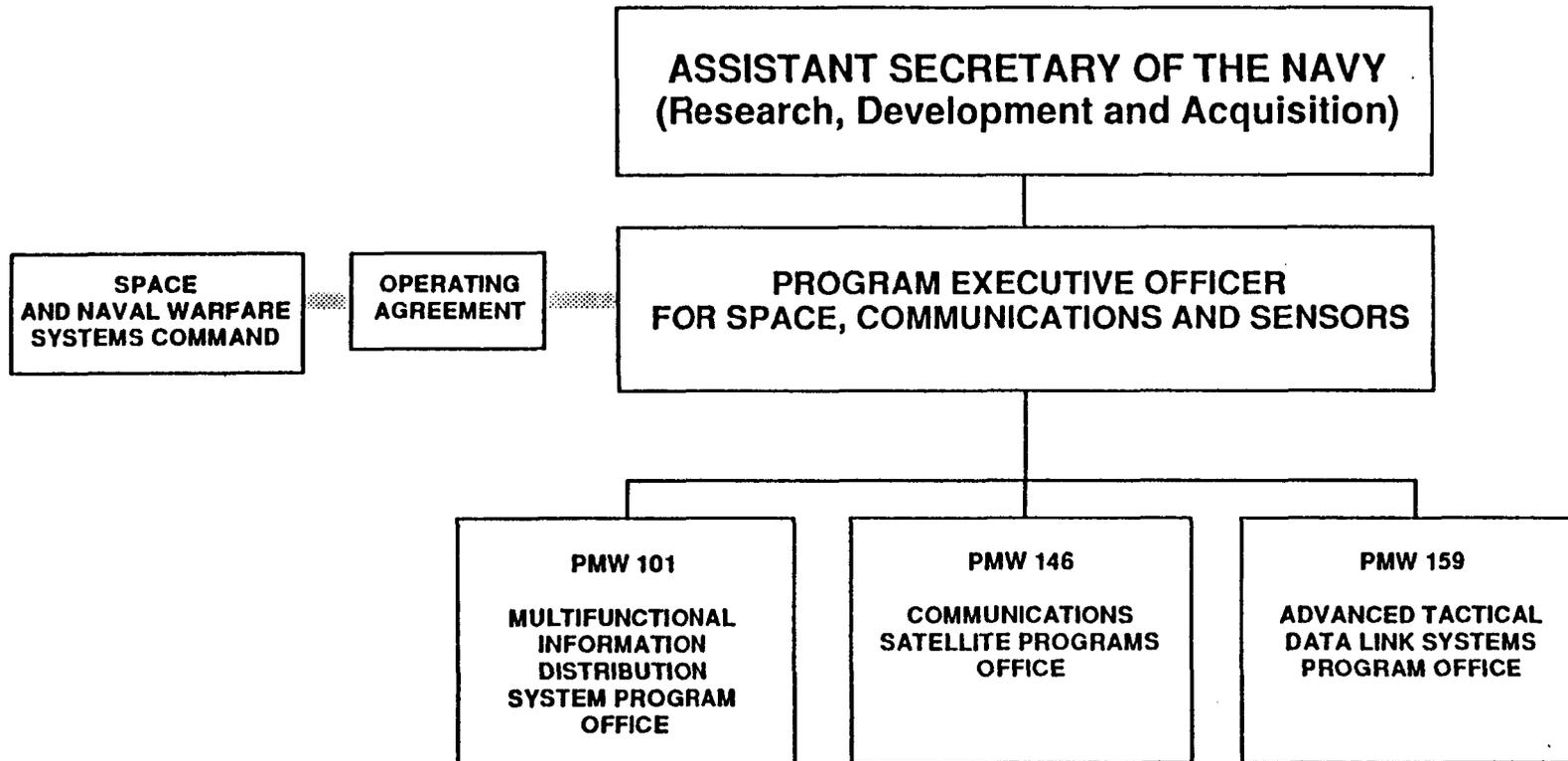
Support from SPAWARSYSCOM to the PEO-SCS is described in response to question 7c.



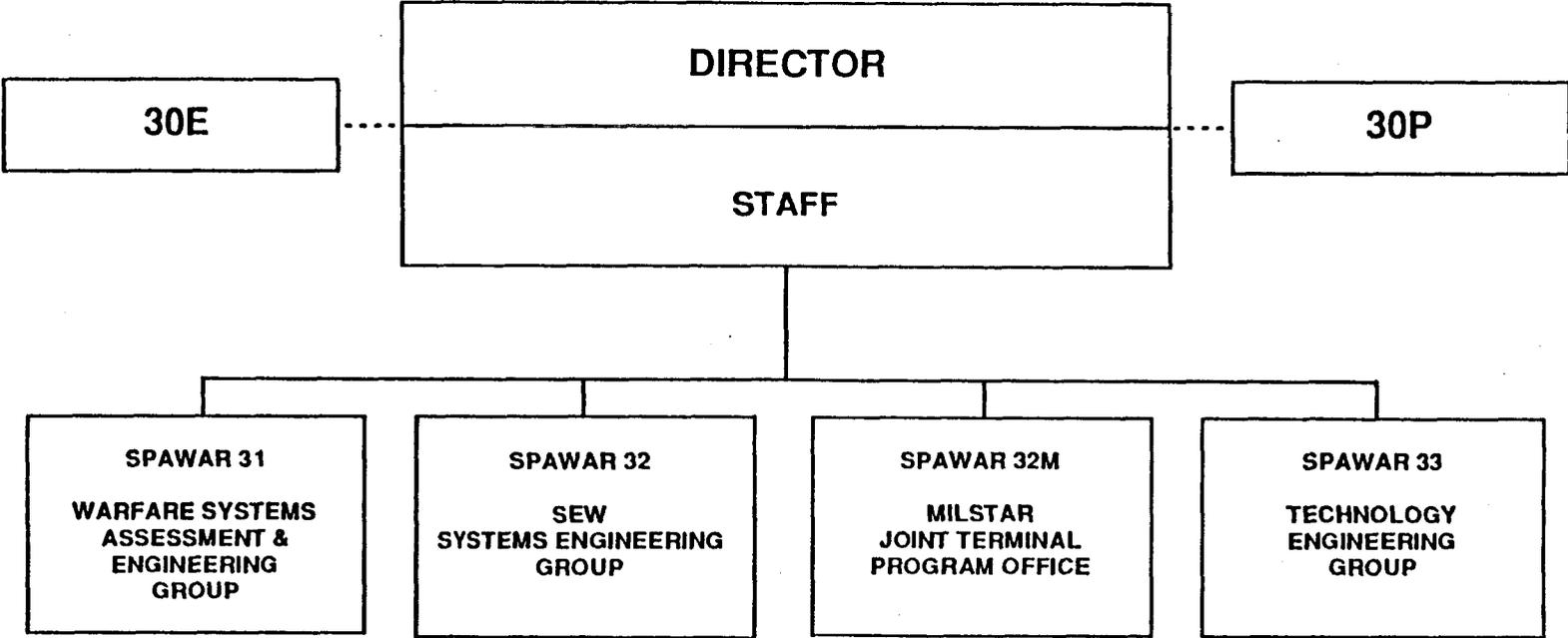
SPACE AND NAVAL WARFARE SYSTEMS COMMAND



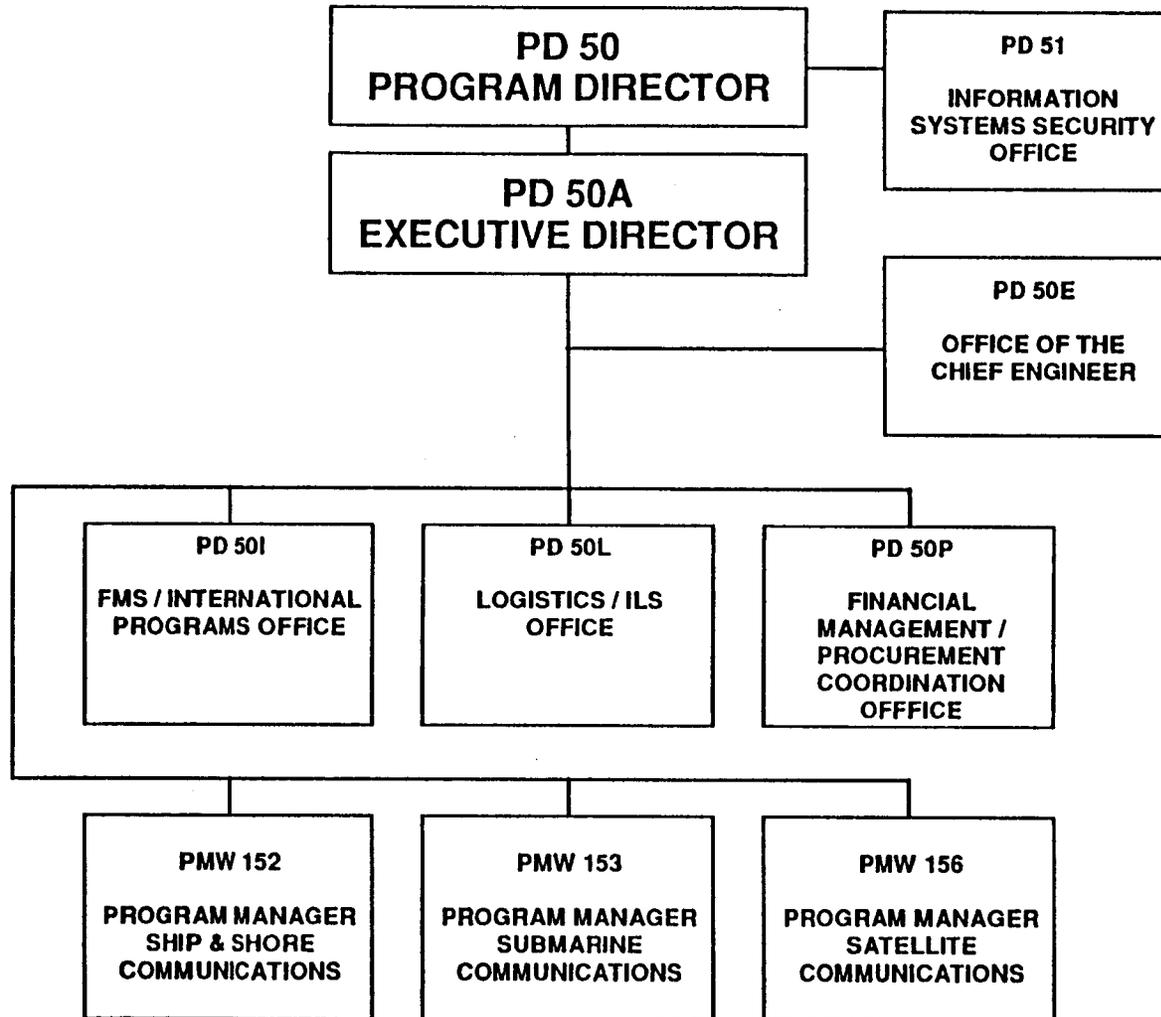
PROGRAM EXECUTIVE OFFICER FOR SPACE, COMMUNICATIONS AND SENSORS



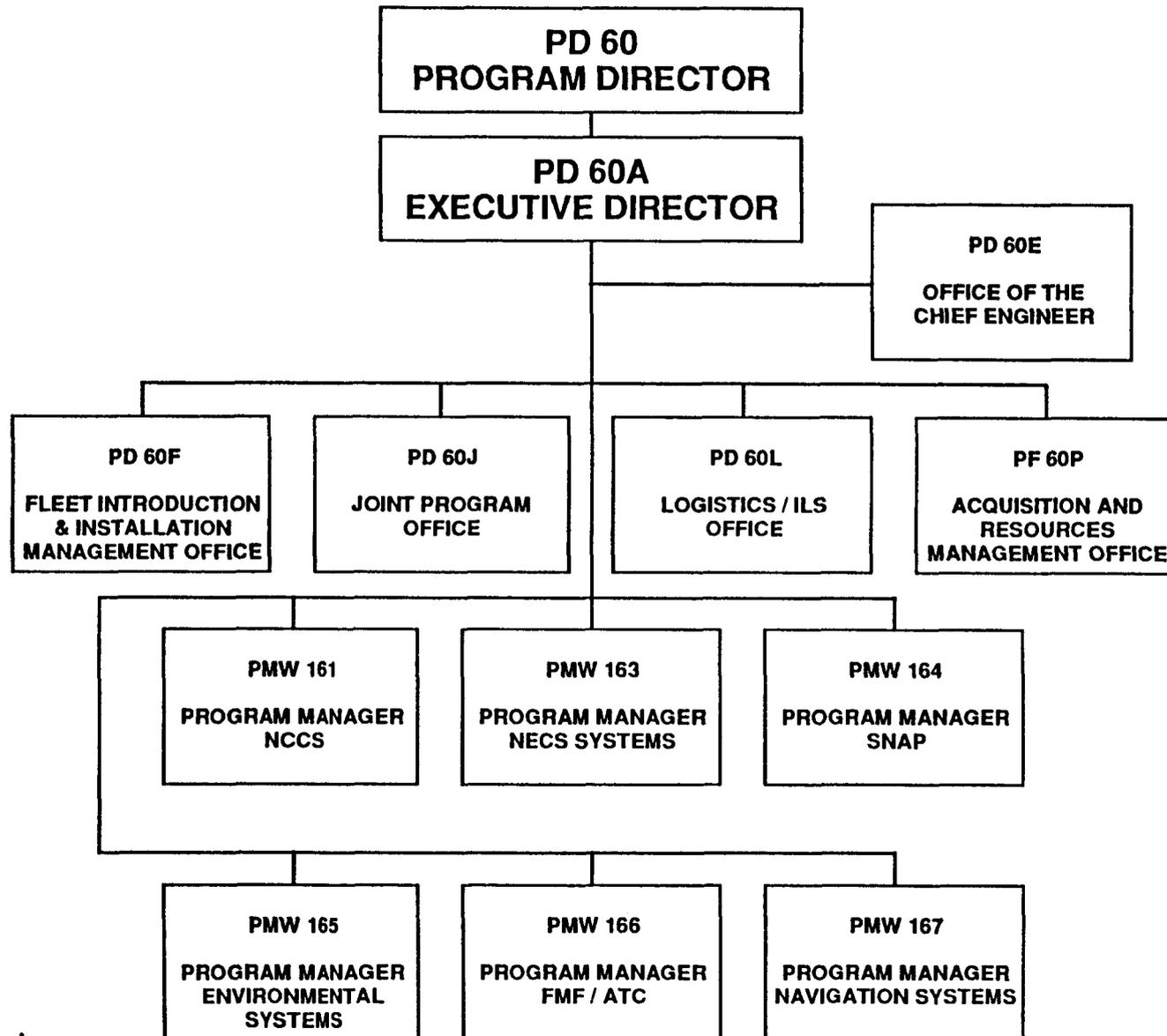
SPAWAR 30 ORGANIZATION



PD 50 COMMUNICATIONS SYSTEMS PROGRAM DIRECTORATE



PD 60 COMMAND SYSTEMS PROGRAM DIRECTORATE



c. Summarize the command's C4I/ non-C4I level of effort.

Major non-C4I efforts not included in this submittal are:

- PD-80 undersea surveillance effort of 150 workyears and \$623M.
- SPAWAR 40 which supports a non-DOD agency.
- Special compartmented programs which are not C4I.
- SPAWAR 30 non-C4I effort of 45 workyears and \$31M.

No separation of non-C4I/C4I efforts was made in the general support areas such as legal, contracting, logistics, university laboratory support, system engineering, public affairs, inspector general, small business, etc.

Under these conditions the total effort reported in this submittal is 1,158 workyears and \$1,651M in FY93 expenditures.

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: HEADQUARTERS STAFF

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS	1	2				
CONTRACTING	1	3				
FINANCIAL						
LEGAL	1	25				
MANAGEMENT	5	7				
ADMINISTRATIVE & OTHER	5	16				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	14,945		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)	211 (Duty Office) 3,227 (SCIF)		X

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS (\$000): _____

MAIN PROGRAMS -

* _____

* _____

* _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: HEADQUARTERS STAFF

MAIN CUSTOMERS -

* SPAWARSYSCOM

* ASN (RDA)

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 01 COMPTROLLER

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING						
FINANCIAL	1	62				
LEGAL						
MANAGEMENT						
ADMINISTRATIVE & OTHER		6			4	4

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	10,105		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)	1,550 (Computer Room)		X

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS (\$000): _____

MAIN PROGRAMS -

- * _____
- * _____
- * _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: SPAWAR 01 COMPTROLLER

MAIN CUSTOMERS -

- * SPAWAR 30
- * PD-50
- * PD-60
- * PD-80
- * PEO

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 02 CONTRACTS

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING	1	55				
FINANCIAL						
LEGAL						
MANAGEMENT	1	17				
ADMINISTRATIVE & OTHER		18				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	16,891		X
LABORATORY SPECIFIC SPACE	0		
OTHER SPACE (DESCRIBE)	2,209 (File Room)		X

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS (\$000): N/A

MAIN PROGRAMS -

- * N/A
- * _____
- * _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: SPAWAR 02 CONTRACTS

MAIN CUSTOMERS -

- * SPAWAR 09L
- * SPAWAR 10
- * SPAWAR 30
- * PD 50
- * PD 60
- * PD 80

2. For each organizational element:

a. Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 10 POLICY OPERATIONS & SUPPORT

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	5	27		2	1	15.7
LOGISTICS	2	41			3	16.5
CONTRACTING						
FINANCIAL		7				
LEGAL						
MANAGEMENT	4	27				
ADMINISTRATIVE & OTHER	5	78			29.5	3

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	46,117		X
LABORATORY SPECIFIC SPACE	0		
OTHER SPACE (DESCRIBE)	744 (VTC) 1,443 (MIC) 686 (Machine Rms) 1,936 (PhysicalFitnss) 396 (Alarm Room) 1,667 (Network/LAN) 2,744 (Storage, NS Anacostia)		X

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS (\$000): _____

MAIN PROGRAMS -

* _____

* _____

* _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: SPAWAR 10 POLICY OPERATIONS & SUPPORT

MAIN CUSTOMERS -

* SPAWARSYSCOM

MAIN PROGRAMS SUPPORTED:

* EMC/EMI

TOTAL FY93 PROGRAM FUNDS (\$000) 36,425

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 30 SYSTEM ARCHITECTURE & ENGINEERING

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	3	1				
LOGISTICS						
CONTRACTING						
FINANCIAL		9				
LEGAL						
MANAGEMENT	1	1				
ADMINISTRATIVE & OTHER	1	6				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	3,605		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS (\$000): _____

MAIN PROGRAMS -

- * _____
- * _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: SPAWAR 30

MAIN CUSTOMERS -

- * OPNAV (N6)
- * JOINT COMMANDER'S GROUP-COMMUNICATIONS AND ELECTRONICS
- * FORCE WARFARE SUPPORT ENGINEERING BOARD
- * SPAWARSYSCOM
- * NAVSEASYSCOM
- * NAVAIRSYSCOM
- * NAVY INTERNATIONAL PROGRAMS OFFICE
- * AIR FORCE GENERAL OFFICERS STEERING GROUP FOR THEATER BATTLE MANAGEMENT
- * ASN /RDA
- * DASN/ SPACE/EW/C4I

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 32 SEW SYSTEMS ENGINEERING

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	8	15				
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	3	3				
ADMINISTRATIVE & OTHER		4				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	4,134		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS : _____

MAIN PROGRAMS -

- * _____
- * _____
- * _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: SEW SYSTEMS ENGINEERING

MAIN PROGRAMS -

- * SEW ARCHITECTURE/ROAD MAP ENGINEERING
- * FLEET SYSTEMS ENGINEERING
- * SECURE TACTICAL DATA NETWORK (STDN-4)
- * INTEROPERABILITY CERTIFICATION TESTING/CONFIG. MGMT.
- * OTHT - TRAINING
- * EARLY COPERNICAN/C4IFTW IMPLEMENTATION
- * EATDS (GLOBAL GRID AND REAL-TIME SUPPORT FOR
JOINT PROJ.)
- * OASIS/ OUTLAW PROJECTS

TOTAL FY93 PROGRAM FUNDS \$13.2 M

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 33 TECHNOLOGY ENGINEERING GROUP

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT		3				
ADMINISTRATIVE & OTHER						

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	571		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS: _____

MAIN PROGRAMS -

- * _____
- * _____
- * _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: SPAWAR 33 TECHNOLOGY ENGINEERING GROUP

MAIN PROGRAMS -

- * SEW ADVANCE TECHNOLOGY

TOTAL FY93 PROGRAM FUNDS: \$1.8M

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 39 MILSTAR JOINT TERMINAL PROGRAM OFFICE

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	1	3				
LOGISTICS		2				
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	1					
ADMINISTRATIVE & OTHER		1				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	1,820		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS: _____

MAIN PROGRAMS -

- * _____
- * _____
- * _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: SPAWAR 39 MILSTAR JOINT TERMINAL
PROGRAM OFFICE

MAIN PROGRAMS:

- * MILSTAR

TOTAL FY93 PROGRAM FUNDS: \$2.5M

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 50 INFORMATION TRANSFER SYSTEM
PROGRAM DIRECTORATE

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	2	1				
ADMINISTRATIVE & OTHER		8			2	11.5

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	2,251		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)	1,567 (computer room)		X

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 50I INTERNATIONAL PROGRAMS

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING						
FINANCIAL		6				
LEGAL						
MANAGEMENT						4
ADMINISTRATIVE & OTHER						

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	690		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 50L ILS OFFICE

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS	2	20				75
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT		4				
ADMINISTRATIVE & OTHER		1				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	3,105		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 50P FINANCIAL MANAGEMENT/PROCUREMENT COORDINATION DIVISION

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING		4				
FINANCIAL		22				5.5
LEGAL						
MANAGEMENT		2				
ADMINISTRATIVE & OTHER		2				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	2,822		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: _____ N/A _____

TOTAL FY93 PROGRAM FUNDS (\$000): _____

MAIN PROGRAMS -

- * _____
- * _____
- * _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: _____ PD-50, PD-50L, PD-50P, PD-50I _____

MAIN CUSTOMERS -

- * PD-50 PMWs _____

2. For each organizational element:

a. Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 50E ENGINEERING DIVISION

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	3	8	1	1	0	27.5
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT						
ADMINISTRATIVE & OTHER		2				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	1,500		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PD 50E CHIEF ENGINEER

TOTAL FY93 PROGRAM FUNDS (\$000): 6,000

MAIN PROGRAMS -

* COMMUNICATIONS SUPPORT SYSTEMS

* _____

* _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____

* _____

* _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 51 INFOSEC

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	5	24		9		12
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	1	2				
ADMINISTRATIVE & OTHER		5				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	3,692		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PD 51 INFOSEC

TOTAL FY93 PROGRAM FUNDS (\$000): 151,500

MAIN PROGRAMS -

- * COMSEC
- * SECURE VOICE
- * SECURE DATA
- * KEY MANAGEMENT SYSTEM

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

- * _____
- * _____
- * _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PMW 152 SHIP/SHORE COMMUNICATIONS

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	2	45		9		154
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	4	5		1		82
ADMINISTRATIVE & OTHER		5				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	9,021		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW 152 SHIP/SHORE COMMUNICATIONS

TOTAL FY93 PROGRAM FUNDS (\$000): 222,000

MAIN PROGRAMS -

- * SHORE LF/VF
- * COMMUNICATIONS AUTOMATION
- * CHBDL-ST
- * SINCGARS
- * SHIP TACTICAL COMMUNICATIONS
- * SHORE COMMUNICATIONS
- * PORTABLE RADIOS
- * NAVCOM E & I
- * ILS
- * FBMC3 - SHORE
- * 2Z COG RESTORATION
- * SSEOC

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

- * _____
- * _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PMW 153 SUBMARINE COMMUNICATIONS

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	6	17		11		12
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	1	4				
ADMINISTRATIVE & OTHER		4				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	4,637		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW 153 SUBMARINE COMMUNICATIONS

TOTAL FY93 PROGRAM FUNDS (\$000): 69,400

MAIN PROGRAMS -

* SUBMARINE COMMUNICATIONS

* FLEET BALLISTIC MISSILE COMMAND, CONTROL & COMMUNICATIONS (FBMC3)

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____

* _____

* _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PMW 156 SATELLITE COMMUNICATIONS

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	7	28		3.6		134
LOGISTICS						
CONTRACTING						
FINANCIAL		1				11
LEGAL						
MANAGEMENT	2	5				69
ADMINISTRATIVE & OTHER		6			5	3

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	5,964		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW 156 SATELLITE COMMUNICATIONS

TOTAL FY93 PROGRAM FUNDS (\$000): 265,600

MAIN PROGRAMS -

- * EHF SATELLITE COMMUNICATIONS
- * UHF SATELLITE COMMUNICATIONS
- * COMMERCIAL SATCOM
- * JCS COMMUNICATIONS EQUIPMENT

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

- * _____
- * _____
- * _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 60 INFORMATION MANAGEMENT SYSTEM PROGRAM DIRECTORATE

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	2	1				
ADMINISTRATIVE & OTHER		5			11	

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	1,700		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)	2,500 (computer room)		X

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 60E ENGINEERING DIVISION

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	2	19				
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	2	1				
ADMINISTRATIVE & OTHER		4				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	1,472		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 60F INSTALLATION SUPPORT DIVISION

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	5	2				
LOGISTICS						
CONTRACTING						
FINANCIAL				1		
LEGAL						
MANAGEMENT	1	1				
ADMINISTRATIVE & OTHER		1				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	1,115		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 60J FOREIGN MILITARY SALES

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING		6				
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	1	1				
ADMINISTRATIVE & OTHER		1				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	1,035		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 60L ILS OFFICE

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS	1	19			1	138.9
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT		4				
ADMINISTRATIVE & OTHER		3				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	2,990		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PD 60P FINANCIAL MANAGEMENT/PROCUREMENT COORDINATION DIVISION

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING		6				
FINANCIAL		12				
LEGAL						
MANAGEMENT						
ADMINISTRATIVE & OTHER		5				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	3,500		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS (\$000): _____

MAIN PROGRAMS -

2.d. If a support office, list main customers.

SUPPORT OFFICE: PD 60, PD 60E, PD 60F, PD 60J, PD 60L, PD 60P

MAIN CUSTOMERS -

- * PD 60 PMW's
- * _____
- * _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PMW 161 NAVY COMMAND & CONTROL SYSTEMS

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	22	31				97.5
LOGISTICS						
CONTRACTING						
FINANCIAL		9				3.5
LEGAL						
MANAGEMENT	2	1				35
ADMINISTRATIVE & OTHER		8				2

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	6,756		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW 161 NAVY COMMAND & CONTROL SYSTEMS

TOTAL FY93 PROGRAM FUNDS (\$000): 213,600

MAIN PROGRAMS -

* NAVY TACTICAL COMMAND SYSTEM-AFLOAT (NTCS-A)

* OPERATIONAL SUPPORT SYSTEM (OSS)

* TACTICAL SUPPORT CENTER (TSC)

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____

* _____

* _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PMW 163 NAVY ELECTRONIC COMBAT SURVEILLANCE SYSTEM

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	11	25				30
LOGISTICS						
CONTRACTING						
FINANCIAL		3				2.5
LEGAL						
MANAGEMENT	2	1				3.5
ADMINISTRATIVE & OTHER		4				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	3,920		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW 163 NAVY ELECTRONIC COMBAT
SURVEILLANCE SYSTEMS

TOTAL FY93 PROGRAM FUNDS (\$000): 66,230

MAIN PROGRAMS -

- * BATTLE GROUP PASSIVE HORIZON EXTENSION SYSTEM
TERMINAL (BGPHEs-ST)
- * NAVAL SPACE SURVEILLANCE (NAVSPASUR)
- * COMBAT DIRECTION FINDING (CDF)
- * SHIP's SIGNAL EXPLOITATION EQUIPMENT (SSEE)
- * INTEGRATED COVER AND DECEPTION SYSTEMS
- * OUTBOARD
- * CRYPTOLOGIC CARRY-ON EQUIPMENT
- * CRYPTOLOGIC TECHNICAL TRAINING EQUIPMENT
- * CENTERBOARD

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

- * _____
- * _____
- * _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PMW 164 SHIPBOARD NON TACTICAL ADP PROGRAM (SNAP)

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	6	5				9.3
LOGISTICS						
CONTRACTING						
FINANCIAL		2				
LEGAL						
MANAGEMENT	1	1				4.6
ADMINISTRATIVE & OTHER		2				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	2,991		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW 164 SHIPBOARD NON TACTICAL ADP
PROGRAM (SNAP)

TOTAL FY93 PROGRAM FUNDS (\$000): 42,401

MAIN PROGRAMS -

* SNAP I

* SNAP II

* SNAP III

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____

* _____

* _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PMW 165 ENVIRONMENTAL SYSTEMS

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	4	8				17
LOGISTICS						
CONTRACTING				2		
FINANCIAL		3				1
LEGAL						
MANAGEMENT	1	1				
ADMINISTRATIVE & OTHER		1				1.5

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	3,061		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW 165 ENVIRONMENTAL SYSTEMS

TOTAL FY93 PROGRAM FUNDS (\$000): 66,490

MAIN PROGRAMS -

- * TESS (30/NODDES)
- * SMOOS
- * AN/SMO-11
- * NITES
- * ASOS
- * NEXRAD
- * METMF
- * AOF
- * SAT
- * SATDAT
- * TODAP
- * MISCELLANEOUS MET
- * DMSP
- * GEOSAT

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

- * _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PMW 166 FMF/ATC PROGRAM OFFICE

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING		4				1.5
LOGISTICS						
CONTRACTING						0.5
FINANCIAL		1				0.5
LEGAL						
MANAGEMENT	1	1				1
ADMINISTRATIVE & OTHER		1				1

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	3,345		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW 166 FMF/ATC PROGRAM OFFICE

TOTAL FY93 PROGRAM FUNDS (\$000): 13,371

MAIN PROGRAMS -

* MATCAL

* RLST

*

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

*

*

*

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PMW 167 NAVIGATION SYSTEMS

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	3					13.5
LOGISTICS						
CONTRACTING						
FINANCIAL		3				1.5
LEGAL						
MANAGEMENT	1	1				2
ADMINISTRATIVE & OTHER		2				4.5

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	*		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

* See PMW 166. PMW 166 and PMW 167 were merged during FY 93.

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW 167 NAVIGATION SYSTEMS

TOTAL FY93 PROGRAM FUNDS (\$000): 63,333

MAIN PROGRAMS -

* NAVSTAR GPS

* NAVSSI

* PLGR

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____

* _____

* _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 80E

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING		2.5				3
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT						
ADMINISTRATIVE & OTHER						

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	390		X
LABORATORY SPECIFIC SPACE	0		
OTHER SPACE (DESCRIBE)	0		

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PD 80 (In support of PMW 181, 182 and 184)

TOTAL FY93 PROGRAM FUNDS (\$000): 550

MAIN PROGRAMS -

* Research/develop joint maritime/ASW littoral surveillance requirements and connectivity/interface to Command echelons/C4I operations

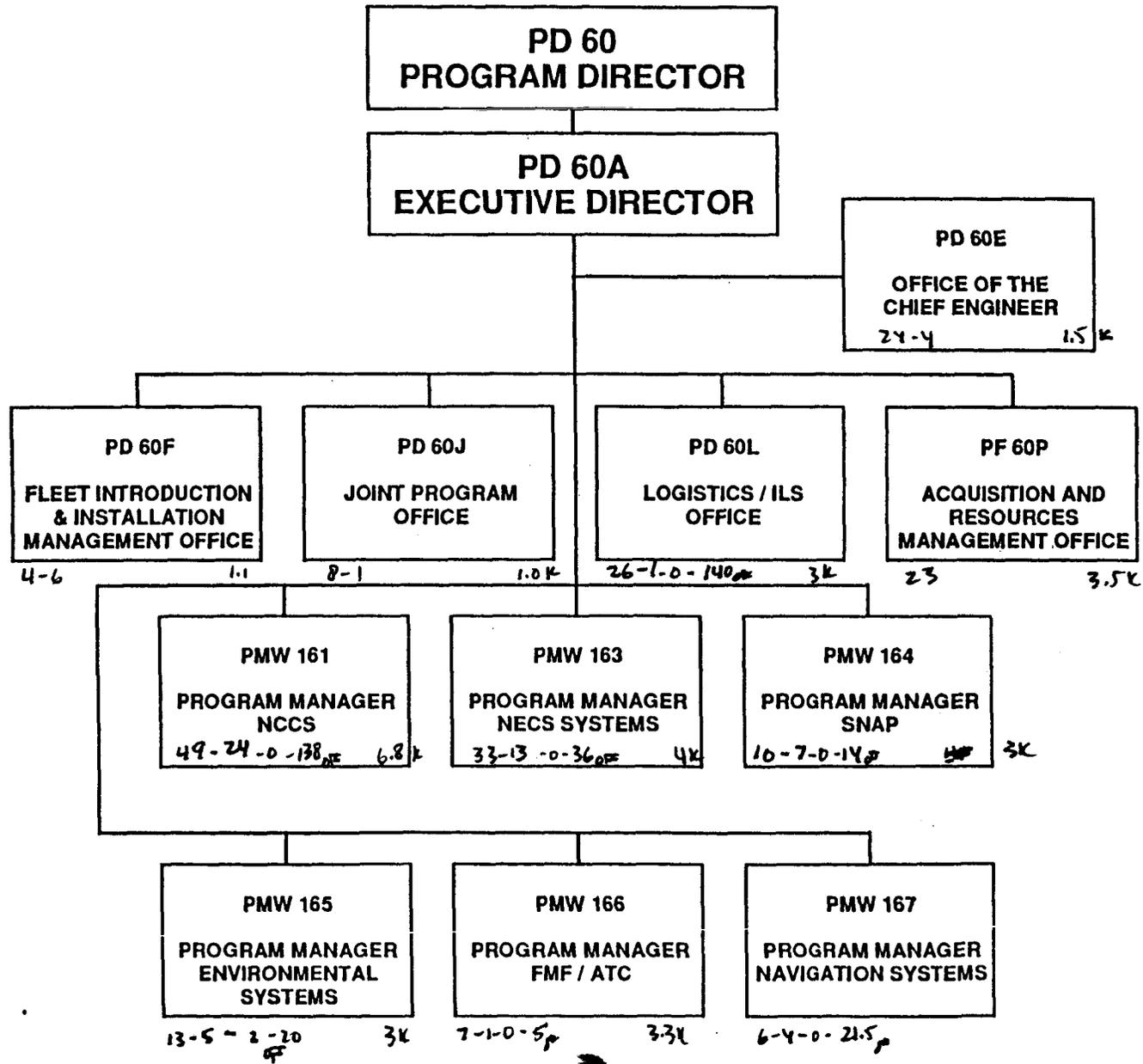
2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____
* _____
* _____

PD 60 COMMAND SYSTEMS PROGRAM DIRECTORATE



2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: SPAWAR 05L

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT		1				
ADMINISTRATIVE & OTHER		5				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	1,500		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS (\$000): _____

MAIN PROGRAMS -

- * _____
- * _____
- * _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: SPAWAR 05L

MAIN CUSTOMERS -

- * SPAWARSYSCOM
- * BALLISTIC MISSILE DEFENSE ORGANIZATION
- * NAVSEASYSCOM
- * STRATEGIC SYSTEMS PROGRAM OFFICE
- * CNO
- * NASA
- * U.S. AIR FORCE
- * U.S. ARMY
- * OTHER DOD
- * DEPARTMENT OF TRANSPORTATION
- * DEPARTMENT OF ENERGY
- * OTHER NAVY

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PEO-SCS (STAFF)

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING		2				
LOGISTICS		1				
CONTRACTING						
FINANCIAL		1				2
LEGAL						
MANAGEMENT	4	3				
ADMINISTRATIVE & OTHER	1	8			2	2

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	7,467		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS (\$000): _____

MAIN PROGRAMS -

- * _____
- * _____
- * _____

2.d. If a support office, list main customers.

SUPPORT OFFICE: PEO-SCS Staff

MAIN CUSTOMERS -

- * PEO-SCS PMW's
- * _____
- * _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PEO-SCS (PMW 101)

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	2	6		18		28
LOGISTICS						4
CONTRACTING						
FINANCIAL		1				
LEGAL						
MANAGEMENT	1	1				5
ADMINISTRATIVE & OTHER		3				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	4,720		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PEO-SCS (PMW 101 MIDS-LVT)

TOTAL FY93 PROGRAM FUNDS (\$000): 28,200

MAIN PROGRAMS -

* MIDS-LVT

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____

* _____

* _____

2. For each organizational element:

a. Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PEO-SCS (PMW 146)

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	4	6		10		10
LOGISTICS						
CONTRACTING						
FINANCIAL	1	1				
LEGAL						
MANAGEMENT	1	2				
ADMINISTRATIVE & OTHER		2				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	4,022		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PMW-SCS (PMW 146 UHF/FO)

TOTAL FY93 PROGRAM FUNDS (\$000) : 263,900

MAIN PROGRAMS -

* UHF/FO

* LEASAT/FLTSAT

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____

* _____

* _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PEO-SCS (PMW-148)

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	2	5		1		12
LOGISTICS		1				1
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT		1				1
ADMINISTRATIVE & OTHER		1				

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	*		
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

* Spaces have been combined into other PEO-SCS codes.

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PEO-SCS (PMW 148 ROTH)

TOTAL FY93 PROGRAM FUNDS (\$000): 11,600

MAIN PROGRAMS -

* ROTHR

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____
* _____
* _____

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: PEO-SCS (PMW 159)

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING	4	17		9		65
LOGISTICS		5				51
CONTRACTING						
FINANCIAL		6				
LEGAL						
MANAGEMENT	7	4				9
ADMINISTRATIVE & OTHER		10				2

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (SF)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE	9,077		X
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

2.c. If a program Office, list total FY93 program funds and list main programs.

PROGRAM OFFICE: PEO-SCS (PMW 159 ATDLS)

TOTAL FY93 PROGRAM FUNDS (\$000) : 112,900

MAIN PROGRAMS -

* LINK-16

* LINK-11/NILE

* MIDS (F/A-18 INTEGRATION)

2.d. If a support office, list main customers.

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

* _____

* _____

* _____

3. Map of the installation to include elements listed in 2.

a. Annotate buildings to show location of each organizational element.

Installation map - not applicable. The Space and Naval Warfare Systems Command (SPAWAR) Headquarters is located in a leased office building in Crystal City, Arlington, VA.

b. Show location of space available in FY97.

Space available in FY97 will be at the same location.

c. Show buildings with equipment/facilities which would be difficult to move or replicate. List such equipment with initial cost.

There are no facilities or equipment which would be technically difficult to move or replicate, however the re-establishment of secure connectivity will be expensive.

d. Describe potential space for consolidation in close proximity to the activity available in FY97, state distance to the activity and any extenuating circumstances.

Potential space for consolidation in close proximity to SPAWAR Headquarters in FY97 is primarily commercial space in the Crystal City complex which is available for lease. The only extenuating circumstances would be availability and lease costs.

4. Estimate the capacity of the activity and the installation (separately) to absorb similar workyears with little or no modification of facilities. Estimate the capacity of the activity and installation (separately) to absorb similar workyears with major modifications and describe the nature of those modifications and estimated cost. Use FY97 as the baseline for such estimates.

SPAWAR Headquarters has reduced the amount of leased space it occupies by mandatory personnel drawdown and functional transfer and does not have the capability to absorb similar workyears without increasing the quantity of space under lease.

5. Describe the impact of BRAC 91 and BRAC 93 decisions on the activity.

The Space and Naval Warfare Systems Command Headquarters was not affected by BRAC 91. BRAC 93 directed SPAWAR Headquarters and the Program Executive Office for Space Communications and Sensors (PEO-SCS) which is supported by and collocated with SPAWAR Headquarters, to relocate from leased space in Arlington, VA, to government owned facilities within the National Capital Region (NCR). The current plan is to move in FY99 into spaces to be renovated at the Washington Navy Yard. SPAWAR's Space Technology Directorate (SPAWAR 40), a tenant at the Naval Research Laboratory, was not directed to relocate with Headquarters.

6. Describe military department approved and programmed plans which will impact or have impacted the activity and installation.

- SPAWARSYSCOM is in the process of downsizing in accordance with Navy Department plans to reduce infrastructure commensurate with reductions in the fleet. Since 30 September 1989, SPAWARSYSCOM headquarters and the PEO-SCS civilian work force has been reduced by over 43%. Further downsizing at the rate of about 4% per year is anticipated through FY-99.

- Continuing efforts to improve SPAWARSYSCOM efficiency and effectiveness in meeting fleet needs has resulted in a recent major reorganization. Effective 15 July 1994, PD-50, Communications Systems Program Directorate, and PD-60, Command Systems Program Directorate, have been merged into a new organization, PD-70, C4I Systems Program Directorate. An organization chart for PD 70 is included.

7. Collocated C4I organizations:

a. List organization

Program Executive Office for Space, Communications and Sensors (PEO-SCS).

b. Summarize overall mission

The PEO-SCS is responsible for insuring the definition, development, test and evaluation, acquisition, initial support and readiness approval of assigned space and sensor programs. The PEO-SCS manages the Communications Satellite Programs (comprised of the UHF Follow-On Satellite Program (ACAT IC), LEASAT and FLTSAT), the Multifunctional Information Distribution System, along with associated programs which include: Command and Control Processor, Link 11 Improvement Program and NATO Improvement Link Eleven.

c. Describe relationship to activity

SPAWAR Headquarters provides functional support to and acts as the host organization for PEO-SCS and its programs offices, as defined in the Operating Agreement approved August 1990 as amended by CH-1 on 1 July 1992.

Although the PEO reports directly to the Navy Acquisition Executive, the PEO-SCS organization operates within the existing policies, procedures and instructions of SPAWARSYSCOM as a general rule.

SUPPORT PROVIDED BY SPAWARSYSCOM TO PEO-SCS:

A. Host/Tenant Support

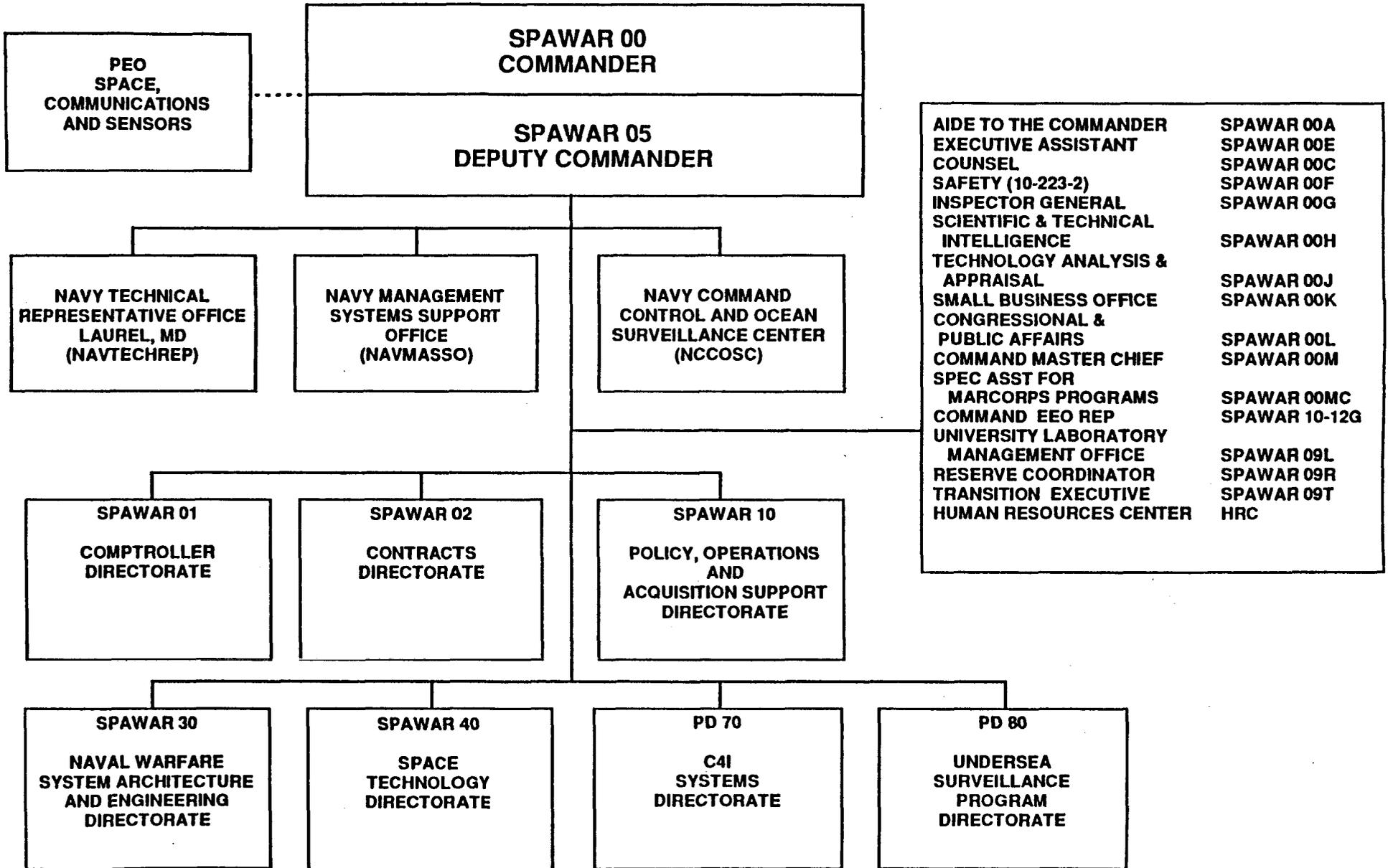
- PEO is located physically with the SPAWARSYSCOM and has per capita space comparable to the SPAWARSYSCOM headquarters average.

- Office services such as physical and information security, telephone service, travel processing, parking administration, purchasing, mail delivery, equipment and supplies are provided to the PEO by the SPAWARSYSCOM organization.

- Military and civilian resource management support.



SPACE AND NAVAL WARFARE SYSTEMS COMMAND



B. Contract Support

- SPAWARSYSCOM acts as the head contracting authority, and is the approval authority for business clearances and justifications and approvals within statutory limitations.

- Provides advice to the PEO for ensuring compliance with applicable procurement regulations and procedures; provides a dedicated PCO with appropriate supporting staff for each PEO major program; and assists the PEO in development of contract planning.

- Reviews and provides recommendations for PEO approval of acquisition plans for assigned programs; reviews and assists PEO in development of source selection plans, and administers the competition, negotiation, and contract awards for the PEO.

C. Engineering Support

- SPAWARSYSCOM provides for PEO-SCS membership on the SPAWAR Systems Engineering Board and the Force Warfare Systems Engineering Board.

D. Legal Support

- SPAWARSYSCOM's office of Counsel provides legal support throughout all aspects of the acquisition process and in matters involving civilian personnel law, equal employment, employee grievances, intellectual property. Advises on matters involving conflicts of interest and standards of conduct.

E. Comptroller Support

- SPAWARSYSCOM serves as the administering office including document release and as the budget submission office for PEO program funds and provides advice concerning budget strategies, financial guidance, and policy.

- SPAWARSYSCOM reviews all funding documents for compliance with 31 USC 1301 (a) requirements for propriety and has financial execution reporting responsibilities and 31 USC 1517 responsibility for certification of accounts.

F. Integrated Logistics Support

- Functional support in areas such as policy, training, and logistics budgeting and funding.

- SPAWARSCOM serves as the PEO point of contact for coordination with OPNAV during the conduct of LRG's and other ILS audits.

- Assists in determining requirements and the budgets for procurement of spares and allocates training and spares funding to the PEO.

- Assists in the development and implementation of depot maintenance planning and monitor feedback including review of 3M data and CASREPS.

G. Miscellaneous Support

- SPAWAR provides Inspector General support, ethics review, consultation and provides training, information resources management support and assistance and industrial facility management support.

8. Remaining tenants and other activities on the installation: name of organization, mission, total workyears.

-SPAWAR Headquarters does not hold class 1 or 2 property and has no tenants.

219

BRAC-95

DATA CALL NUMBER TWELVE
AMENDMENT 1

Data for

Naval Command, Control and Ocean
Surveillance Center, RDT&E Division
San Diego, CA

94-11-21 10:02 RCVD

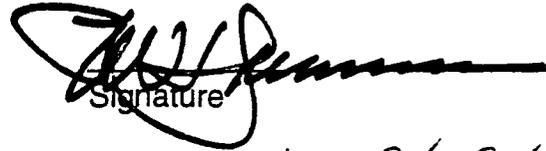
WC

**Certified Data: BRAC 95 Data Call Number Twelve - NCCOSC RDTE DIV SAN DIEGO CA
(Amendment Number 1)**

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)**

P. W. DRENNON
NAME (Please type or print)


Signature

Acting
Title

10-24-94
Date

Activity

BRAC-95 CERTIFICATION

**Certified Data: BRAC 95 Data Call Number Twelve - NCCOSC RDTE DIV SAN DIEGO CA
(Amendment Number 1)**

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. A. KLEIN III
NAME (Please type or print)


Signature

Acting Commander
Title

20 Oct 94
Date

Naval Command, Control and Ocean
Surveillance Center
Activity

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

The information contained herein is prepared primarily from data submitted in previous data calls. Breakdown of square footage for other than Lab space is based on best estimate available given the timeframe allotted and personnel available.

Total workyears for organizational elements are provided but personnel necessary to breakdown total WYS into type of WYS were not available in the timeframe allotted.

MAJOR CLAIMANT LEVEL

W. H. CANTRELL
NAME (Please type or print)


Signature

Commander
Title

10/20/94
Date

Space and Naval Warfare
Systems Command
Activity

BRAC-95 Data Call 12 AMMENDMENT NO. 1
Joint Cross-Service Laboratories Data Call Certification

Reference A: SECNAVNOTE 11000 of 08 December 1993

Reference B: SECNAV MEMO MM-0084-F2, BSAT/JT, 7 October 1994

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 that the information contained herein is accurate and complete to the best of my knowledge and belief WITH THE FOLLOWING EXCEPTION:

I have included the Common Support Function of Afloat C4I in addition to Airborne C4I, Fixed Ground-Based C4I, and Ground Mobile C4I Common Support Functions (CSFs). These functions are, by design and direction, increasingly common. The same C4I systems are used for airborne, fixed, and ground based platforms. In fact, the integration of C4I across platforms and services is the single overarching thrust in modern command and control. I believe C4I as a whole is in and of itself an inseparable common support function. We have answered the questions as requested. The breakout of data between Afloat C4I, Airborne C4I, Fixed Ground-Based C4I, and Ground Mobile C4I is based on parametric estimates. The estimates are themselves reasonable, however their meaning in terms of separation of actual work, in reality, is largely hypothetical. It is an accounting exercise. No decision should be based on the break-out within C4I common support functions.

Re-certification of Data Call #12 per reference (B) :

Organization Chart

NRaD Department Workwear and Space Breakdown

Map of Installation

Capacity Absorption Estimate

BRAC 91 and BRAC 93 Impact

Military Plans Impact

Collocated C4I Organizations

Tenant and Other Activities Mission and Workwears

BRAC-95 Data Call 12 AMMENDMENT NO. 1
Joint Cross-Service Laboratories Data Call Certification

ACTIVITY COMMANDER

KIRK E. EVANS, CAPT., USN
NAME (Please type or print)


Signature

COMMANDING OFFICER
Title

20 OCTOBER 1994
Date

NCCOSC RDTE DIV
Activity

1. Organization Chart (as of 30 Sep 94):

- a. Show organization elements (those which report directly to the activity commander or report to a PEO.)

Organizational Chart Attached.

- b. Describe the organizational relationships especially between support organizations and PEO/PMs.

NRaD reports to Commander, NCCOSC, who reports to COMSPAWARSYSCOM. For those PMs reporting to COMSPAWAR, there is therefore an organizational relationship in addition to the funding/technical relationship. For PEOs and PMs in other systems commands, there is only the funding/technical relationship.

The funding and technical relationship between NRaD and the PMs and PEOs varies significantly from program to program. At one end of the spectrum, NRaD is provided funding to accomplish tasking that is developed by the PM/PEO. Other programs have more NRaD involvement and cooperation with the PM/PEO in the development of the tasking prior to the funding/tasking being formally provided to NRaD. In some programs, NRaD has full program management responsibility, and develops and executes tasking in support of the program.

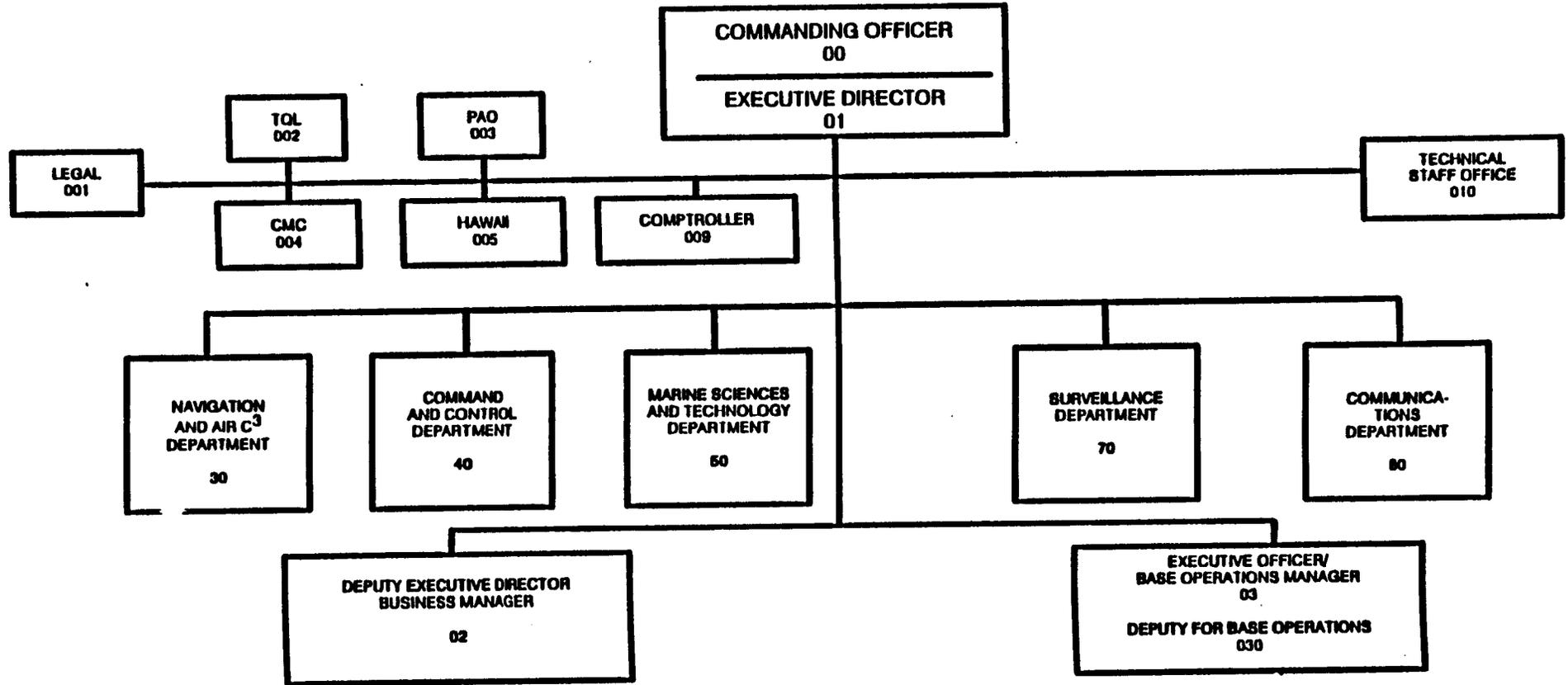
- c. Summarize the Command's C4I acquisition / non-C4I acquisition level of effort.

The 1,615 WYs of C4I acquisition management identified represents 66% of the total technical effort of the command. The Marine Science and Technology Department and most of the Surveillance Department do not perform C4I acquisition management.

The Command's remaining 1,191 WYs consist of functions such as admin, supply, legal, personnel, contracting, logistics, public works, etc. and support the functions listed above in about the same ratio.



NCCOSC RDT&E DIVISION ORGANIZATION



2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 30 NAVIGATION & AIR DEPARTMENT

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*		251				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	12,800	X	
LABORATORY SPECIFIC SPACE**	94,400	X	
OTHER SPACE** (storage and training)	5,500	X	

**Best estimates given the timeframe allotted and personnel available.

UIC: N66001

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 30 NAVIGATION & AIR DEPARTMENT

MAIN PROGRAMS -

- * GPS
- * V-22
- * ICNIA
- * JOINT STAND-OFF WEAPON SYSTEM
- * GLOBAL POSITIONING SYSTEM INTERFACE UNIT
- * TACTICAL RELAY SURVEILLANCE SYSTEM
- * CH-46 SYSTEM INTEGRATION LAB
- * CRUISE MISSILE GPS
- * JTIDS

TOTAL FY 93 PROGRAM FUNDS \$50.5 M

UIC: N66001

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 40 COMMAND & CONTROL DEPARTMENT

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*	27	882				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	132,300	X	
LABORATORY SPECIFIC SPACE**	403,400	X	
OTHER SPACE (DESCRIBE)**			

**Best estimates given the timeframe allotted and personnel available.

UIC: N66001

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 40 COMMAND & CONTROL DEPARTMENT

MAIN PROGRAMS -

- * JTIDS CLASS 2 TERMINAL
- * E-2C WEAPON SYSTEM
- * OPERATION SUPPORT SYSTEM
- * NAVY TACTICAL COMMAND SYSTEM AFLOAT
- * ADVANCED COMBAT DIRECTION SYSTEM BLOCK 0
- * ADVANCED COMBAT DIRECTION SYSTEM BLOCK 1
- * COMMAND & CONTROL PROCESSOR C2P
- * C3 SIMULATION

TOTAL FY 93 PROGRAM FUNDS \$180.5 M

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 70 SURVEILLANCE DEPARTMENT

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*		102				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	22,440	X	
LABORATORY SPECIFIC SPACE**			
OTHER SPACE (DESCRIBE)**			

**Best estimates given the timeframe allotted and personnel available.

UIC: N66001

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 70 SURVEILLANCE DEPARTMENT

MAIN PROGRAMS -

- * HULTEC - TEC SUPPORT
- * RADIANT OUTLAW
- * PARALLEL IMAGE PROCESSING
- * ELECTRO-MAG THEORY
- * GUSTY DAIRY
- * PROGRAM MANAGEMENT SUPPORT
- * GUSTY DAIRY TASK 9
- * TACTICAL DATA ACQUISITION & CORRELATION ATD
- * RASSP COORDINATION
- * THAW
- * IUSS COMMUNICATIONS ENGINEERING
- * SITE 7800 SYSTEM ENGINEERING AND TESTING

TOTAL FY 93 PROGRAM FUNDS \$13.3M

UIC: N66001

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 80 COMMUNICATIONS DEPARTMENT

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*	9	380				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	57,000	X	
LABORATORY SPECIFIC SPACE**	387,500	365,800	21,700
OTHER SPACE (DESCRIBE)**			

**Best estimates given the timeframe allotted and personnel available.

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 80 COMMUNICATIONS DEPARTMENT

MAIN PROGRAMS -

- * NAVY EHF SATELLITE
- * DEMAND ASSIGNED MULTIPLE ACCESS SYSTEM
- * UHF SATCOM
- * MINI-DAMA
- * WSC-3 SATELLITE TRANSCEIVER UPGRADE
- * DEFENSE DISSEMINATION PROGRAM
- * SHF SATCOM
- * TACTICAL RECEIVE EQUIPMENT
- * VERDIN
- * EVS
- * ISABPS
- * IRR
- * SLVR
- * TMPS
- * MMPS
- * NECC
- * SMB
- * CPIP

* FVLF ENGINEERING

* BASEBAND SWITCH

* CIRCUIT MAYFLOWER

* CLARINET MERLIN

TOTAL FY 93 PROGRAM FUNDS \$205 M

si

3. Map of the installation to include elements listed in 2:
a. annotate buildings to show location of each organizational element.

Locations shown are for C4I acquisition management functions only.

Maps of installation are provided as attachments A-H for San Diego and G & H for Warminster Pa. Buildings are color coded to identify occupants as follows:

Code 30 - Yellow

Code 40 - Pink

Code 70 - Green

Code 80 - Blue

- b. Show location of available space in FY97.

Space in FY97 is the same except for Warminster. On Map H, buildings 1&2 will be vacated; building 70 and a new building to be constructed near Bldg 125 will be occupied.

- c. Show buildings with equipment/facilities which would be difficult to move or replicate. list such equipment with initial cost.

Data provided is for C4I acquisition management only. Maps A-H are attached. Labs are identified by bldg # in parenthesis with map letter after dash (-). Data has been condensed from information provided in Data Call #5.

SCIF. There are 33ksf of SCIF operating space for C4I acquisition management. Replication cost is \$5M.

(600, 605)-B

(587, 557)-A

(A33)-D

Combat Direction System (CDS) Development and Evaluation Site (CDES). Cost of equipment is \$75M and relocation would be difficult. The facility is a 11,776 sf TEMPEST building.

(600)-B

Over the Horizon -Targeting (OTH-T) Reconfigurable Land Based Test Site(RLBTS) Replacement cost is \$5M and relocation would be difficult.

(600)-B

Systems Integration Facility (SIF). Equipment cost is \$23.7M and relocation would be difficult.

UIC: N66001

difficult.
(600)-B

E-2C Airborne Tactical Data Systems (ATDS) Integration Laboratory. Replacement cost is \$15.6M and relocation would be difficult.
(60)-D

Multilink Laboratory. Replacement cost is \$4M and relocation would be difficult.
(600)-B

Propagation Test Facility (PTF). The replacement value is \$500K and relocation would be difficult. Further, the site (with unobstructed view of the ocean) is difficult to replicate.
(599)-B

Signals Warfare Integrated Facilities Testbed (SWIFT). The replacement cost of equipment is \$28M and the facility would be difficult to relocate.
(605)-B

Space and Electronic Warfare Simulator (SEWSIM). Equipment replacement cost is \$4M and relocation would be difficult.
(605)-B

Tactical Systems Laboratory (TSL). The replacement cost of the facility is \$1.5M and relocation would be difficult.
(33)-D

Processing and Data Exploitation Center (PDEC). The replacement cost of the facility is \$1.5M and relocation would be difficult.
(33)-D

Southern California Communications Networking Test Facility. The equipment is movable but the new site would require line of sight over the ocean testing area.
(Geographic area)

Ship Antenna Model Range and Simulation Facility. Replacement cost is \$30M and relocation is not feasible.
(382, 415)-E

VLF/LF Integrated Test facility. Replacement cost is \$97M and relocation is not feasible.
(33)-D

UIC: N66001

Optical and Radiometric Calibration Facility. The replacement cost is \$750K and relocation is not feasible.
(76)-D

Environmental Test Laboratory. Relocation of this facility is estimated to cost \$600K.
(40)-D

Inertial Components Test Lab. The equipment could be relocated but the required facility would be expensive to replicate. Major features of the existing building are equipment piers anchored to bedrock with the surrounding floor isolated from the piers to reduce the effects of foot traffic. The building is circular to reduce wind effects and the outer wall and center hub have vibration isolation material between upper and lower footings to attenuate building generated vibrational disturbances. Building replacement cost is \$25M.
(108)-H

Carco Flight Motion Simulator. The replacement cost is \$600K including installation. Relocation would be difficult.
(108)-H

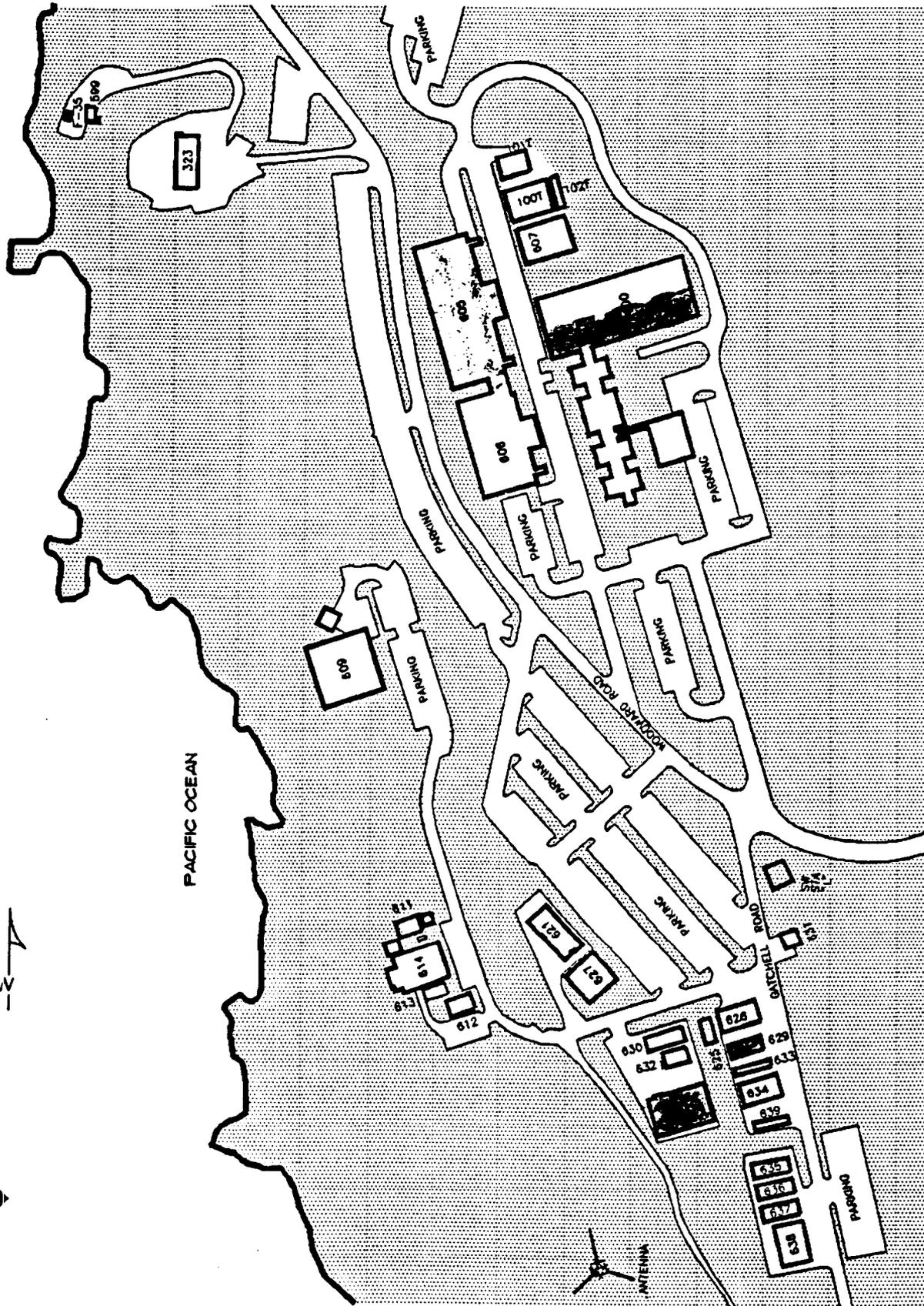
d. Describe potential space for consolidation in close proximity to the activity available in FY97, state distance to the activity and extenuating circumstances.

With the acquisition of Air Force Plant 19 there exists the potential of accommodating an additional 1,200 - 1,500 man years with labs and support facilities if Martin Marrietta vacates the premises which are within several miles of NRAD. Limited to admin, labs, and support facilities, the modifications would require approximately \$15 - \$20M in funding.



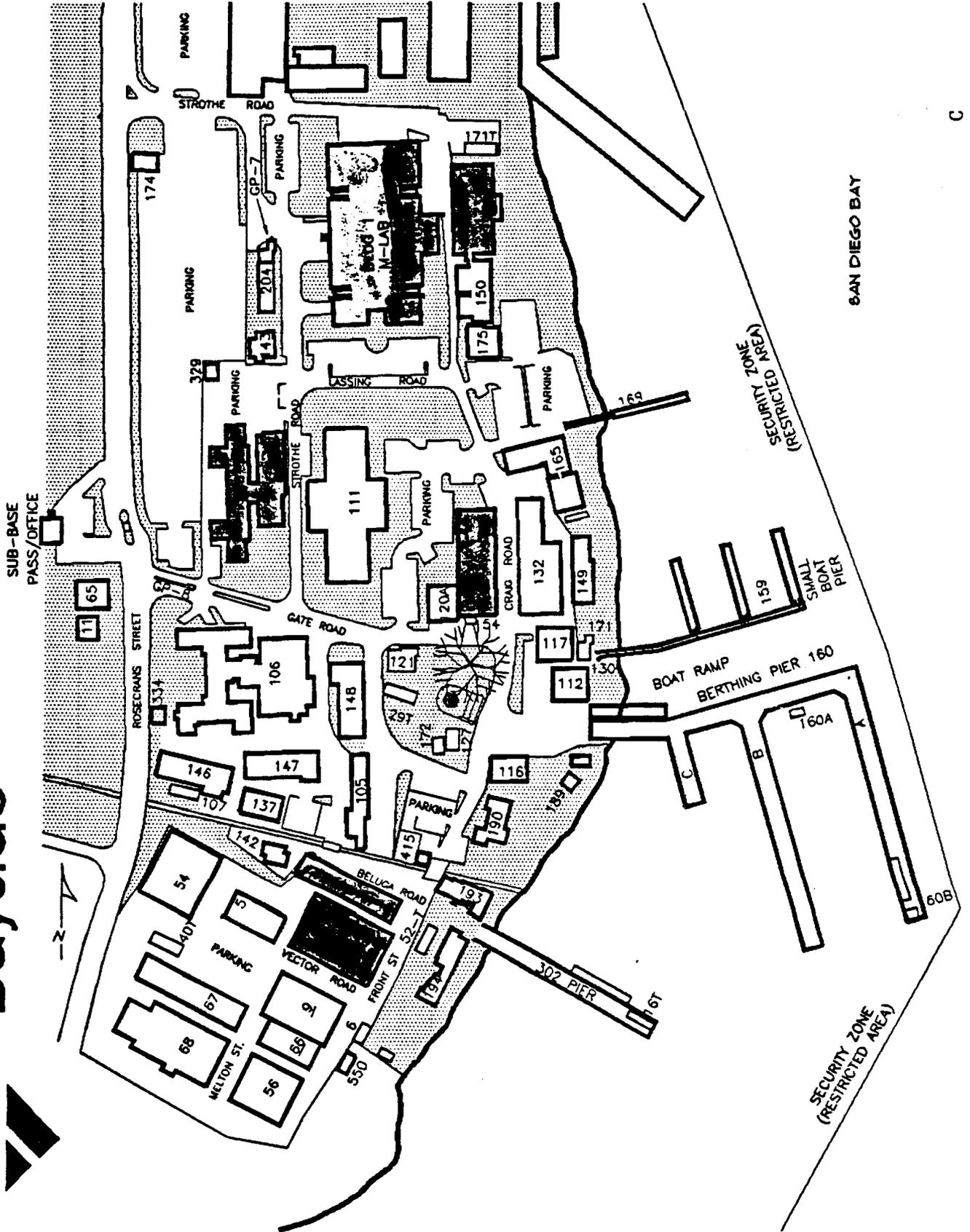
Seaside

-2-



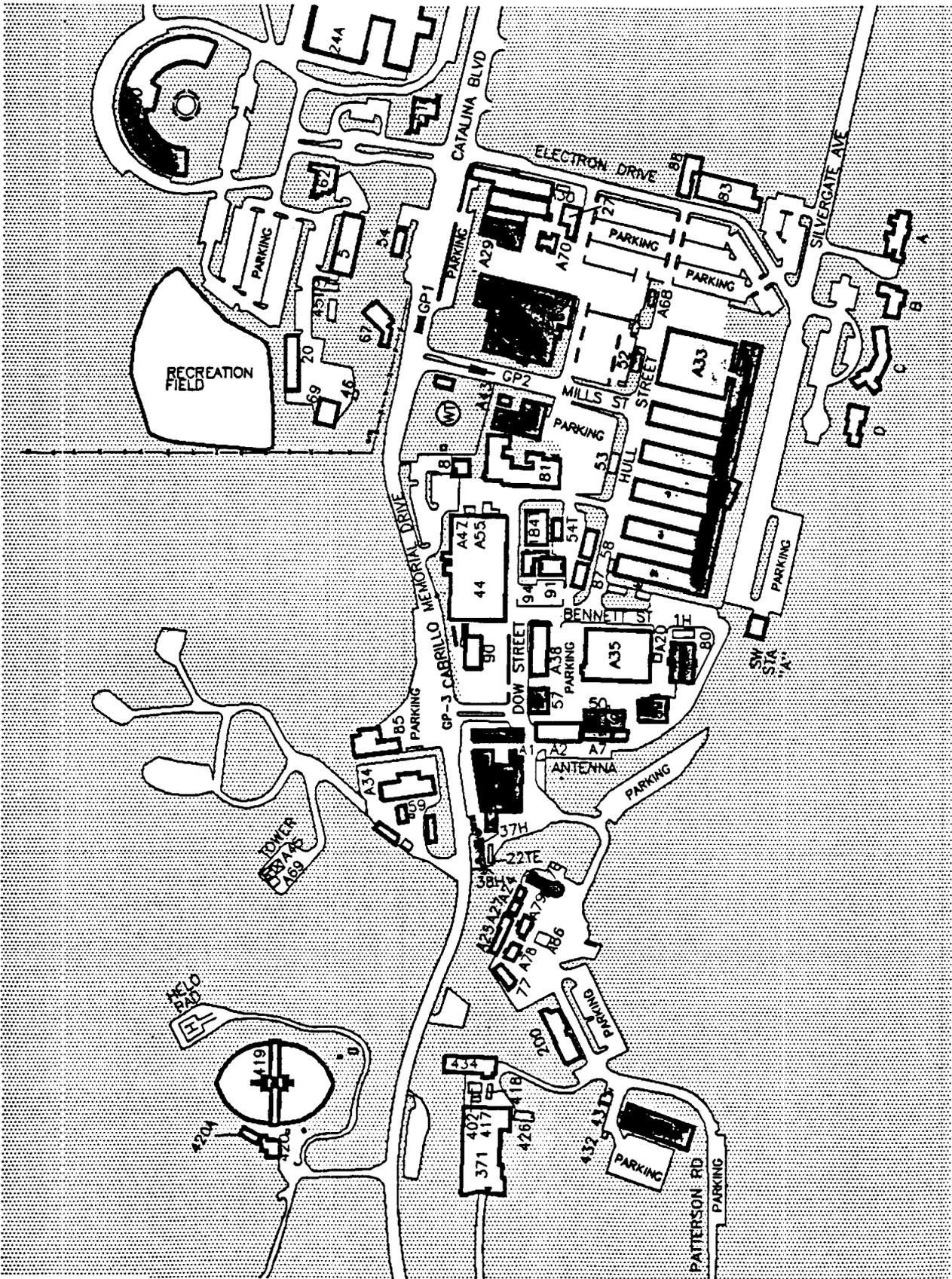


Bayside





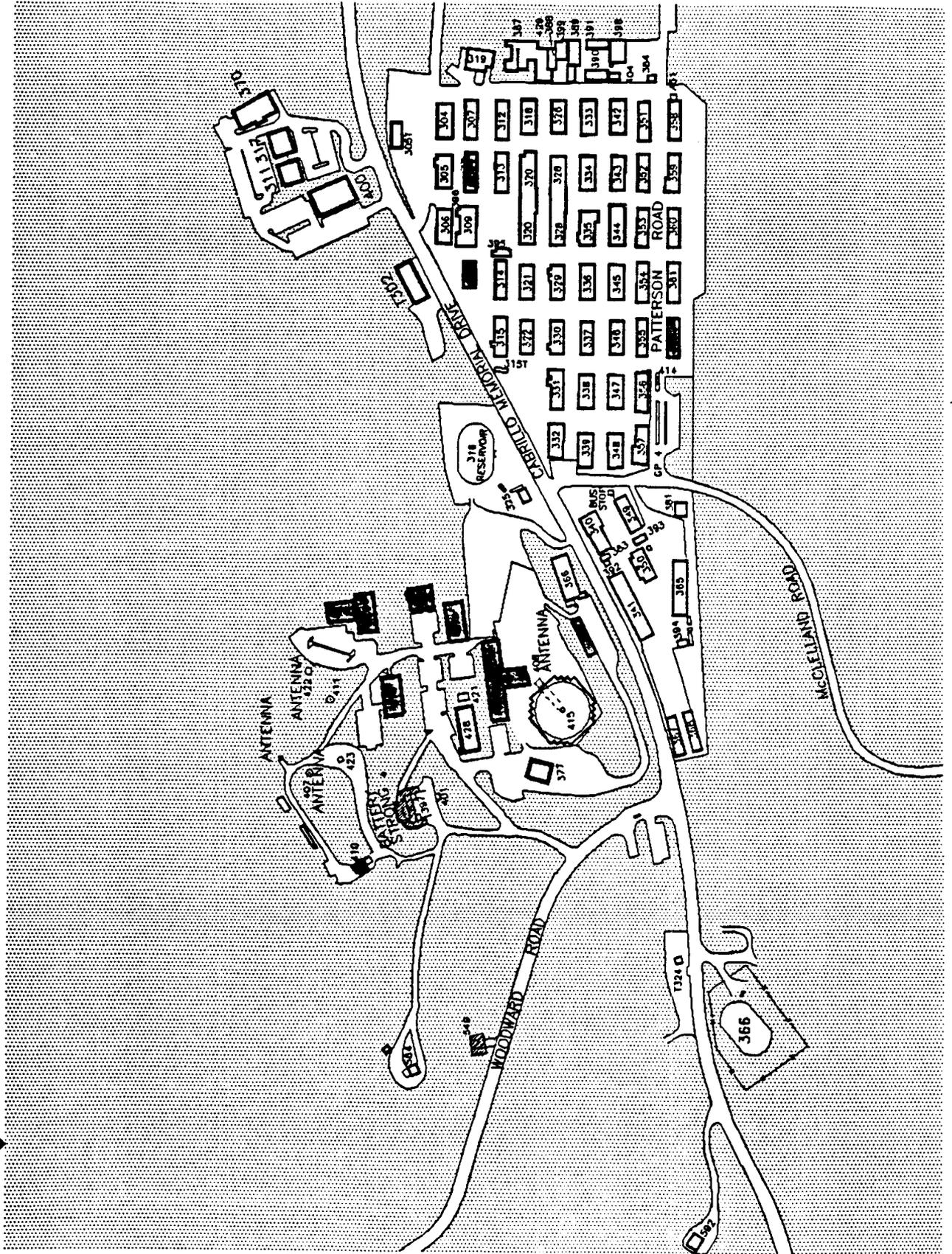
Upside





Barracks/ Model Range

1-2-1

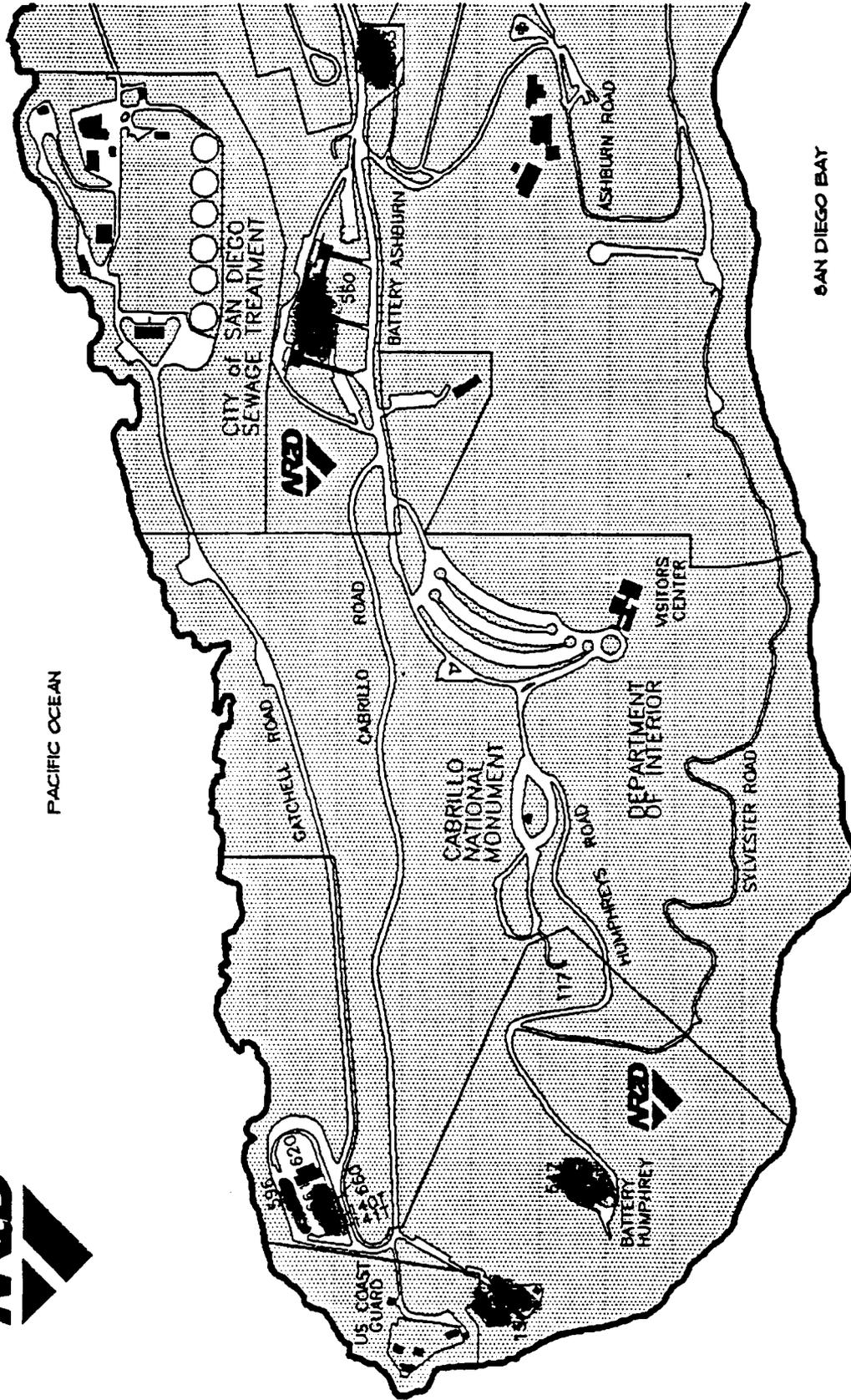


Monument Area



-2-

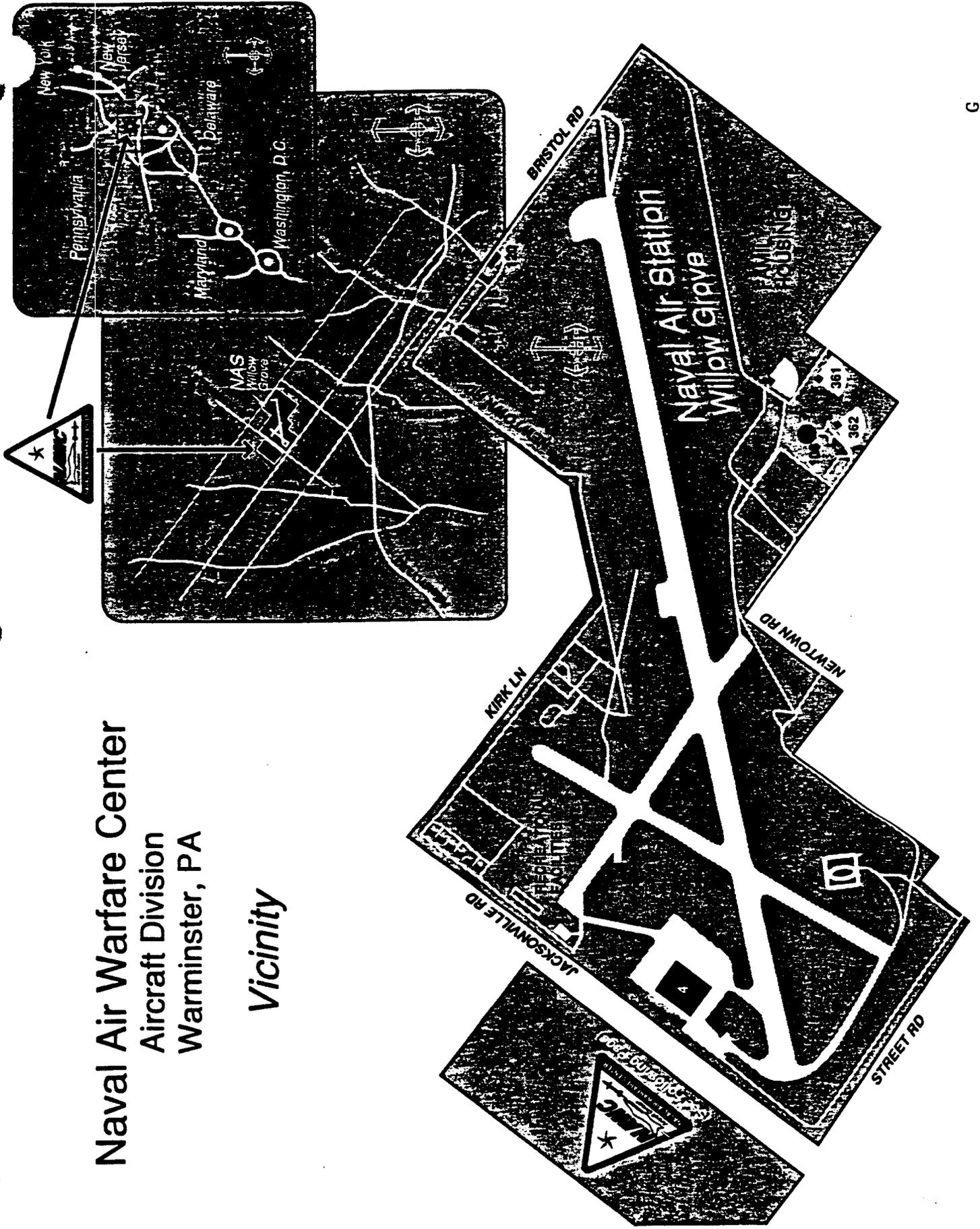
PACIFIC OCEAN



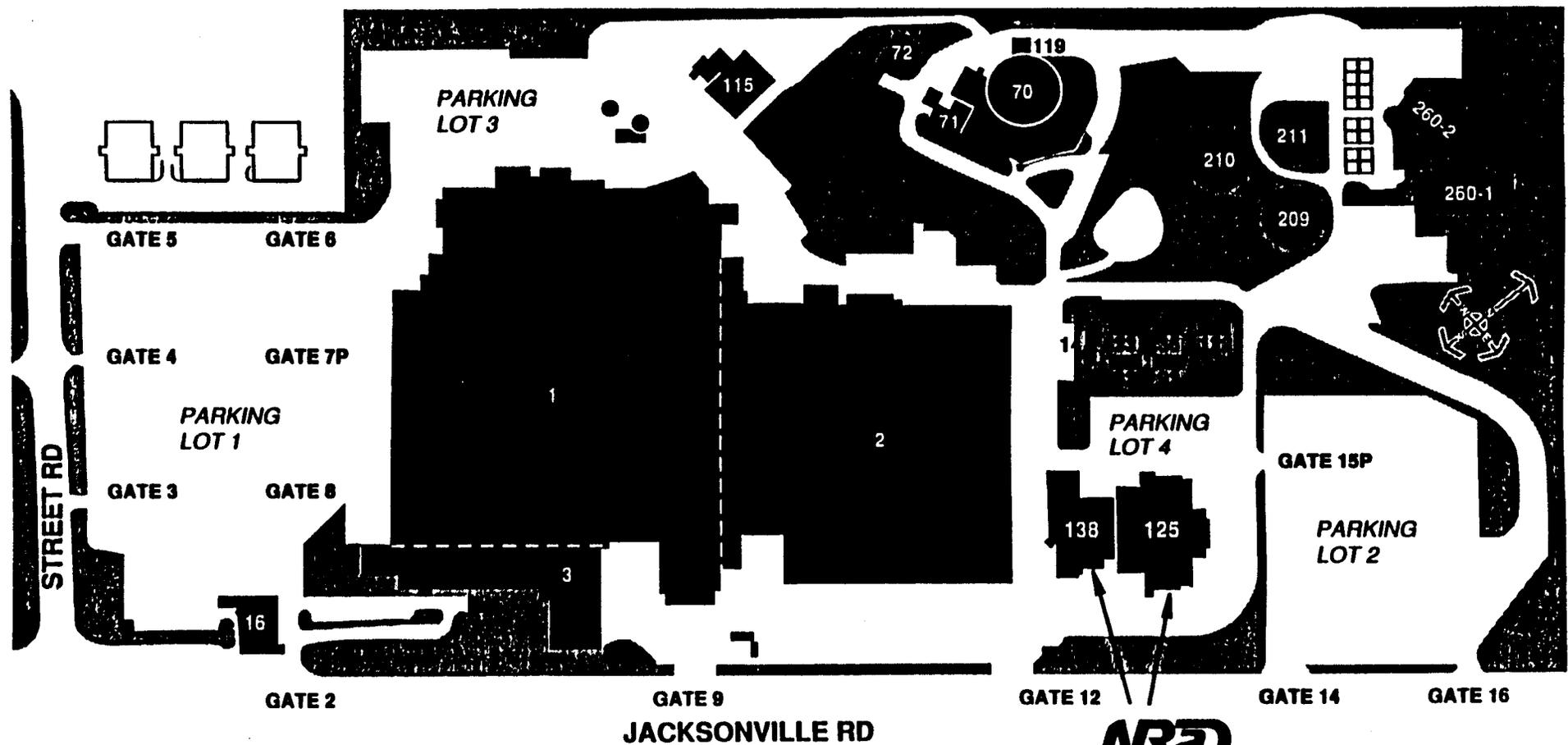
SAN DIEGO BAY

Naval Air Warfare Center
Aircraft Division
Warminster, PA

Vicinity



Naval Air Warfare Center Warminster, PA



4. Estimate the capacity of the activity and installation (separately) to absorb similar workyears with little or no modification of facilities. Estimate the capacity of the activity and installation (separately) to absorb similar workyears with major modifications and describe the nature of those modifications and estimated cost. Use FY97 as the baseline for such estimates.

CSF 1. AIR VEHICLES - FIXED PROPULSION

No facilities are specifically designated for this CSF.

CSF 2. AIR VEHICLES - FIXED AVIONICS

RF/Microelectronics Lab: Additional tasking could be absorbed in the facility without modification.

SIL Lab: The HC/KC-130 SIL currently has the capacity to absorb additional similar workyears categorized in the same common support function with only minor facility modifications. The SIL could be used to simulate various types of aircraft platforms with minor modifications (e.g. addition of specific aircraft avionics, sensors, additional wiring, etc.) The SIL could also be used as a training facility on the operation of the newly integrated system.

Cargo Flight Motion Simulator: The CFMS has spare capacity to absorb additional workyears. Minor modifications such as cabling to the system under test needs to be designed and built. Also depending on the system under test data acquisition software will require minor changes.

GPS Lab (59%) : Has some limited capacity to absorb additional workyears of effort if additional space can be made available either by construction or reorganization of existing spaces. Additional equipments (2 GPS simulators) would also be required.

CSF 3. AIR VEHICLES - ROTARY AVIONICS

CH-46 SIL: This lab currently has the capacity to absorb additional similar workyears categorized in the same common support function with only minor facility modifications. The SIL could be used to simulate various types of similar helicopter platforms with minor modifications such as addition of a sensor, additional wiring, etc.

CSF 4. WEAPONS - CRUISE MISSILES

GPS Lab (12%) : Has some limited capacity to absorb additional workyears of effort if additional space can be made available either by construction or reorganization of existing spaces. Additional equipments (2 GPS simulators) would also be required.

CSF 5. SPACE SYSTEMS - SATELLITES

The SHF Satellite Communication Test Facility could be increased by 4000 SF through the reassignment of other programs currently using the adjacent spaces at a cost of \$0.5M.

The Navy UHF Satcom Test Facility could easily absorb 5 workyears, but any requirement above that would require the relocation of the secure facilities' wall at a cost of \$0.4M.

CSF 6. C4I SYSTEMS - AIRBORNE

JTIDS Network Design Lab: As this facility is dedicated to the JTIDS Network Design Function, it offers significant potential for expansion to accommodate additional similar workyears. Existing buildings within the Warminster site are also available for expansion, making access to additional lab space to support Joint operations a trivial effort (i.e. NRaD Warminster can provide additional capacity without need for MILCON). It is anticipated that approximately 2000 sq ft of additional lab space would be required to absorb 20 additional workyears of effort required by the Joint Development Activity. This is well within existing building capacity expected to be available in the FY97 time frame at the Warminster site.

The E-2C Airborne Tactical Data Systems (ATDS) Integration Laboratory has the capacity to absorb additional similar workyears with only minor facility modifications.

The Systems Integration Facility (SIF) (20%) has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

The Multi-Link Laboratory (20%) has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

CSF 7. C4I SYSTEMS - FIXED GROUND-BASED

Expansion of the Information Transfer Management Structure could be achieved by converting adjacent lab spaces at a minor cost of \$0.1M for an additional 5 workyear capability.

The Surveillance Test and Integration Center is currently fully utilized and does not have further capacity to absorb additional workyears.

The Tactical Engineering Analysis Lab is currently fully utilized and cannot absorb additional workyears.

UIC: N66001

The Tactical Systems Lab is currently fully utilized and cannot absorb additional workyears.

The High Performance Computing and Theater Level Planning Laboratory has the capacity to absorb additional similar workyears with minor facility modifications.

The Navy Command and Control System Ashore Integration Test Facility has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

The Navy Intelligence Development, Integration And Test Facility has the capacity to absorb additional similar workyears with minor facility modifications.

The Ocean Surveillance Information System (OSIS) Evolutionary Development (OED) Laboratory has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

The Surveillance Systems' C4I Fixed Ground Based offices and labs can absorb additional similar workyears by increasing office occupancy density and by converting storage space to office space.

The Distributed Command/Control (DC2) Laboratory has the capacity to absorb additional similar workyears with minor facility modifications.

The Marine Air Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Laboratory does not have the capacity to absorb additional similar workyears.

The Distributed Simulation Internet (DSI) Advanced Simulation Laboratory (DASL)/Secure DSI Integration Simulation Laboratory (SISL) does not have the capacity to absorb additional similar workyears.

The Command Center of the Future does not have the capacity to absorb additional similar workyears.

The Processing and Data Exploitation Center is currently fully utilized and cannot absorb additional workyears.

The Space and Electronic Warfare Simulator (SEWSIM) is currently fully utilized and cannot absorb additional workyears.

The Special Signals Equipment Space Simulator (SWIFT) is currently fully utilized and cannot absorb additional workyears.

UIC: N66001

The Microwave and Millimeter-wave Antenna Range Complex is currently fully utilized and cannot absorb additional workyears.

The Radar Signal Processing Laboratory is currently fully utilized and cannot absorb additional workyears.

Secure Facilities, Vaults, and Underground Bunkers: The SCI and other compartmented facilities consist of over 55,000 square feet of operating space in 26 separated facilities within the Center. An additional 1500 square foot space is presently proposed for becoming a SCIF, and at least 12 additional spaces (12,000 square feet) meet DIAM 50-3 requirements and could be accredited as SCIFs. The Center also oversees three (3) contractor SCIFs with 1181 square feet of space; four (4) other contractor SCIFs with 8093 square feet can rapidly be re-accredited. These additional SCIF spaces could be accredited with only minor or no additional facility modifications.

The Indoor Robotics Development/Test Facility has additional buildings that could be used to absorb additional robotics work. The use of the robotics test facility can be time-shared to provide for additional requirements.

The Communications Support System Simulation Facility could easily accommodate an additional 10 workyears.

The Systems Integration Facility (SIF) (40%) has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

The Multi-Link Laboratory (40%) has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

The High Performance Computing Processing Facility (50%) is currently fully utilized and does not have further capacity to absorb additional workyears.

The Research Evaluation and Systems Analysis (RESA) Facility (50%) does not have the capacity to absorb additional similar workyears.

The Display Systems Development Laboratory (50%) has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

The Over the Horizon Targeting (OTH-T) Reconfigurable Land Based Test Site (RLBTS) (50%) does not have the capacity to absorb additional similar workyears.

UIC: N66001

CSF 8. C4I SYSTEMS - AFLOAT

Based on the analysis provided in FY95 BRAC Data Call #4 Section 3, additional work space is available to support an additional 618.6 workyears capability in support of C4I afloat without major facility modifications.

The Ship Antenna Model Range and Simulation Facility could absorb workyears without modification; additional office and working spaces would be required at other nearby buildings.

The VLF/LF Integrated Test Facility could absorb an additional 3 to 5 workyears, and expansion capacity beyond this is limited.

The EHF Satellite Communications Terminal Test Facility could absorb another 4 workyears and additional space could be made available for \$0.5M.

The Radar Test Range is currently fully utilized and cannot absorb additional workyears.

The Surveillance Systems' C4I Afloat office and labs can absorb additional similar workyears by increasing office occupancy density and by converting storage space to office space.

The Deployable Surveillance Integration Facility is currently fully utilized and cannot absorb additional workyears.

The Bayside Acoustic Systems Computational Facility is currently fully utilized and cannot absorb additional workyears.

The Combat Direction System (CDS) Development and Evaluation Site (CDES) has the capacity to absorb additional similar workyears categorized in the same common support function with only minor facility modifications.

The Navy Tactical Command System Afloat (NTCS-A) testbed and integration facility has the capacity to absorb additional similar workyears with only minor facility modifications.

Simulated Ships Motion Test Facility: The Simulated Ships Motion Test Facility is used on the average 16 hrs per day to conduct inertial navigation system testing. Little or no facility modification would be required to increase the facility workload capacity. Simultaneous testing of two inertial systems, vice a single system, can be conducted on the same motion simulator and the normal test day can be extended (e.g. 24 hrs per day).

OSP Integration Lab: Minor modifications to upgrade lab for Secret ADP applications.

The Survivable Adaptable Fiber-Optic Embedded Network Development Site could absorb an additional 5 workyears through reassignment of nearby office spaces at a cost of \$0.1M.

Inertial Navigation Facility (INFAC) (50%): The Inertial Component Test Laboratory (ICTL) at INFAC contains 12 test piers, isolated from local foot traffic, and the required electronics to support equipment on those piers. The test piers contain developmental test stations incorporating triple, dual and single axis rate and position tables, precision dividing heads, environmental stations and seismic monitors in the most seismically stable inertial sensor facility in the United States. Currently, 7 of the 12 piers are being utilized 8 hours/day, 5 days/week and 1 pier is devoted to long term testing, 24 hours/day, 7 days/week. The remaining 4 piers are available for expansion/growth. Currently, 6 workyears of labor is being expended in the laboratory.

The Systems Integration Facility (SIF) (40%) has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

The Multi-Link Laboratory (40%) has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

GPS Lab (29%) : Has some limited capacity to absorb additional workyears of effort if additional space can be made available either by construction or reorganization of existing spaces. Additional equipments (2 GPS simulators) would also be required.

The High Performance Computing Processing Facility (50%) does not have the capacity to currently not have further capacity to absorb additional workyears.

The Research Evaluation and Systems Analysis (RESA) Facility (50%) does not have the capacity to absorb additional similar workyears.

The Display Systems Development Laboratory (50%) has the capacity to absorb additional similar workyears categorized in the same common support function with minor facility modifications.

The Over the Horizon Targeting (OTH-T) Reconfigurable Land Based Test Site (RLBTS) (50%) does not have the capacity to absorb additional similar workyears.

UIC: N66001

CSF 9. C4I SYSTEMS - GROUND MOBILE

No facilities are specifically designated for this CSF.

CSF 10. ELECTRONIC DEVICES

The Microelectronics CAD Facility can absorb additional workyears with minor facility modifications. This is in accordance with the initial plan for CAD expansion.

The Radiometric Measurements Facility requires minor or no modification to support additional workyears. Not all of the facility equipment is operated at full capacity.

The Optoelectronic Device Characterization Facility requires minor or no modification to support additional workyears. Not all of the facility equipment is operated at full capacity.

The Infrared Focal Plane Array Test Facility requires minor or no modification to support additional workyears. Not all of the facility equipment is operated at full capacity.

The Long Wavelength Infrared (LWIR) Filter and Materials Evaluation Laboratory consists of multiple test apparatus which can be used in a coordinated fashion in support of multiple workyears. The ultimate limiter of the number of workyears supportable is the space required to place experimental hardware in and around the rather large spectrophotometers and the space required for personnel access to the equipment. Minor modifications could be made to acquire adjoining space in order to expand this facility.

The Electronic Packaging Facility requires minor or no modification to support additional workyears. Not all of the facility equipment is operated at full capacity.

The Microelectronics Laboratory requires minor or no modification to support additional workyears. Not all of the facility equipment is operated at full capacity.

The Electronic Materials Science Facility requires minor or no modification to support additional workyears. Not all of the facility equipment is operated at full capacity.

Inertial Navigation Facility (INFAC) (50%): The Inertial Component Test Laboratory (ICTL) at INFAC contains 12 test piers, isolated from local foot traffic, and the required electronics to support equipment on those piers. The test piers contain developmental test stations incorporating triple, dual and single axis rate and position tables, precision dividing heads, environmental stations and seismic monitors in the most seismically stable inertial sensor facility in the United States. Currently, 7 of the

12 piers are being utilized 8 hours/day, 5 days/week and 1 pier is devoted to long term testing, 24 hours/day, 7 days/week. The remaining 4 piers are available for expansion/growth. Currently, 6 workyears of labor is being expended in the laboratory.

CSF 11. ENVIRONMENTAL SCIENCES

The Environmental Sciences facility can absorb additional similar workyears by increasing office occupancy density and by converting storage space to office space.

The Propagation Test Facility's current use and anticipated future use is running at about 75% capacity. In the previous two years, the facility ran at approximately 100% capacity.

CSF 12. ENVIRONMENTAL QUALITY

The Ocean Sciences Laboratory is a fully-equipped chemistry, biology and sensor instrumentation development facility with state-of-the-science capabilities for marine environmental quality and ocean science research applications. With the use of nearby buildings to provide office space, the facility could be shared to support significant additional workyears.

The Marine Environmental Survey Capability (MESOC) facility is currently fully utilized and cannot absorb additional workyears.

The Site Characterization and Analysis Penetrometer System facility is currently fully utilized and cannot absorb additional workyears.

CSF 13. ADVANCED MATERIALS

The Materials Research Laboratory personnel are fully utilized, but the 12 major instruments and workstations can not be fully utilized by the current laboratory personnel all at the same time (more equipment and stations than people). There is capacity to increase the productivity of the laboratory with only minor modifications.

5. Describe the impact of BRAC 91 and BRAC 93 decisions on the activity and installation.

On 12 April 1991, SECNAV approved a plan to consolidate Navy RDT&E, Engineering and Fleet Support Activities. Part of that plan was the establishment of the Naval Command Control and Ocean Surveillance Center (NCCOSC), located on Point Loma in San Diego, CA as one of the Navy's full spectrum warfare centers. Concurrently, the Naval Ocean Systems Center (NOSC) was disestablished as a separate reporting activity.

UIC: N66001

As part of the NCCOSC establishment, the Research, Development, Test and Evaluation (RDTE) Division was established as a subordinate command collocated with NCCOSC at San Diego, CA. BRAC-91 approved this plan and it was effective 1 January 1992.

When BRAC-91 approved the SECNAV 12 April 1991 consolidation plan, the following were also approved:

WARMINSTER DETACHMENT

When the Naval Air Development Center (NADC) in Warminster, PA was disestablished, some of the former NADC functions, personnel, and facilities at Warminster, PA became the Naval Command, Control And Ocean Surveillance Center RDT&E Division Detachment at Warminster.

PHILADELPHIA DETACHMENT

BRAC-91 closed Naval Station Philadelphia, PA and transferred tenants to other bases. OPNAV modified the name of one of those tenant commands, the Naval Electronic Systems Engineering Activity Detachment, Philadelphia, PA to the NCCOSC RDT&E Division Detachment Philadelphia, which will relocate in 1995 to property currently held by NAWC-AD at Warminster, PA.

FCDSSA

The Fleet Combat Direction Systems Support Activity (FCDSSA) located in San Diego, CA had its functions, personnel, and other resources transferred to the Naval Command, Control And Ocean Surveillance Center Research, Development, Test, and Evaluation Division in San Diego and effective 5 April 1992 FCDSSA was disestablished.

HAWAII DETACHMENT

The functions, personnel, and other resources of the NCCOSC RDTE DIV, Detachment, Kailua, Hawaii were transferred to our activities in San Diego, CA and Pearl Harbor, HI and this detachment was disestablished effective 30 September 1993.

NSSA LOS ANGELES

Effective 1 October 1992, OPNAV disestablished the Navy Space Systems Activity (NAVSPASYSACT) in Los Angeles after transferring its functions, personnel, facilities, and other resources to the Naval Command, Control And Ocean Surveillance Center Research, Development, Test, and Evaluation Division in San Diego.

6. Describe military department approved and programmed plans which will impact or have impacted the activity and organization.

None other than BRAC impacts described above.

UIC: N66001

7. Collocated C4I organizations.

None.

8. Remaining tenants and other activities on the installation: name of organization, mission, total workyears.

Tenants residing on main complex (shore commands)

Tenant Command Name (mission)	UIC	Officer	Enlisted	Civilian
Naval Base San Diego (Fire Dept)	N00242	0	0	15
Port Hueneme Division Naval Surface Warfare Center	N63394	3	7	62
Naval Military Personnel Command Support Activity Det	N41341	1	18	0
Defense Printing Service Branch Office, Pt Loma	N43639	0	0	13
Naval Surface Warfare Center Dahlgren Division DET White Oak	N60921	0	0	7
Naval Health Research Center	N63116	11	14	59
Navy Public Works Center	N63387	0	0	185

UIC: N66001

Tenant Command Name (mission)	UIC	Officer	Enlisted	Civilian
Naval Base San Diego (Fire Dept)	N00242	0	0	15
Navy Personnel Research And Development Center	N68221	4	11	220
Personnel Support Activity Det Pt Loma	N68554	1	33	13
Naval Undersea Warfare Center Keyport Detachment Arctic Submarine Lab	N68951	0	0	7
Defense Technical Information Center (DTIC)	D000UA	0	0	12
Defense Finance And Accounting Service DAO-CL San Diego, Pt Loma Detachment	HQ0112	0	0	39
*Scheduled Airline Traffic Office	SATO	0	0	0
*La Petite Academy, Inc	LPA	0	0	0
*Data Disposal, Inc	DDI	0	0	0

Tenant Command Name (mission)	UIC	Officer	Enlisted	Civilian
Naval Base San Diego (Fire Dept)	N00242	0	0	15
*Point Loma Federal Credit Union	PLFCU	0	0	0
*Evergreen Concessions Co	ECC	0	0	0
*Marine Physical Laboratory	MPL	0	0	0
TOTALS	.	20	83	632

***Notes:**

SATO: Six SATO contractors provide airline scheduling services for NCCOSC and this command's travelers.

LPA: Seventeen La Petite Academy, Inc contractors provide daycare services for 80 children of this command's military and civilian employees.

DDI: Five Data Disposal, Inc contractors perform pick-up, shredding, and disposal of approximately 5 tons of paper products per week for this command and NCCOSC.

PLFCU: Fourteen Point Loma Federal Credit Union contractors provide full service banking at two locations for various military and civilian customers.

ECC: Fifteen contractors provide cafeteria services at three locations at this command for various military and civilian customers.

MPL: Twenty five contractors work in this scientific activity that provides support for Scripps Institute of Oceanography, whose principal business area is oceanography.

UIC: N66001

Tenants residing in Special Areas (Special Areas are defined as real estate owned by host command not contiguous with main complex; e.g. outlying fields).

Tenant Command Name	UIC	Location	Officer	Enlisted	Civilian
*University Of California	UC	LaPosta, CA	0	0	0
*U.C. Customs	USC	LaPosta, CA	0	0	0

* These are tenants at our La Posta Astrophysical Observatory, which is rarely used. Neither tenant has permanent full-time personnel on site.

Document Separator

250

BRAC-95

DATA CALL NUMBER TWELVE
AMENDMENT 1

Data for

Naval Command, Control and Ocean
Surveillance Center
San Diego, CA

94-11-21 10:02 RCVD

WC

**Certified Data: BRAC 95 Data Call Number Twelve - NCCOSC SAN DIEGO CA
(Amendment Number 1)**

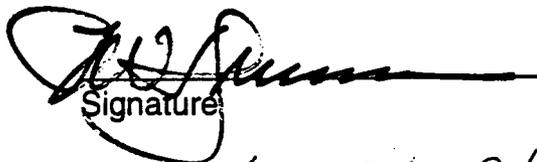
I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

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

P. W. DRENNON
NAME (Please type or print)

Acting
Title

Activity


Signature

10-24-94
Date

BRAC-95 CERTIFICATION

**Certified Data: BRAC 95 Data Call Number Twelve - NCCOSC SAN DIEGO CA
(Amendment Number 1)**

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. A. KLEIN III
NAME (Please type or print)


Signature

Acting Commander
Title

20 October 1994
Date

Naval Command, Control and Ocean
Surveillance Center
Activity

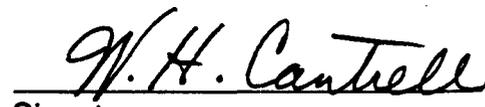
I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

The information contained herein is prepared primarily from data submitted in previous data calls. Breakdown of square footage for other than Lab space is based on best estimate available given the timeframe allotted and personnel available.

Total workyears for organizational elements are provided but personnel necessary to breakdown total WYS into type of WYS were not available in the timeframe allotted.

MAJOR CLAIMANT LEVEL

W. H. CANTRELL
NAME (Please type or print)


Signature

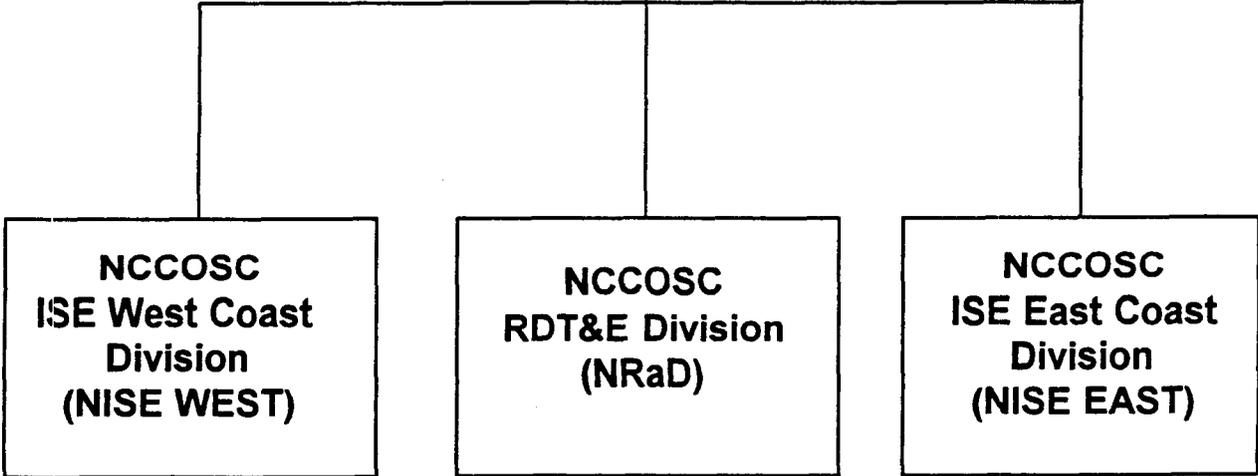
Commander
Title

10/20/94
Date

Space and Naval Warfare
Systems Command
Activity

**Naval Command, Control and Ocean
Surveillance Center**

**Naval Command
Control and Ocean
Surveillance Center
(NCCOSC)**



1a. Show organizational Elements. See above.

1b. Describe organizational relationships especially between support organizations and PEO/PMs.

NCCOSC Headquarters provides administrative and operational direction for the Warfare Center's three technical divisions. NCCOSC Headquarters does no C4I acquisition management.

225

BRAC-95

DATA CALL NUMBER TWELVE
AMENDMENT 1

Data for

Naval Command, Control and Ocean
Surveillance Center, ISE East Coast Division,
Charleston, SC

94-11-21 10:02 RCVD

wc

BRAC-95 CERTIFICATION

**Certified Data: BRAC 95 Data Call Number Twelve - NISEEAST CHARLESTON SC
(Amendment Number 1)**

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. A. KLEIN III
NAME (Please type or print)

G. A. Klein III

Acting Commander
Title

20 October 1994
Date

Naval Command, Control and Ocean
Surveillance Center
Activity

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

The information contained herein is prepared primarily from data submitted in previous data calls. Breakdown of square footage for other than Lab space is based on best estimate available given the timeframe allotted and personnel available.

Total workyears for organizational elements are provided but personnel necessary to breakdown total WYS into type of WYS were not available in the timeframe allotted.

MAJOR CLAIMANT LEVEL

W. H. CANTRELL
NAME (Please type or print)

W. H. Cantrell
Signature

Commander
Title

10/20/94
Date

Space and Naval Warfare
Systems Command
Activity

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."

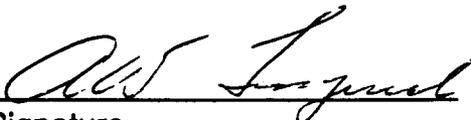
The signing of this certification constitutes a representation that the certifying official has reviewed the information and either (1) personally vouches for its accuracy and completeness or (2) has possession of, and is relying upon, a certification executed by a competent subordinate.

Each individual in 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.

ACTIVITY COMMANDER

Captain Anthony W. Lengerich
Name


Signature

Commanding Officer
Title

18 October 1994
Date

NISF East
Activity

DATA CALL TWELVE AMENDMENT ONE

1. Organization Chart (as of 30 Sep 94):

a. Show organization elements (those which report directly to the activity commander or report to a PEO.)

Attached.

b. Describe the organizational relationships especially between support organizations and PEO/PMs.

In order to implement new technical work, a tasking letter is initiated by the PEO/PM detailing the plan of action and milestones within specified timeframes and monetary constraints. The support organization tracks the milestones and the plan of action as directed by the letter from the PM. Field activity engineering personnel direct financial assets, materials, contractual procurements and other resources in order to implement the programs as directed by the sponsor/PM. Engineering personnel provides periodic reviews and reports back to the sponsor regularly generally through program data bases maintained by field personnel.

c. Summarize the Command's C4I acquisition / non-C4I acquisition level of effort.

Of the workyears executed in science and technology, engineering development and in-service engineering, only 5% (57 WYs of 1194) are engaged in C4I acquisition. This Command is primarily an in-service engineering organization.

The Command's remaining 134 WYs consists of functions such as admin, supply, legal, contracting, logistics, public works, etc. and support the functions listed above in about the same ratio.

BASELINE

NISE EAST

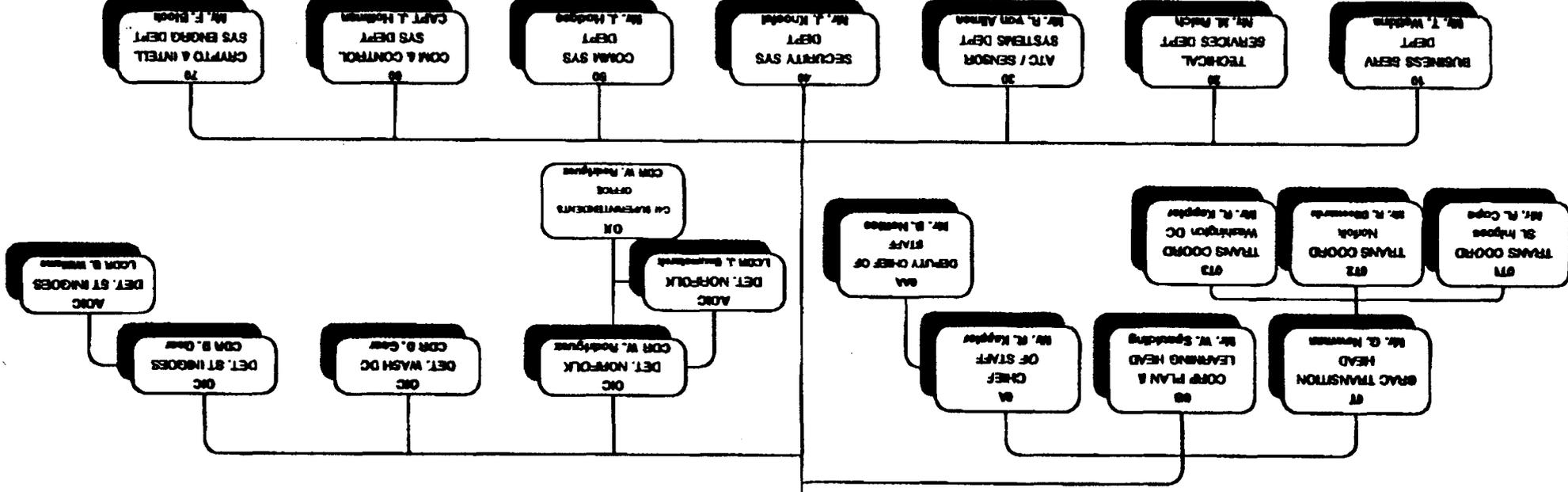
NE 90 Deleted
MMF Included

4 Oct 1994

DRAFT



CAPT Langtich
00
03
Mr. Don Bailey
ED
03



2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 30 ATC/SENSOR SYSTEMS DEPT

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*		7				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	400	X	
LABORATORY SPECIFIC SPACE**			
OTHER SPACE (DESCRIBE)**			

**Best estimates given the timeframe allotted and personnel available.

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 30 ATC/SENSOR SYSTEMS DEPT

MAIN PROGRAMS -

* FDS - ASV Surveillance System

* STS - Security Surveillance System

TOTAL FY 93 PROGRAM FUNDS \$1.1 M

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 50 COMM SYSTEMS DEPT

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*		15.5				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	2,065	X	
LABORATORY SPECIFIC SPACE**	5,600	X	
OTHER SPACE (DESCRIBE)**	1,200	X	

**Best estimates given the timeframe allotted and personnel available.

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 50 COMM SYSTEMS DEPT

MAIN PROGRAMS -

* CHBDL-ST - Navy and Joint Service Airborne sensor programs

* HV Tacvis

* USO-125 - Data Terminal

* HFSB - Engineering and manufacturing development

TOTAL FY 93 PROGRAM FUNDS \$3.2 M

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 60 COM & CONTROL SYSTEMS DEPT

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*		34.5				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	12,731	X	
LABORATORY SPECIFIC SPACE**	26,108	X	
OTHER SPACE (DESCRIBE)**			

**Best estimates given the timeframe allotted and personnel available.

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 60 COM & CONTROL SYSTEMS DEPT

MAIN PROGRAMS -

- * NIU - Navy Satellite Con. Station interface Unit
- * NCCS - Lab Maint. OSS/WWMCCS
- * TCS/MOCC - C4I Eng. Dev; Acq.; System test & eval
- * TCO(1) - Marine Corps Tact. Comm. Sys.
- * FMS(3) - Saudi Arabia, Korea, Japan

TOTAL FY 93 PROGRAM FUNDS \$21.7 M

3. Map of the installation to include elements listed in 2:
 - a. annotate buildings to show location of each organizational element.

Locations shown are for C4I acquisition management functions only. Maps are provided for the Charleston and Norfolk sites with locations annotated. St. Inigoes and Washington will be relocated to Charleston.

- b. Show location of available space in FY97.

NISEEAST Charleston and NISEEAST Det Norfolk

- c. show buildings with equipment/facilities which would be difficult to move or replicate. List such equipment with initial cost.

None for C4I acquisition.

- d. Describe potential space for consolidation in close proximity to the activity available in FY97, state distance to the activity and extenuating circumstances.

55 acres is available for construction at the South Annex of Naval Weapon Station Charleston, SC. 51 acres is available at the St. Juliens Creek Engineering Park at Portsmouth, Virginia for building construction.

At NISEEAST Charleston, Naval Weapons Station, South Annex, utilities service capability far exceeds the current average daily use. Water capacity is 5,800,000 gallons per day; daily use is 14,000 gallons. Sewer use is 6,000 gallons per day; capacity is 4,350,000 gallons per day. The main electrical switch entering the base will support 10 MVA; current use is only an average 54.3 KVA load. Land assigned to NISEEAST is well drained, surrounded by a road network and easily capable of supporting more than the currently planned expansion while continuing to maintain compatibility with the environment.

At NISEEAST Det Norfolk, water, sewer and electric service is available for more than four times the current usage. Water use is currently 140,00 gallons per day and a capacity of 2,600,000 gallons per day exists. Sewage use is less than one-fifth the capacity and the electric service is provided by a local utility via a 34.5 KVA service, which currently exceeds any projected requirements. Storm water runoff and other environmental concerns have been reviewed to ensure expansion compatibility with the environment. The location is a natural resource with capacity to consolidate engineering resources into a single geographic location. Roads and parking in the area available to this command can handle more than three times the current level of 418 people.

4. Estimate the capacity of the activity to absorb similar workyears with little or no modification of facilities.

Estimate the capacity of the activity to absorb similar workyears with major modifications and describe the nature of those modifications and estimated cost. Use FY97 as a baseline for such estimates.

By FY97 the Washington DC and St. Inigoes, MD detachments will have closed and the personnel will have relocated to Charleston. Laboratory facilities are not used as employee primary workspace, but are specialized spaces reserved for the duplication of electronic systems and equipments supporting C4I tasking. The condensed physical size of modern electronic systems allows for the integration of multiple systems and test beds into single spaces. This integration of multiple C4I systems expands the laboratory capacity. While various functions can simultaneously use the lab space at one time; rarely would every system and testing area be tasked to capacity. An additional workload increase of 20 to 25 percent could be absorbed into current technical facilities as long as the work was in the C4I common support function.

5. Describe the impact of BRAC 91 and BRAC 93 decisions on the activity and installation.

In accordance with BRAC-93 decisions, the Naval Electronic Systems Engineering Activity (NAVELEXACT) St. Inigoes, Maryland, the Naval Electronic Systems Engineering Center (NAVELEXCEN) Portsmouth, Virginia, and the Naval Electronic Systems Security Center (NAVELEXSECCEN) Washington, DC will be closed and transferred to Charleston, SC. Administratively, these activities have been disestablished as echelon 4 commands and reestablished as detachments of a newly formed Naval Command, Control and Ocean Surveillance Center (NCCOSC) division, the NCCOSC ISE East Coast Division (NISEEAST) is headquartered in Charleston, SC. The Module Maintenance Facility (part of the Charleston Naval Shipyard) will also be realigned to become part of NISEEAST.

The primary operational site and headquarters for NISEEAST will be in renovated and newly constructed facilities at the Charleston Naval Weapons Station South Annex.

At St. Inigoes, all existing land and facilities has transferred to the Naval Air Station, Patuxent River, Maryland (NAS Patuxent River), an activity of the Naval Air Systems Command. Specified functions and personnel billets will be transferred to the NAVAIR Claimancy and remain in southern Maryland. A NISEEAST Detachment will remain at St. Inigoes during a transition period, operating specific facilities and programs under a host/tenant agreement with NAS Patuxent River. This Detachment's personnel billets and programs will ultimately relocate to Charleston, SC to complete the required closure/ realignment action.

A NISEEAST Detachment Norfolk has been established at St. Juliens Creek Annex, the site of the former NAVELEXCEN Portsmouth Va. This detachment will be reduced in size to less than 60 personnel to comply with BRAC-93 decisions. Personnel billets other than those of the detachment will be relocated to Charleston, SC.

NISEEAST Detachment Washington DC (former NAVELEXSECEN Washington DC) will close and relocate to Charleston, SC.

The module Maintenance Facility will be transferred from the NAVSEA claimancy to the SPAWAR claimancy as part of NISE East. It will remain in its facilities at the Charleston Naval Shipyard.

6. Describe military department approved and programmed plans which will impact or have impacted the activity and organization.

None other than the BRAC impacts described above.

7. Collocated C4I organizations.

None.

8. Remaining tenants and other activities on the installation: name of organization, mission, total workyears

None.

NISEEAST
Charleston, SC

CODE 30

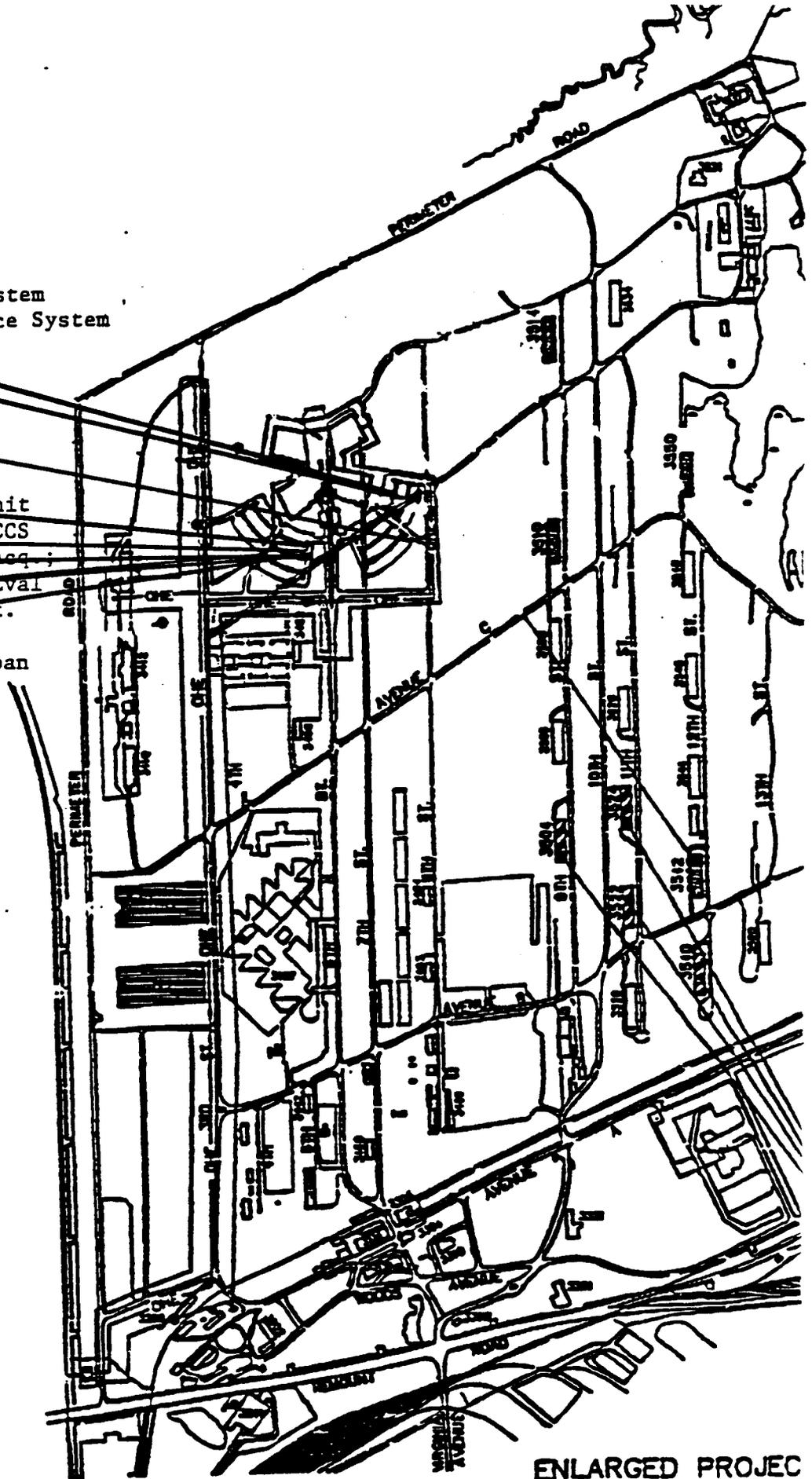
FDS - ASV Surveillance System
STS - Security Surveillance System

CODE 50

HV Tacvis

CODE 60

NIU - Navy Satellite Con.
Station Interface Unit
NCCS - Lab Maint. OSS/WWMCCS
TCS/MOCC - C/I Eng. Dev; Acq;
System Test & Eval
TCO(1) - Marine Corps Pact.
Comm. Sys.
FMS(3) - Saudi, Korea, Japan

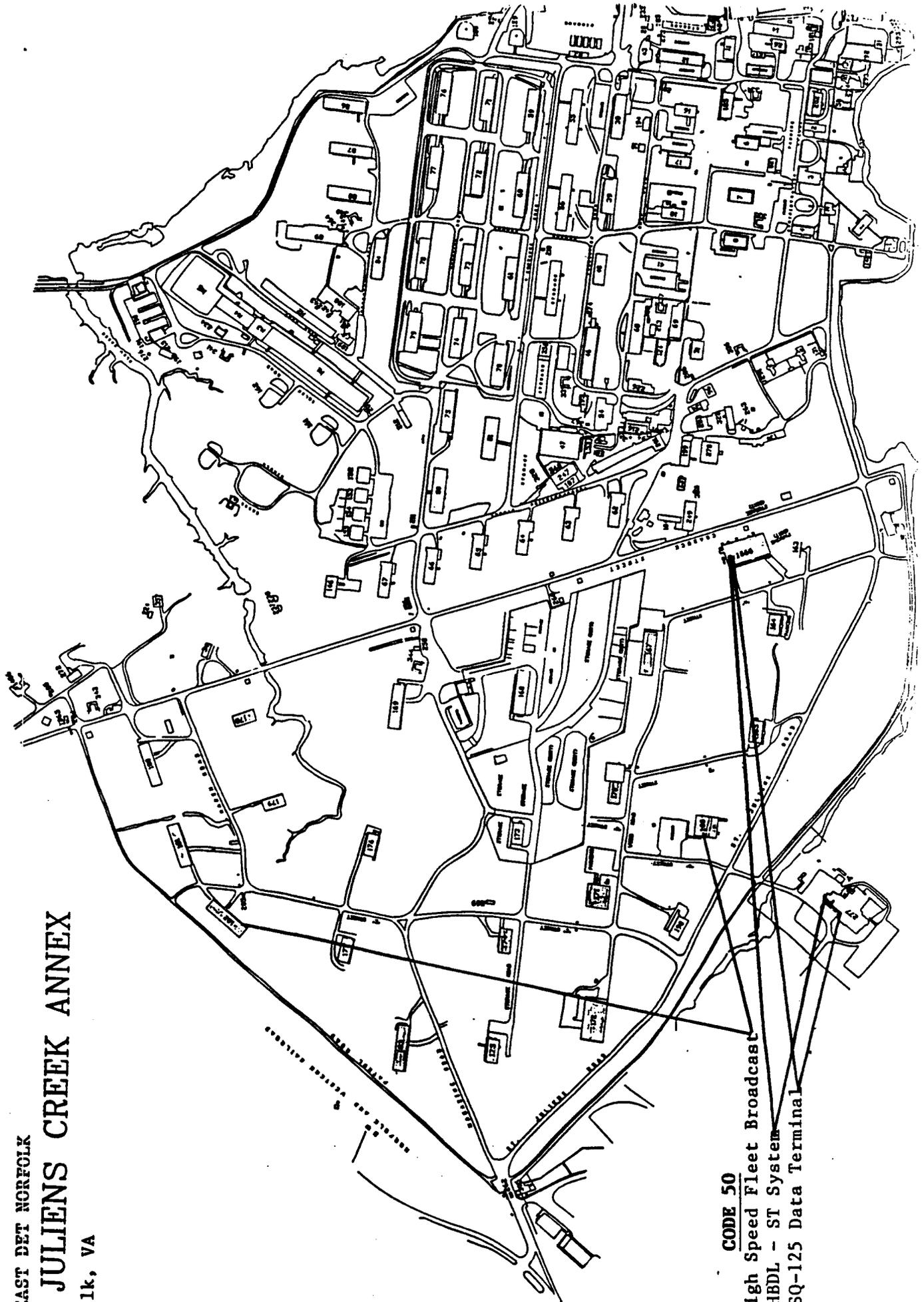


ENLARGED PROJEC

NISEEAST DET NORFOLK

ST. JULIENS CREEK ANNEX

Norfolk, VA



ENTRANCE

CODE 50

1. High Speed Fleet Broadcast
2. CHBDL - ST System
3. USQ-125 Data Terminal

223

BRAC-95

DATA CALL NUMBER TWELVE
AMENDMENT 1

Data for

Naval Command, Control and Ocean
Surveillance Center, ISE West Coast Division
San Diego, CA

94-11-21 10:02 RCVD

WC

**Certified Data: BRAC 95 Data Call Number Twelve - NISEWEST SAN DIEGO CA
(Amendment Number 1)**

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)**

P.W. DRENNON
NAME (Please type or print)

Acting
Title

Activity


Signature

10-24-94
Date

BRAC-95 CERTIFICATION

**Certified Data: BRAC 95 Data Call Number Twelve - NISEWEST SAN DIEGO CA
(Amendment Number 1)**

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. A. KLEIN III
NAME (Please type or print)


Signature

Acting Commander
Title

20 October 1994
Date

Naval Command, Control and Ocean
Surveillance Center
Activity

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

The information contained herein is prepared primarily from data submitted in previous data calls. Breakdown of square footage for other than Lab space is based on best estimate available given the timeframe allotted and personnel available.

Total workyears for organizational elements are provided but personnel necessary to breakdown total WYS into type of WYS were not available in the timeframe allotted.

MAJOR CLAIMANT LEVEL

W. H. CANTRELL
NAME (Please type or print)


Signature

Commander
Title

10/20/94
Date

Space and Naval Warfare
Systems Command
Activity

BRAC DATA CALL #12
C4I CROSS SERVICE ANALYSIS

Reference: SECNAVNOTE 11000 of 08 December 1993

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.

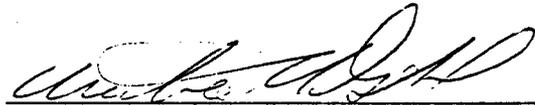
I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

ACTIVITY COMMANDER

MICHAEL T. GEHL

Captain, U.S. Navy

NAME (Please type or print)



Signature

Commanding Officer

Title

10/18/94

Date

Naval Command, Control and Ocean
Surveillance Center, ISE West Coast Division
Activity

DATA CALL TWELVE AMENDMENT ONE

1. Organization Chart (as of 30 Sep 94):

a. Show organization elements (those which report directly to the activity commander or report to a PEO.)

Organizational Relationships

CODE 200

FUNCTION

PEO/PM

SATELLITE COMM SHF/EHF

SPAWAR PMW-156

SATELLITE COMM AUTOMATED VHF

SPAWAR PMW-156

VLF COMMS

SPAWAR PMW-153

SPAWAR RESEARCH VLF/LF

SPAWAR PMW-153

CODE 300

FUNCTION

PEO/PM

LINK 16 - DATA LINK

SPAWAR PMW-159

JTIDS - AN/TSC-131 VANS

SPAWAR PMW-159

TESS - TACTICAL ENVIRONMENTAL

SPAWAR PMW-175

JTIDS - NAVAIR PORTION

NAVAIR 4104D

MARINE COMM - MOBILE COMM

SPAWAR PMW-152

CODE 400

FUNCTION

PEO/PM

ESM MAST

NAVSEA PMO-401

AN/WLQ-4(V)1

NAVSEA PMO-401

AN/WLR-1H

NAVSEA PMO-401

BGPHERS

SPAWAR PMW-163

OUTBOARD

SPAWAR PMW-163

COMBAT DF

SPAWAR PMW-163

CODE 500

FUNCTION

PEO/PM

DEPOT

SPAWAR PD-50

Effective 2 October 1994, NISE West reorganized and the above organizational relationships changed. A copy of the new organizational chart has been provided.

UIC N68944

NCCOSC ISE WEST COAST DIVISION

09/21/93

OOX	EXECUTIVE ASST	
	CARYE CONCHA (SD)	DA-343-III
OOX-V	KATHY FLANDERS (VJO)	DG-303-III
OOS	ADMIN ASST	
	CAROL MCDANIEL (SD)	DG-344-III
OOS1	SECRETARY	
	ANN SIMNITT (SD)	DG-318-III

OO COMMANDING OFFICER P. S. PIERPONT CAPT., USN	90 EXECUTIVE DIRECTOR FRANK GORDON SES
-------------------------------------------------------------------------------	------------------------------------------------------------

OOA OIC, VALLEJO DETACHMENT LT DAVE RILING, USN (VJO)	1440/1480
----------------------------------------------------------	-----------

OOB CHIEF OF STAFF MAE BREWER (VJO) (SEE SEPARATE CHART)	DP-343-III
----------------------------------------------------------------	------------

OOC OFFICE OF COUNSEL EVA ESCALANTE (SD) MANUELA NAPIER (SD) MAGGIE URIOSTIGUE (SD)	DP-905-IV DP-905-IV DG-988-II
----------------------------------------------------------------------------------------------	-------------------------------------

OOL LINK PROJECT OFFICE GARY DRAGE (SD) VACANT (SD) (MCE J. DAVIS) TIM SCHOFIELD (SD) KENNETH REGISTER (SD) CLYDE FLYNN (SD) ANN NIXON (SD) GARY NAWICKI (SD)	DP-830-IV DP-855-III DP-855-III DP-855-IV DP-334-III DG-303-I LT, USN
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------

OOZ BRAC FACILITIES ENGINEER MIKE SHRADER (VJO)	DP-856-IV
----------------------------------------------------	-----------

OOF FLEET SUPPORT OFFICE LT KAREN MCDUGALL (SD) JIM KINSEY (VJO) JIM WILLIAMS (SD) ROGER MCLAUGHLIN (SD) VACANT (VJO) (MCE PALMQUIST) ETC SIGWORTH, USN (VJO) GARY SWANSON (SD) ALEX TURNER (SD) JOHN BOSTON (SD) ETCJ (SW) HENDERSON, USN (SD)	O-5 1440 DP-855-III DP-1870-III DS-1870-III DG-303-I DT-856-III DT-856-III DT-856-III
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------

OOP HUMAN RESOURCES OFFICE JUDI RILEY (SD) (SEE SEPARATE CHART)	DP-201-III
-----------------------------------------------------------------------	------------

OOO TQL PRINCIPAL VACANT	DP-III
-----------------------------	--------

NISE WEST ACTIVITY, HI. OFFICER IN CHARGE CDR R. POLKOWSKY, USN	09 TECHNICAL DIRECTOR MIKE LOOK DP-855-IV
(SEE SEPARATE CHART)	

100
BUSINESS DIRECTORATE
(SEE SEPARATE CHART) DP-855-IV

200
COMMUNICATIONS DIRECTORATE
(SATCOM & TERRESTRIAL) (SEE SEPARATE CHART) DP-855-IV

300
COMMAND & CONTROL DIRECTORATE
(SEE SEPARATE CHART) DP-855-IV

400
OCEAN SURVEILLANCE & SPECIAL PROGRAMS DIRECTORATE
(SEE SEPARATE CHART) DP-855-IV

500
ATE AND RESTORATION DIRECTORATE
(SEE SEPARATE CHART) DP-855-IV

**EFFECTIVE 20 DECEMBER 1994
NISE WEST**

00 COMMANDING OFFICER M.T. GEHL CAPTAIN, USN	01 EXECUTIVE DIRECTOR FRANK GORDON SES
-----------------------------------------------------------------------------------	-----------------------------------------------------------------------------

STAFF		
00X	EXECUTIVE ASSISTANT CARYE CONCHA	DA-343-III
ASSISTANTS		
00X-V	KATHY FLANDERS	DG-303-III
00S	CAROL MCDANIEL	DG-344-III
00S1	ANN SIMNITT	DG-318-III

NISE WEST ACTIVITY, HAWAII	
OFFICER IN CHARGE CAPTAIN R. POLKOWSKY, USN	09 TECHNICAL DIRECTOR MIKE LOOK DP-855-IV

01A		
ASSOCIATE EXECUTIVE DIRECTOR MALCOLM MCCOLLUM DP-855-IV		
01AA	MAE BREWER	DP-343-IV
01A1	PAO	
	RICK BARNES	DA-1036-II
	ANNE GRUEL	DG-088-II
01A2	COMMAND EVALUATION	
	BOB KELLEY	DA-343-III
01A3	TECHNOLOGY TRANSFER	
	DIANA JACKSON	DP-301-III

00F	
FLEET SUPPORT OFFICE	
KAREN MACDOUGALL VACANT JIM WILLIAMS ROGER MCLAUGHLIN BRUCE SIGWORTH GARY SWANSON ALEX TURNER JERRY HENDERSON GLORIA SPARKS JOHN SEVCO	LCDR, USN DP-855-III DP-1670-III DP-1670-III ETC, USN DT-856-III DT-856-III ETC (SW), USN DS-334-III DP-855-III

00A
MILITARY LIAISON OFFICER (VALLEJO SITE) JEFF HAILEY LT, USN

NCCOSC ITEO	
WES YAMAMOTO MARK REINIG PAUL DORIN, USN	NISE WEST NISE WEST NCCOSC

00C	
OFFICE OF COUNSEL	
EVA ESCALANTE MANUELA NAPIER MAGGIE URIOSTIGUE	DP-905-IV DP-905-IV DG-986-II

00P	
HUMAN RESOURCES OFFICE	
VALERIE VELCHEK DP-301-III	

10
BUSINESS OPERATIONS DEPARTMENT
MICHAEL SHRADER DP-505-IV

20
COMMAND, CONTROL AND COMMUNICATIONS DEPARTMENT
GARY DRAGE DP-855-IV

30
ELECTRONIC SYSTEMS ENGINEERING DEPARTMENT
DOUG JEDLICKA DP-855-IV

b. Describe the organizational relationships especially between support organizations and PEO/PMs.

NISE West reports to Commander, NCCOSC, who reports to COMSPAWARSYSCOM. For those PMs reporting to COMSPAWAR, there is therefore an organizational relationship in addition to the funding/technical relationship. For PEOs and PMs in other systems commands, there is only the funding/technical relationship.

The funding and technical relationship between the support organization (NISE West) and the PMs and PEOs varies significantly from program to program. At one end of the spectrum, NISE West is provided funding to accomplish tasking that is developed by the PM/PEO. Other programs have more NISE West involvement and cooperation with the PM/PEO in the development of the tasking prior to the funding/tasking being formally provided to NISE West. In a much smaller set of programs, NISE West has full program management responsibility, and develops and executes tasking in support of the program.

c. Summarize the Command's C4I acquisition / non-C4I acquisition level of effort.

Of the workyears executed in science and technology, engineering development and in-service engineering, only 5% (45 WYs of 832) are engaged in C4I acquisition. This Command is primarily an in-service engineering organization.

The Command's remaining 217 WYs consists of functions such as admin, supply, legal, contracting, logistics, public works etc. and support the functions listed above in about the same ratio.

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 200 COMMUNICATIONS DIRECTORATE

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*		4.6				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	600	X	
LABORATORY SPECIFIC SPACE (Note 1)**			
OTHER SPACE (DESCRIBE)**			

**Best estimates given the timeframe allotted and personnel available.

1. Lab specific space is under the ISE umbrella with no lab space provided for the C4I acquisition function.

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 200 COMMUNICATIONS DIRECTORATE

MAIN PROGRAMS -

- * Satellite Comm. SHF/EHF
- * Satellite Comm. Automated VHF
- * VLF Comm.
- * SPAWAR Research VLF/LF

TOTAL FY 93 PROGRAM FUNDS \$1.5 M

UIC N68944

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 300 COMMAND & CONTROL DIRECTORATE

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*		10.5				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	1080	X	
LABORATORY SPECIFIC SPACE (Note 1)**			
OTHER SPACE (DESCRIBE)**			

**Best estimates given the timeframe allotted and personnel available.

1. Lab specific space is under the ISE umbrella with no lab space provided for the C4I acquisition function.

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 300 COMMAND & CONTROL DIRECTORATE

MAIN PROGRAMS -

- * LINK 16 - Data Link
- * JTIDS - AN/TSC-131 VANS
- * TESS - Tactical Environmental Support
- * JTIDS - NAVAIR Portion
- * Marine Comm - Mobile Communications

TOTAL FY 93 PROGRAM FUNDS \$1.7 M

UIC N68944

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 400 OCEAN SURVEILLANCE & SPECIAL PROGRAMS DIRECTORATE

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*		12.7				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	1588	X	
LABORATORY SPECIFIC SPACE (Note 1)**			
OTHER SPACE (DESCRIBE)**			

**Best estimates given the timeframe allotted and personnel available.

1. Lab specific space is under the ISE umbrella with no lab space provided for the C4I acquisition function.

UIC N68944

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 400 OCEAN SURVEILLANCE & SPECIAL
PROGRAMS DIRECTORATE

MAIN PROGRAMS -

- * ESM MAST - Submarine Electronic Mast
- * AN/WLO-4(V)1 SSN-21 (SEAWOLF) ESM
- * AN/WLR-1H SSN-768/773 ESM
- * BGPHERS - Battle Group Horizon Extension System
- * OUTBOARD
- * COMBAT DF - Combat DF System

TOTAL FY 93 PROGRAM FUNDS \$1.5 M

UIC N68944

2. For each organizational element:

a: Breakout five types of FY93 workyears (government, FFRDC on-site, FFRDC off-site, contract support on-site and contract support off-site) by the following seven job categories: engineering, logistics, contracting, financial, legal, management, and administrative & other.

Organizational Element: CODE 500 ATE & RESTORATION DIRECTORATE

FY-93 WORKYEARS (C4I ACQUISITION MANAGEMENT ONLY)						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
TOTAL*		0.2				

*Personnel necessary to break down total workyears into types of workyears were not available in the time allotted.

2.b. Number of square feet of space occupied broken out by: general office space, laboratory specific space, and other space (describe). Note if government owned or leased.

SPACE OCCUPIED (C4I ACQUISITION MANAGEMENT ONLY)			
	SF	OWNED	LEASED
GENERAL OFFICE SPACE**	120	X	
LABORATORY SPECIFIC SPACE (Note 1)**			
OTHER SPACE (DESCRIBE)**			

**Best estimates given the timeframe allotted and personnel available.

1. Lab specific space is under the ISE umbrella with no lab space provided for the C4I acquisition function.

2.d. Support office, list main programs.

SUPPORT OFFICE: CODE 500 ATE & RESTORATION DIRECTORATE

MAIN PROGRAMS -

* DEPOT - Depot Upgrade Planning

TOTAL FY 93 PROGRAM FUNDS \$8.9 K

UIC N68944

3. Map of the installation to include elements listed in 2:
 - a. annotate buildings to show location of each organizational element.

Locations shown are for C4I acquisition management functions only. Map is provided only for the San Diego Plant 19 site with the future locations annotated. Current locations in Vallejo and elsewhere in San Diego will be vacated.

- b. Show location of available space in FY97.

Attached

- c. show buildings with equipment/facilities which would be difficult to move or replicate. List such equipment with initial cost.

None for C4I acquisition.

- d. describe potential space for consolidation in close proximity to the activity available in FY97, state distance to the activity and extenuating circumstances.

No space is available in close proximity. Space could be available at this activity - see question 4.

4. Estimate the capacity of the activity to absorb similar workyears with little or no modification of facilities.

Estimate the capacity of the activity to absorb similar workyears with major modifications and describe the nature of those modifications and estimated cost. Use FY97 as a baseline for such estimates.

With the acquisition of Air Force Plant 19 there exists the potential of accommodating an additional 1,200 - 1,500 man years with labs and support facilities if Martin Marrietta vacates the premises. Limited to admin, labs, and support facilities, the modifications would require approximately \$15 - 20M in funding.

5. Describe the impact of BRAC 91 and BRAC 93 decisions on the activity and installation.

BRAC-91 decisions require in part the closure of the Naval Electronic Systems Center (NAVELEXCEN) San Diego, NAVELEXCEN Vallejo, the Naval Space Systems Activity (NAVSPASYSACT), Los Angeles, and Naval Ocean Systems Center Detachment Kaneohe, HI and the realignment of the Fleet Combat Direction Systems Support Activity (FCDSSA).

Closure/Realignment Actions Completed:

UIC N68944

o **NAVSPASYSACT was disestablished effective 1 October 1992. Its functions have been transferred to NCCOSC RDT&E Division (NRAD).**

o **The NRAD Detachment Kaneohe, HI, formerly the NOSC Detachment Kaneohe, HI was disestablished on 30 September 1993. All functions and personnel were transferred to NCCOSC activities in Pearl Harbor, HI and San Diego, CA during 1992 and the first nine months of 1993.**

o **The FCDSSA realignment was completed with its disestablishment on 5 April 1992 and its simultaneous merger with NRAD. The former FCDSSA personnel remained in place and were collocated with NCCOSC Headquarters as tenants of the Fleet Combat Training Center Pacific, San Diego, CA.**

Actions in Progress. The remaining BRAC-91 implementation actions involve the closures of NAVELEXCEN San Diego and NAVELEXCEN Vallejo and their consolidation as a single command, NCCOSC ISE West Coast Division (NISE West), located at former Air Force Plant 19 in San Diego, CA. The remainder of this summary plan deals with these closures and NISE West consolidation.

NISE West Plan: On 1 October 1992 NAVELEXCEN San Diego and NAVELEXCEN Vallejo were disestablished and consolidated administratively into a new command, NISE West, headquartered at Air Force Plant 19 in San Diego. Naval Electronic Engineering Activity, Pacific (NEEACTPAC) was concurrently realigned as a NISE West Activity in Pearl Harbor, HI to continue functions formerly conducted by NEEACTPAC and NOSC Detachment Kaneohe, HI. Relocation of NISE West personnel and functions from Vallejo to San Diego started in FY-92 and will continue through FY-95 at which time the facilities at Vallejo (Mare Island Naval Shipyard) will be returned to the host activity.

6. Describe military department approved and programmed plans which will impact or have impacted the activity and organization.

None other than the BRAC impacts described above.

7. Collocated C4I organizations.

a. List organization:

NAVSEACENPAC is collocated with NISE West in Air Force Plant 19.

b. Summarize overall mission:

Tenant's mission: to provide direct support to fleet and type commanders for

UIC N68944

waterfront technical and logistics services and onboard maintenance training associated with the installation, operation, maintenance, and readiness of shipboard equipment and systems. NAVSEACENPAC's C4I responsibility and involvement is a very minor portion of their mission.

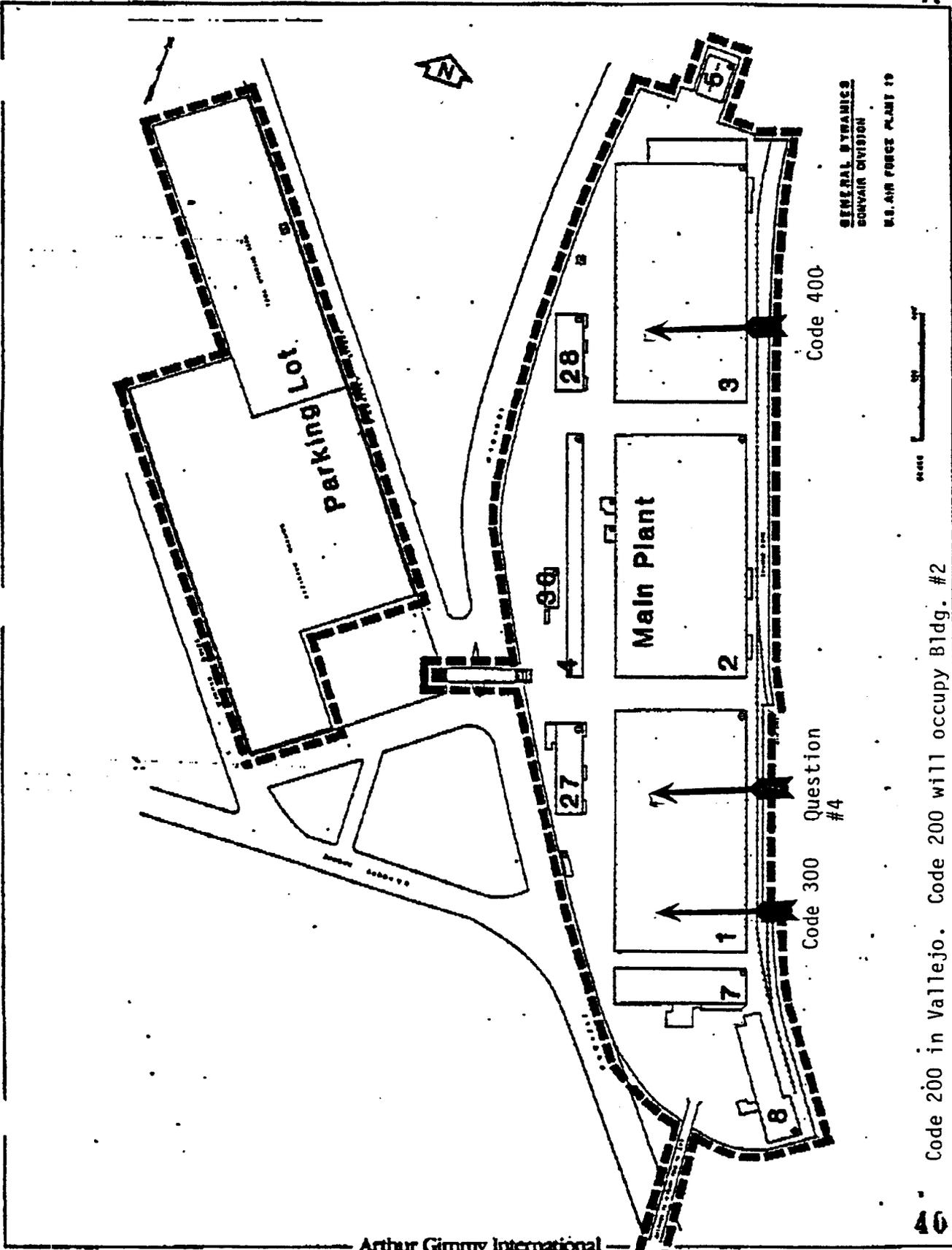
c. Describe relationship to the activity:

NAVSEACENPAC's relationship to NISE West is strictly as a tenant activity within the NISE West headquarters location (formerly Air Force Plant 19).

8. Remaining tenants and other activities on the installation: name of organization, mission, total workyears

NAVSEACENPAC will remain at Air Force Plant 19 as Fleet Technical Support Center providing direct fleet support. The total workyears is unknown.

A



GENERAL DYNAMICS
 SCHWAB DIVISION
 U.S. AIR FORCE PLANT 19

Code 400

Question #4

Code 300

0 10 20 30 40 50 60 70 80 90 100

Code 200 in Vallejo. Code 200 will occupy Bldg. #2

40

Arthur Gimmy International

TOTAL P.02

213

BRAC-95

DATA CALL NUMBER TWELVE
(AMENDMENT NUMBER ONE)

Data for

Navy Management Systems Support Office
Chesapeake, VA

94-11-21 10:02 RCVD

WC

BRAC-95 CERTIFICATION

Certified Data: BRAC 95 Data Call Number Twelve - Navy Management Systems Support Office Chesapeake VA

(Amendment Number 1)

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. It should be noted that this data is submitted only to be responsive to the BSEC memorandum of 7 October 1994 since this activity does not meet any criteria for C4I acquisition management. The vast majority of the NAVMASSO effort is O&M, N dollars in support of the fleet.

MAJOR CLAIMANT LEVEL

W. H. CANTRELL
NAME (Please type or print)

W.H. Cantrell
Signature

Commander
Title

12 October 1994
Date

Space and Naval Warfare
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)

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

W.A. Earner
Signature

Title

10/26/94
Date

Activity



BRAC-95 CERTIFICATION

DATA CALL NUMBER TWELVE AMMENDMENT NUMBER ONE

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

ACTIVITY COMMANDER

Dana A. Fuller
NAME (Please type or print)

Dana Fuller
Signature

Commanding Officer
Title

11 Oct 1994
Date

NAVMASSO
Activity

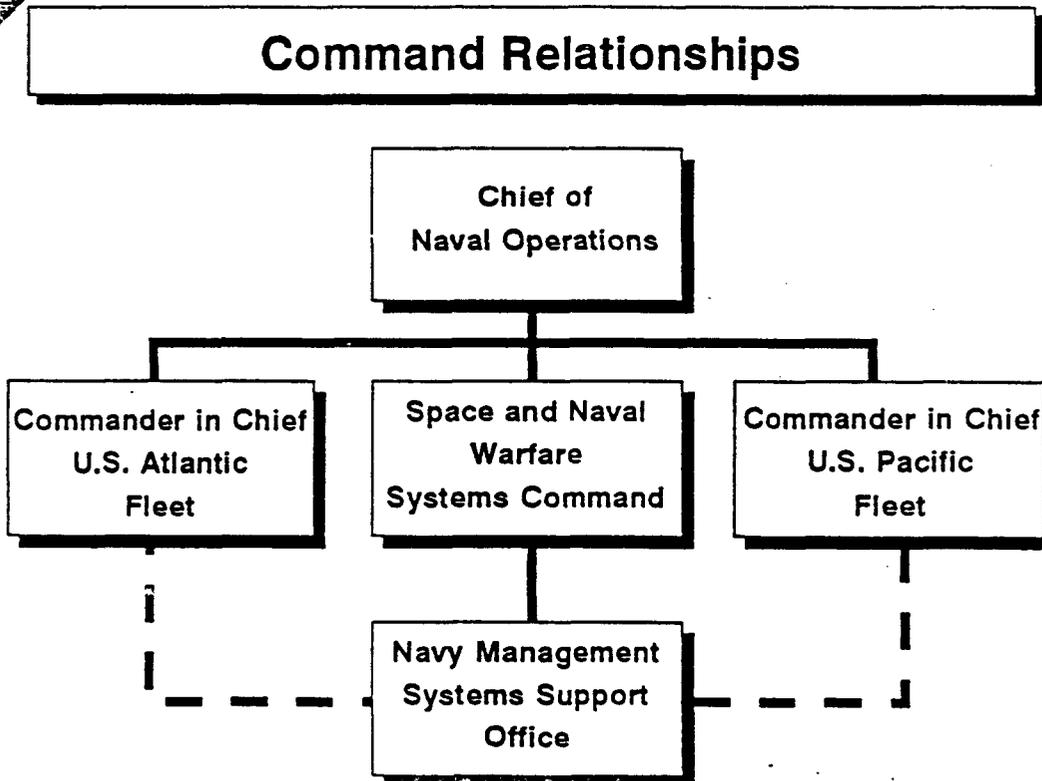
Organizational Element: NAVMASSO

1.a.



Navy Management Systems Support Office

Organizational Charts

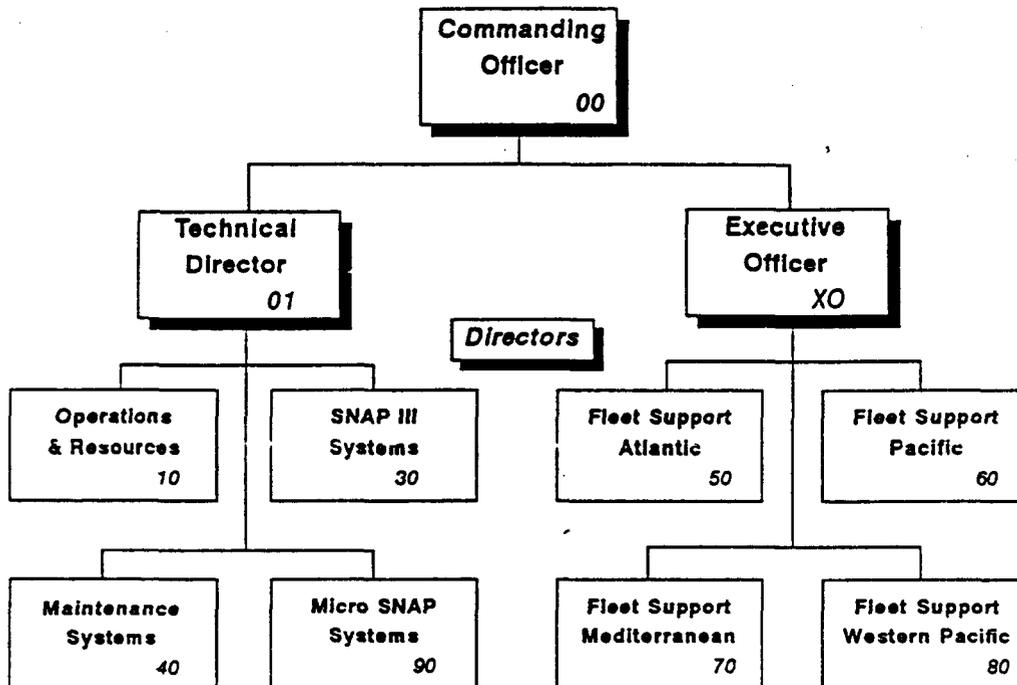


- - - Additional Duty Reporting

Organizational Element: NAVMASSO



Navy Management Systems Support Office



Organizational Element: NAVMASSO

1b. Relationships with Program/Functional Managers which reside within SPAWAR, NAVSEA, NAVAIR, NAVSUP, and MEDCOM along with platform and resource sponsors for Air Warfare, Surface Warfare, Subsurface Warfare and Logistics are for the purpose of interpreting individual logistics, maintenance, and administrative policies and procedures and integrating these within a nontactical information system which support the Navy weapons platform (ships and submarines and fleet support organizations ashore).

ORGANIZATIONAL ELEMENT: NAVMASSO GRAND TOTAL

2.a.

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING		5				
FINANCIAL		11				
LEGAL						
MANAGEMENT	7	7				
ADMINISTRATIVE & OTHER	210	291			*	*

* Contractor Support of 240 (On-Site/Off-Site split not available).

2.b.

	SPACE OCCUPIED (KSF)		
	SF (000)	OWNED	LEASED
GENERAL OFFICE SPACE	109.4	33.9 *	75.5
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)**	9.4		9.4

* Class 2 space utilized but not currently owned by NAVMASSO.

** Raised floor Computer Room.

ORGANIZATIONAL ELEMENT: NAVMASSO HEADQUARTERS CHESAPEAKE

2.a.

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING		5				
FINANCIAL		11				
LEGAL						
MANAGEMENT	4	6				
ADMINISTRATIVE & OTHER	111	275			*	*

* Contractor Support of 205 (On-Site/Off-Site split not available).

2.b.

	SPACE OCCUPIED (KSF)		
	SF (000)	OWNED	LEASED
GENERAL OFFICE SPACE	75.5		75.5
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)*	9.4		9.4

* Raised floor Computer Room.

ORGANIZATIONAL ELEMENT: NAVMASSO DETACHMENT PACIFIC

2.a.

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	1	1				
ADMINISTRATIVE & OTHER	75	15			*	*

* Contractor Support of 35 (On-Site/Off-Site split not available).

2.b.

SPACE OCCUPIED (KSF)			
	SF (000)	OWNED	LEASED
GENERAL OFFICE SPACE	28.3	28.3 *	
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

* Class 2 space utilized but not owned by NAVMASSO.

ORGANIZATIONAL ELEMENT: NAVMASSO DETACHMENT MEDITERRANEAN

2.a.

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT	1					
ADMINISTRATIVE & OTHER	14	1				

2.b.

SPACE OCCUPIED (KSF)			
	SF (000)	OWNED	LEASED
GENERAL OFFICE SPACE	3.2	3.2 *	
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

* Class 2 space utilized but not owned by NAVMASSO.

ORGANIZATIONAL ELEMENT: NAVMASSO DETACHMENT WESTERN PACIFIC

2.a.

FY-93 WORKYEARS						
	GOVT		FFRDC		CONTRACT SUPPORT	
	MIL	CIV	ON-SITE	OFF-SITE	ON-SITE	OFF-SITE
ENGINEERING						
LOGISTICS						
CONTRACTING						
FINANCIAL						
LEGAL						
MANAGEMENT		1				
ADMINISTRATIVE & OTHER		10				

2.b.

SPACE OCCUPIED (KSF)			
	SF (000)	OWNED	LEASED
GENERAL OFFICE SPACE	2.4	2.4 *	
LABORATORY SPECIFIC SPACE			
OTHER SPACE (DESCRIBE)			

* Estimated Class 2 space utilized but not owned by NAVMASSO. This detachment recently relocated from Guam, M.I. to join with the remainder of the detachment at Yokosuka, Japan. The space utilized is at NEEACT Japan.

Organizational Element: NAVMASSO

2. d. Main customers:

COMSPAWARSSYSCOM

COMNAVAIRSSYSCOM

COMNAVSUPSSYSCOM

COMNAVSEASSYSCOM

CINCLANTFLT

CINCPACFLT

COMNAVAIRLANT and all assigned operating forces
including Naval Air Stations

COMNAVAIRPAC and all assigned operating forces including
Naval Air Stations

COMNAVSURFLANT and all assigned operating forces

COMNAVSURFPAC and all assigned operating forces

COMNAVSubLANT and all assigned operating forces

COMNAVSubPAC and all assigned operating forces

Navy Medical Information Management Center

Commandant, Marine Corps

Naval Special Warfare Command

Navy Ships Parts Control Center

Organizational Element: NAVMASSO

3. a. On the attached photo NAVMASSO Chesapeake is located in the center, labeled as "Crossways Business Center 1".

b. Existing space shown on the attached building layout as utilized by NAVMASSO will be fully utilized by NAVMASSO Chesapeake in FY97.

c. Included in the NAVMASSO Chesapeake facility is a 9,400 square feet raised floor computer room. The NAVMASSO computer facility would be extremely difficult to replicate due to the unique collection of fleet hardware configurations that exist nowhere else under one roof. Included in the computer facility is a command bridge that provides the capability to control 31 logically independent processors executing simultaneously from one central location. Relocation of this equipment at another site would require a computer facility with a raised floor for 110 tons of equipment requiring 76,625 cubic feet of space. This facility is also supported by a 600KW Un-interruptible Power Supply (UPS) system. If NAVMASSO lost this facility, we would not be capable of performing our mission to design, develop, implement, and provide life-cycle support for standard Fleet automated information systems. The computer facility is an integral part of NAVMASSO's day-to-day business operation.

The list of equipment is as follows:

<u>Computer System</u>	<u>Quantity</u>
Harris H300	6
Harris H700	1
Harris H800	3
Honeywell DPS6 7X	1
Honeywell DPS6 7XE	24
Honeywell DPS6 9X	1
Honeywell DPS6 9XE	14
Honeywell DPS6000	3

d. It is unknown what space in close proximity to NAVMASSO would be available in FY97. However, any space available in close proximity would be leased space.

Organizational Element: NAVMASSO

3279
COPIES

3.

- CROSSWAYS BUSINESS CENTER OFFICE BUILDINGS
- (1) CROSSWAYS I - NAVMASSO
- (2) CROSSWAYS II - CENTRAL FIDELITY BANK
- (3) CROSSWAYS III - COAST GUARD
- (4) HOUSEHOLD FINANCE CORP.



3279
COPIES

GOODMAN

SEGAR

HOGAN

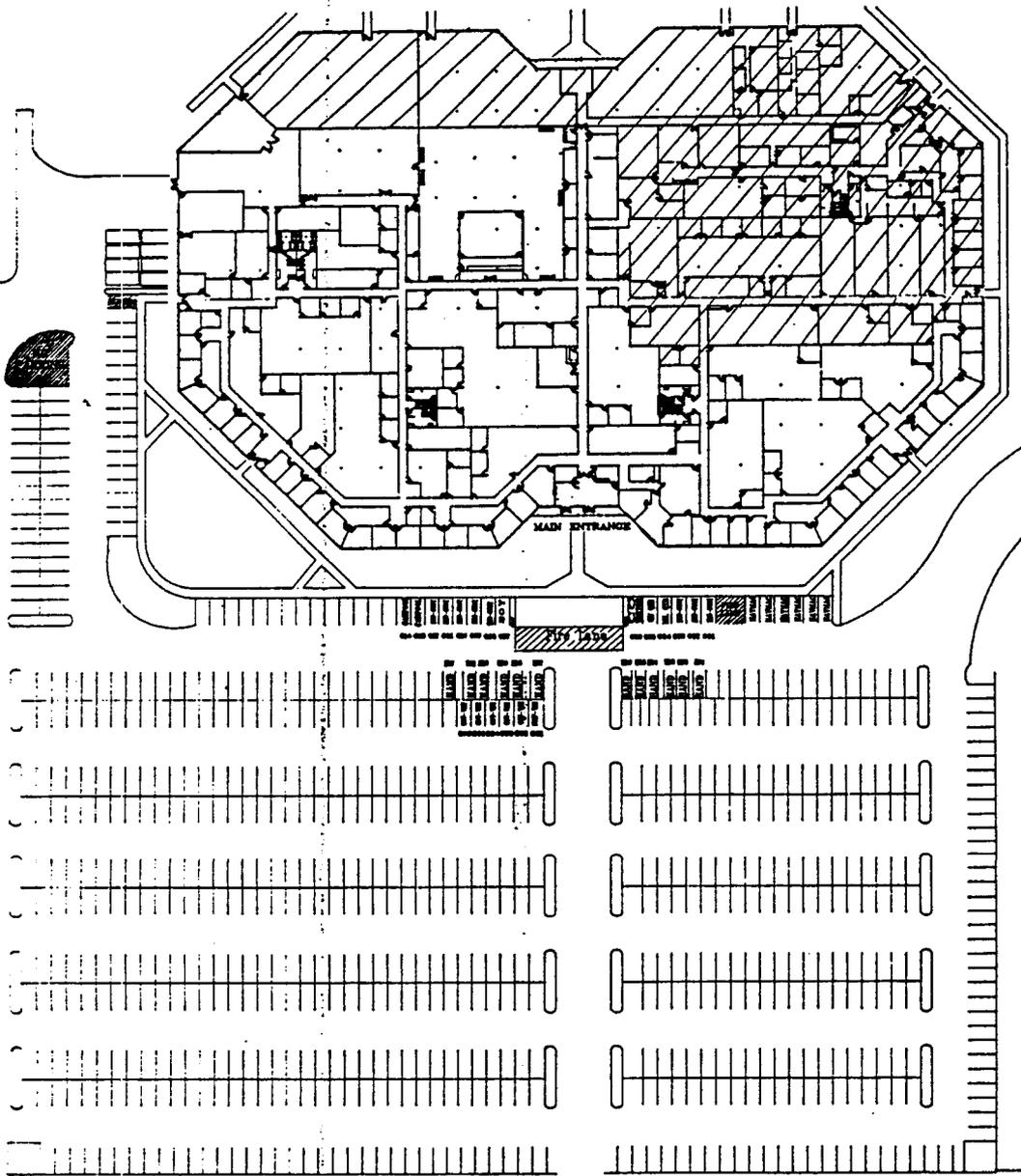
HOFFLER

Organizational Element: NAVMASSO

3.b.

NAVMASSO
FEBRUARY, 1994

LEGEND
NOT PART OF
NAVMASSO



1/75" = 1'

Organizational Element: NAVMASSO

4. There is no capacity of NAVMASSO to absorb additional workyears with or without modifications. The current leased space is fully utilized and any increase in capacity would require acquiring additional leased space.
5. NAVMASSO was not impacted by BRAC 91 and BRAC 93 decisions.
6. There are no known military department approved and programmed plans which will impact or have impacted NAVMASSO.
7. Not applicable.
8. Not applicable.