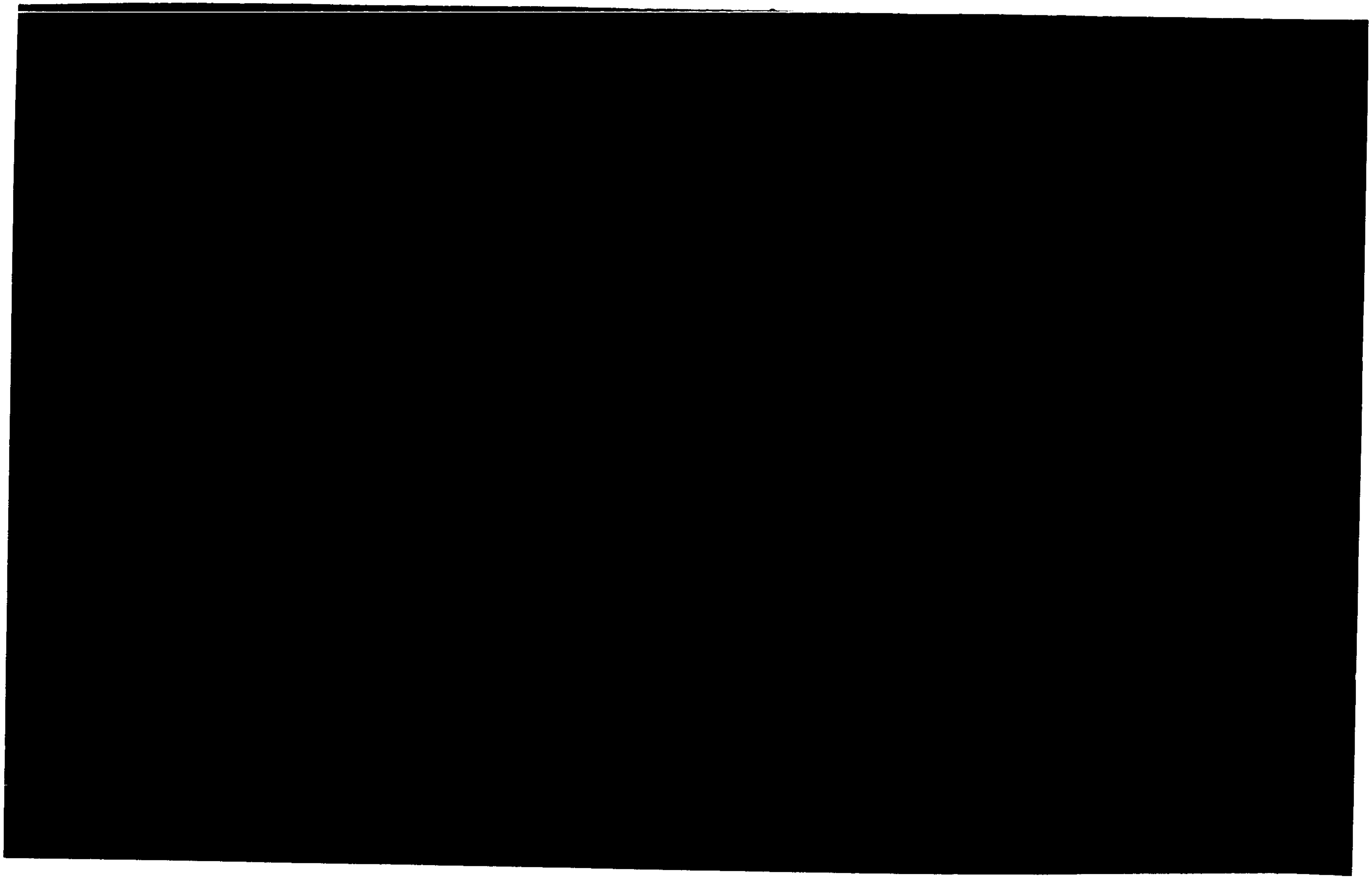
DCN 639

MILITARY VALUE DATA CALL
TECHNICAL CENTERS

Category	Materials
Technical Center Site	Indian Head Division, NSWC
Location/Address	101 Strauss Ave. Indian Head, MD 20640-5035

Quality of Life



Naval Surface Warfare Center
INDIAN HEAD DIVISION

Uniquely Military "Energetics"

MILITARY VALUE MEASURES

MISSION

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

The Indian Head Division of NSWC is a niche organization. It works in the discipline of energetics which are rockets, missiles, warheads, mines, explosive devices, and gun projectiles which use explosives, propellants, specialty chemicals, and pyrotechnics. This is a uniquely military business which requires specialized expertise and very expensive facilities; $1.2B in Indian Head's case. Our motto is "Energetic Solutions" since we perform research and development, engineering, manufacturing technology, low volume production and in-service engineering for energetic products. An important spinoff of this technical capability is a warm production base for mobilization. The advantage of this was most recently seen during Desert Storm when we produced rockets and mine clearing explosives three shifts a day. The war was over before the mothballed Army plants could be brought into operation.

Our mission is to work on energetic products for all areas of Naval Warfare. While a significant portion of our work is performed for the Army, Air Force and private defense contractors, we primarily work Navy unique ordnance, i.e. ordnance unique to surface combatants and submarines. 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 kickstart the nation's dormant ordnance industry.

Now that the defense budget is decreasing, with the weapons budget decreasing to a much greater extent, Indian Head Division's importance to the DoD is greater than ever. Private companies in energetics are getting out of the business, and more are expected to follow as the volume of work goes down. There is no commercial market for their products, their large expensive facilities are idled and the cost of environmental compliance is skyrocketing (see the following DuPont **letter**). The Navy has been planning for this and has already taken some actions to consolidate energetics work at Indian Head. The Navy's explosives research and undersea warhead development work (about 300 workyears) has been transferred from NSWC White Oak Maryland to Indian Head by BRAC 93 and the explosive loading facilities at Naval Weapons Station Yorktown have been shut down with the work transferred to Indian Head.

The Department of the Navy has established imperatives for the future, one of which is to ensure redundant 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. By "full spectrum" we mean not just a full array of energetic products, but economic advantage of performing research and development, production and sustaining engineering with a single set of experts and facilities.

"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."

References:

(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

(2) Joint Report Mission Purification Solid Propulsion dtd Oct 1992, Report by Naval Air Warfare Center and Naval Surface Warfare Center further clarifying missions and roles in solid propulsion

(3) COMNAVSEA memo, Navy Explosives R&D dtd 30 Aug 93, further defining IHDIV's expanded energetics role

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

* Provide capability to develop, manufacture, and support energetic systems for the Navy and DoD.

* Assure a viable technical base for the development and manufacture of energetics.

* 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.

* 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. Indian Head has become the sole producer for energetic/specialty chemicals which are not available from any other source, domestic or foreign (e.g. man-rated percussion primers for Aircrew Escape Systems, nitramine gun propellant used in 105 mm tank guns).

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

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

40 percent of Indian Head Division's $200M FY 93 budget was work for the Air Force, Army and Marine Corps.

* Tri-Service Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD) - The Joint Logistics Commanders, in a joint approved implementation plan dated 3 Oct 1973, consolidated Tri-Service CAD/PAD research and development, acquisition management, manufacturing, quality evaluation, test and evaluation, maintenance, rework, systems modification and disposal in the Navy, at Indian Head.

* Tri-Service 2.75" Rocket Motor - The Single Manager for Conventional Ammunition assigned Indian Head Joint Service Engineering Design Agent Responsibility for the 2.75" Rocket Motor used by all services with more than 230,000 units being produced annually. This function is documented in the Tri-Service Configuration Plan for the Hydra 70 2.75" Rocket.

* Tri-Service Jet Assisted Take-Off Rocket (JATO) - The Navy funds full spectrum responsibility of JATOs at Indian Head and the Army funds Army and Air Force Rocket Motor engineering responsibilities under MIPR W31 P4Q 3DH 425, December 1993.

* MK 22 MOD 4 Rocket Motor for Mine Clearing Line Charges (MICLIC) - Indian Head Division is the joint service design agent for the MK 22 MOD 4 Rocket Motor used for MICLIC. No document officially assigned this mission.

* Smokey SAM Rocket - Indian Head Division is the design agent and In-Service Engineering Agent and provides production and engineering support for the Navy and Air Force for the rocket, launcher, and igniter. Responsibility assigned by Air Force Fund Document LIWD-93-020.

TECHNICAL FUNCTIONS

3. **Technical Functions Resource Allocations.** Appendix A provides a list of numbered functional support areas that cover the spectrum of naval warfare and support operations. Additionally, Appendix A provides a list of numbered life-cycle work areas that cover the "cradle to grave" spectrum of Navy systems acquisition. Utilizing the two lists at Appendix A, each activity will break out its entire FY1993 technical program within any applicable intersections of these two defining schemes (for example, functional support area #5.2 - life cycle work area #3 will identify the activity's level of resources allocated to sensors and surveillance systems, radar systems in advanced development). Definitions for each functional support and life cycle work area are provided in Appendix B for reference.

a. Use the form at Tab A of this data call to provide data on work years and expenditures for FY1993 to support each applicable intersection of functional support areas and life cycle work areas. When necessary, estimate data to the best of your ability

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

MANPOWER

4. **Work Breakdown Structure.**

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

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

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

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

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

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

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

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

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

Note: The BRAC 93 consolidation of the Explosives Research and Underwater Warheads functions at IHDIV was implemented on 4/3/94 to consolidate full spectrum life cycle management at one site. 270 civilians were added to our rolls. These personnel are included in table 4.1 to more accurately show IHDIV's current capability. These personnel are also included in the Dahlgren Division's data call submission.

Table 4.1, General Support Resources for (Activity: NSWC, IH) (UIC: 00174)

Function	Space allocated (Gross SQFT)	Work Years	Civilian Persnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/TD/etc.)	4,918	5.6	4	0.3	2	0
Comptroller	9,793	31.0	30	0.9	0	0
Admin	8,222	32.4	31	6.5	0	0
Human Resources	14,044	35.6	36	1.4	0	0
Supply Management	296,179	104.1	102	26.7	1	22
Consolidated Computational Computer Support	6,036	34.1	34	0.2	0	0
Information Systems and Communications	28,644	64.1	62	41.6	0	0
Safety/OSH/Environmental	11,422	51.2	51	2.2	0	0
Physical Security	10,693	42.5	44	2.4	0	2
Public Works/Staff Civil	331,121	229.2	237	372.9	1	0
Fire Protection	10,229	37.9	39	0.5	0	0
Medical/Dental	----	----	----	-----	-----	-----
Military Support	647,189	27.9	29	0.8	1	0
Air/Waterfront Operations	----	----	----	-----	-----	-----
Other	----	----	----	101.8	-----	-----
Technical Operations			1563	326.5	1	0
Totals	1,378,490	718.6	2263	884.7	6	24

Table 4.2, General Support Resources for all Detachments (Activity: NSWC, IH) (UIC: 00174)

Function	Space allocated (Gross SQFT)	Work Years	Civilian Persnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/ XO/ TD/etc.)						
Comptroller						
Admin						
Human Resources						
Supply Management						
Consolidated Computational Computer Support						
Information Systems and Communications						
Safety/OSH/Environmental						
Physical Security						
Public Works/Staff Civil Engr						
Fire Protection						
Medical/Dental						
Military Support						
Air/Waterfront Operations						
Other						
Technical Operations			55	13.1	3	3
Totals	0	0.0	55	13.1	3	3

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033 (Cost Control Office)
Indian Head Division On-Site Office Albuquerque, NM; UIC:32775

Table 4.3, Previous BRAC Impact to General Support Resources for (Activity: NSWC, IH) (UIC: 00174)

Function	Space allocated (Gross SQFT)	Work Years	Civilian Persnel onboard	Contract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/ TD/etc.)						
Comptroller						
Admin						
Human Resources						
Supply Management						
Consolidated Computational Computer Support						
Information Systems and Communications						
Safety/OSH/Environmental						
Physical Security						
Public Works/Staff Civil Engr						
Fire Protection						
Medical/Dental						
Military Support						
Air/Waterfront Operations						
Other						
Technical Operations			151	10	0	0
Totals	0	0	151	10	0	0

The Naval Sea Automated Data Systems Activity (SEAADSA) will realign to the Indian Head Divison, NSWC in FY97.

5. **Technical Staff Qualifications.**

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

The BRAC 93 consolidation of the Explosives Research and Underwater Warheads functions at IHDIV was implemented on 4/3/94 to consolidate full spectrum life cycle management at one site. 270 civilians were added to our rolls. These personnel are included in the Indian Head Site responses in section 5 to more accurately show IHDIV's current capability. These personnel are also included in the Dahlgren Division's data call submission.

Table 5.1, Technical Staff Education Level for
(Activity: Indian Head Division, NSWC) (UIC: 00174)

Highest Degree Attained	Years of Government and/or Military Service					
	Less than 3 Years	3-10 Years	11-15 Years	16-20 Years	More than 20 Years	Total
Grade School	0	19	7	7	14	47
High School	6	251	157	83	280	777
B.A./B.S	16	305	94	39	121	575
M.A./M.S	1	54	24	7	44	130
Ph.D./ M.D.	1	6	10	5	12	34
Total	24	635	292	141	471	1563

Table 5.2, Technical Staff Education Level for all Detachments
(Activity: Indian Head Division, NSWC) (UIC: 00174)

Highest Degree Attained	Years of Government and/or Military Service					
	Less than 3 Years	3-10 Years	11-15 Years	16-20 Years	More than 20 Years	Total
Grade School	0	0	0	0	0	0
High School	0	6	13	3	13	35
B.A./B.S	1	10	2	1	6	20
M.A./M.S	0	0	0	0	0	0
Ph.D./ M.D.	0	0	0	0	0	0
Total	1	16	15	4	19	55

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033

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

Table 5.3, Technical Staff Academic Fields for (Activity: Indian Head Division, NSWC) (UIC: 00174)

Academic field	Number
Physics	16
Chemistry	24
Biology	0
Mathematics/Statistics/ Operations Research	8
Engineering	90
Medical	1
Dental	0
Computer Science	0
Social Science	0
Other Science	14
Non-Science	11
Total	164

Table 5.4, Technical Staff Academic Fields for all Detachments (Parent Activity: Indian Head Division, NSWC) (UIC: 00174)

Academic field	Number
Physics	0
Chemistry	0
Biology	0
Mathematics/Statistics/ Operations Research	0
Engineering	0
Medical	0
Dental	0
Computer Science	0
Social Science	0
Other Science	0
Non-Science	0
Total	0

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033 (Cost Control Office)

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

A number of unique aspects help our hiring situation. IHDIV is situated on the Maryland shore of the Potomac River, approximately 22 miles southeast of Washington, DC on a major highway. This geographical location offers a large employment base that supports hiring of scientists and engineers, managers, and nonprofessionals.

Our successful recruiting capability is evidenced by:

- We have recruited over 180 engineers in a single year to meet critical demands.
- We continue to receive numerous applications for professional positions, in spite of not recruiting over the last several years. When we were actively recruiting, we consistently received well over 1,000 applications a year for professional positions.

TAB A

TECHNICAL OPERATIONS

FUNCTIONAL SUPPORT AREA - LIFE CYCLE WORK AREA FORM

BRAC 95 Military Value Data Call Tab A Introduction
Indian Head Division, NSWC
Functional Support Areas

FSA 2. WEAPONS SYSTEMS

The majority of Indian Head Division's (IHDIV's) work resides in the Functional Support Area of "Weapons Systems". IHDIV provides component level energetics support to almost all of the systems listed in this FSA. With the inclusion of research and development on explosives and underwater warheads in April of 1994, NSWC has established IHDIV as the nation's preeminent activity for research, development, and low volume production of ordnance and constituent materials for propellants and explosives. IHDIV is the only facility in the government or private industry capable of starting with the chemical synthesis of energetic materials in small quantities and scaling up to production size quantities for all types of energetics. We are experienced in the development and processing of any type of propellant (single, double, or triple base, nitramine, or composite), explosives, warheads, rocket motors and specialty chemicals. The combination of these technical capabilities provides the Navy and DoD with full life-cycle support for the unique military product line of energetics at one location.

Sponsors for our products and services span over 40 major commands which include all Navy PEOs and DRPMs, NAVAIR, NAVSUP, Marine Corps, Army and Air Force, National Laboratories, private defense contractors, and NASA.

Our products are used in rockets, missiles, warheads, mines, ammunition, torpedoes, SEAL weapons, guns, launchers, aerial targets, unmanned air vehicles, escape systems, target detection devices, and mine countermeasures.

IHDIV's role encompasses:

* Advancement of the state-of-the-art from formulation and scale-up to demilitarization of ordnance products.

* Manufacturing technology to advance the state-of-the-art in processing propellants, explosives, pyrotechnics, etc.

* Flexible and diverse energetic material prototyping and production capability to respond to mobilization and surge requirements, urgent military requirements to introduce new/improved products, and a capable source when industrial sources are unavailable or default.

* Hands-on manufacturing expertise to develop and validate technical data packages to effectively procure all types of energetic products through open competition in the private section.

* Industrial base support to provide manufacturing engineering support to contractors, test contractors' first article efforts, and qualify their production processes.

* Navy-wide explosive safety engineering evolving from a superior industrial safety record gained through many decades of experience processing and characterizing explosive compositions and ingredients.

Expertise

Because of the hazardous nature of energetics manufacture, a tremendous capital outlay is required to facilitate its safe, efficient processing. Not only are there special requirements for explosive arcs, environmental concerns, and operator safety, but all the equipment and facilities are specialized. These special requirements range from explosion-proof motors to intricately designed structures complete with a blow-away roof, barricades, lightning protection, large amounts of processing water, and the utilization of steam for processing produced by the on-base co-generation plant.

IHDIV has developed unique expertise as an activity and has individual experts in special areas of energetics development and material processing. That expertise is sustained through the synergism of manufacturing technology with on-site development, test and evaluation, technical documentation, engineering design, and other support functions. These unique skills are not severable from the physical facility without the loss to the Navy and the DoD of knowledge of energetic material processing that is not available anywhere else at a single activity.

The technical base required for the development of energetics is maintained through hands-on experience; there is no academic program which graduates engineers or scientists with majors in this subject. Since energetic materials are uniquely military, the Navy cannot count on the private sector to provide people with the requisite skills, experience, knowledge and education.

Loss Impact

The diversity of the products used by the services for which we have functional responsibility, our involvement in programs across the full life cycle, our skilled workforce, and the facilities used to support these functions act synergistically to provide a capability that does not exist anywhere else in government or private industry. This integrated capability provides the necessary insight to make significant contributions which positively affect the cost, quality and performance of new and existing weapon systems.

Through its labs and pilot scale facilities, IHDIV provides the only Navy and DoD capability at one location to develop and scale up any propellant, explosive, or units loaded with these materials. A recent ammunition study concluded that, "Subsectors where future loss of capacities is most notable are propellants, explosives, pyrotechnics, small caliber, artillery, rocket, propelling charges, and fuzes. In total, four subsectors were identified as being at high risk, seven subsectors at medium risk, and only five subsectors at low risk."[1] As the Navy right-sizes, it will be cost prohibitive to maintain segments of these same capabilities at various activities, compared to the minimal cost of sustaining the existing IHDIV facility.

We provide the necessary support for competitive procurement for the Navy based on our knowledge of design, manufacturing and performance history. The loss of these functions would severely impact the core of expertise and historical data base necessary to support energetics acquisitions and maintain Fleet stock integrity, in addition to significantly increasing life cycle costs.

The capability to replicate contractor manufacturing processes is available at IHDIV to provide quick resolution of contractor production problems, support mobilization efforts, and provide alternatives for ingredients and chemicals for suppliers that have gone out of business or consolidated their product lines.

IHDIV is the only producer of certain energetics. This capability would have to be duplicated at a considerable cost to the government.

IHDIV is the second source of certain energetics. There have been several instances where the cost of an energetic product has been reduced, as much as half, just because IHDIV had the capability to produce the product. This "smart buyer" capability is becoming even more critical as we move to single source procurements. Without this capability, the Navy would be held captive to the monopoly of private industry.

With the current warfighting scenario of regional conflicts, it is unlikely that large production capabilities will be needed. IHDIV provides the surge capability that will be required with this type of conflict for a variety of energetic products. Without IHDIV's surge capability, the Navy and DoD will suffer the delay and start up costs of large manufacturing facilities.

With the increased number of environmental and liability issues, private industry will continue to drop out of the energetics field. IHDIV has already seen companies withdraw from the man-rated percussion primers marketplace due to liability issues and DuPont. "We regret to inform you that DuPont will discontinue the manufacture of explosive products in the U.S. on January 31, 1994."[2] The only source for finely ground lead is now

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[1]Ammunition Sector Report Executive Summary Draft, NSWC Crane. P.O.C. J. D. Linch, PM4, Manager of Conventional Ammo Program Office.

[2]Letter from T.J. Enright, Business Manager, DuPont Specialty Chemicals, Wilmington, Delaware, dtd November 9, 1993.

in Mexico (Indian Head has a significant program underway to remove lead from propellants). These two trends will continue to drive up the cost of energetics for the Navy.

FSA 8.2: COUNTERMEASURES

The Indian Head Division maintains a unique core capability to design, integrate, fabricate (both prototype and fielded), test and evaluate Mine Countermeasure (MCM) systems that use energetics. We are the only source that has all the resources (people, facilities and test expertise) in house at one location to perform energetics MCM work. Panama City, the Navy MCM experts, rely on IHDIV to provide technical expertise for all MCM systems involving energetics. IHDIV's energetics expertise is the necessary catalyst for developing and fielding effective MCMs to provide our armed forces the ability to safely traverse and assault through land and amphibious minefields.

Because of our technical expertise with designing, developing, testing and producing propulsion systems, the Navy, Marine Corps and Army come to us for explosive mine clearance systems. We have designed/developed over 20 individual MCM efforts. Some examples of systems we have developed are:

* DEMNS (Distributed Explosive Mine Neutralization System). This is the first of the "next generation" mine clearance development programs. DEMNS was the first project to deploy a large (5 meter x 145 meter) two-dimensional flexible explosive detonating cord array into the minefield. Indian Head is the technical leader of this effort for the USMC and Army.

* AMM (Anti-Mine Munition). A small (1.5" diameter, 50 gram) explosive neutralization device using shape charge technology to kill anti-tank mines independent of the fuzing type and using large burial depths and vertical air standoffs. Indian Head is the lead for this development effort. We assembled and lead a team of individual industry and laboratory (DoD and DoE) experts towards achieving this MCM development effort.

* Surf Zone Array Advanced Technology Demonstration. We are leading the development and coordination of this effort for the Navy. This system will be launched off of an air cushioned vehicle as it progresses towards the mined hostile shoreline. The system will fly downrange approximately 1000 feet towing the explosive array of 180 feet by 180 feet into the surf zone minefield. The array will be detonated creating a cleared path for the vehicle to progress onto the beach. Indian Head is using its energetics and MCM expertise to tailor the rocket motor designs for this application and fabricating the prototypes, developing the underwater explosive and explosive array design, designing the fuzing and leading the launcher and container interface designs.

The key components of MCM Explosive Neutralization systems are comprised entirely of energetic components and materials. Indian Head is the expert for full spectrum energetics in explosives and propulsion, the two main subsections to these MCM systems. Indian Head provides a synergy of MCM energetic systems knowledge across all project lines. Regardless of the Explosive Neutralization field user or development sponsor, all benefit from the shared "lessons learned" technology thus reducing redundancies between the various services developing and using MCMs.

The MCM efforts have all or a portion of the following in common;

* Propulsion development using cast or extruded propellants.

* Explosive development and engineering.

* Integration of ordnance (propulsion and explosive) components with non-ordnance items such as launchers and containers.

* Development of system ordnance support.

* Development and engineering of energetic deployment and explosive analytical modeling capabilities.

* Field testing of MCM energetic system/ordnance components.
* Fabrication of MCM energetic (propulsion and energetic) components and systems.

* Interaction with field users on mishaps/incidents and developing system requirements.

An example of how the services rely on IHDIV's MCM energetics role occurred during Desert Storm. MCM-1 Class Ships were deployed to the Gulf without a full complement of Mk 57 Destructors because the contractor couldn't produce the Mk 35 Acoustic Firing Device which together with the Mk 14 Explosive Section makes up the Mk 57. Since Indian Head was producing the Mk 14, we were asked if we could also manufacture the Mk 35. Under strict time restraints, we successfully fabricated the units to support Desert Storm. Indian Head is now the sole source of these items. Other unique MCM roles Indian Head performs are:

* Sole source developer and expert in the Dual Rocket Deployment technology area.

* Only source that has developed and performed MCM analytical modeling for both array and line charge deployed systems.

* Only source that has field tested and proved deploying large explosive arrays over minefields is a viable technical approach for mine clearance.

* Only source that can fabricate both cast and extruded motors for all MCM development and test purposes on site.

* Only source that can design, fabricate and test large MCM explosive arrays and line charges.

* Developed explosive analytic capability to aid in the design and development of explosive neutralization components of the MCM systems.

* Sole lead on development of small explosive neutralization devices using shape charge technology.

* Advising industry and other government agencies on propulsion system and payload issues for MCM.

* Only agency to employ unique, state-of-the-art technologies such as injection loading of explosives and overbraiding detonating cord to improve deployment systems.

Experience

The same as FSA 2. Weapons Systems above.

Loss Impact

Indian Head is the only agency (governmental or industrial) that is executing these "one stop shop" efforts for the MCM energetic systems. Most of the explosive neutralization MCM systems are in development (6.2, 6.3A or 6.3B funded) with only two systems currently in the field inventory. IHDIV has the proven energetics and MCM technical expertise to lead and execute these system development efforts. We can fabricate on site our deployment motors and explosive energetic prototypes and field items thus reducing design turn around times. We can test our deployment and explosive energetic prototypes with minimal turn around time again thus expediting the design and engineering traditional timeline. Indian Head is truly a "one stop shop" for all energetic MCM related efforts.

If IHDIV did not exist, the developing sponsors would have to find and fund new non-proven, non-technically knowledgeable sources to continue these projects. This would result in considerable delays and significant increase in costs.

FSA 10: <u>GENERAL MISSION SUPPORT</u>

General mission support at IHDIV includes a capability in weapons related training; environmental engineering to assure our processes and handling are in compliance with Federal regulations; a designated Navy Ordnance Environmental Support Office (OESO);

and a Treaty Support Office that oversees the Navy's asset protection and compliance databases for the Open Skies and Chemical Warfare treaties.

These functions were assigned to IHDIV because of our expertise in energetics, broad understanding of weapons systems, and detailed knowledge of energetics processing. These capabilities are integral to other functions performed at IHDIV.

The energetics expertise at Indian Head provided a natural base for developing and conducting weapons training. The Weapons Training Center (WTC) at Indian Head provides training, including research, development, instruction, maintenance, and evaluation of training systems. WTC personnel develop the curricula and instructional materials, including interactive courseware, that are used to train civilian and military personnel in all aspects of ordnance and weapons systems. The WTC houses an All-Up-Round Training School for air-launched missiles and a Missile Propulsion Maintenance School for surface- and air- launched missiles. Instructors from Indian Head will travel to provide on-site training to U.S., NATO, and allied military and civilian personnel at field locations.

Drawing on our in-house weapons simulation expertise has allowed us to apply new computer technology to the Navy instructional requirement. We now serve as a beta test site for the electronic classroom, Automated Instructional Material (AIM), Computer Aided Presentation Station (CAPS), and all forms of computer aided instruction.

The Navy has designated Indian Head as their Ordnance Environmental Support Office (OESO). Our life cycle knowledge of energetics provided the base to develop experts in ordnance environmental issues. IHDIV serves as the focal point for technical and management support for the Navy's ordnance environmental protection program. This requires working with environmental regulators, CNO and all Navy SYSCOMs to understand and interpret environmental laws and regulations related to manufacturing, maintenance, handling and disposal of ordnance. Because the future requirements for ordnance environmental continues to grow, Indian Head's focal point role is of increasing importance to the Navy.

Because IHDIV is the single largest employer of chemical engineers in the Navy, we have been designated by the Navy's International Program Office (NIPO) to design and develop automated systems to allow the U.S. to implement international treaties: Chemical Warfare and Open Skies. IHDIV is the only site to support the Navy International treaty programs. All systems were developed and are maintained organically. The integration of knowledge is unique to the Navy.

This FSA also includes workyears required to provide Base Operating Support.

Expertise

The complex technical nature of energetic systems requires an established core of engineers and scientists who understand processing techniques, Federal environmental regulations, hazardous material handling, as well as knowledge of weapons systems. The collocation of this variety of specialized knowledge has allowed IHDIV to play a critical role in energetics environmental engineering, weapons related training and international treaty support.

Loss Impact

IHDIV weapons related training when performed in the Fleet, either by sending our instructors to the ship, or by developing computer based training, allows sailors to remain in an operational environment. Such training and maintenance aids as interactive electronic technical manuals and wearable computer technology have allowed the Navy to reduce the number of misdiagnoses from 20% to almost 0 where these technologies are being used. Loss of Indian Head's role in applying technology to training would result in a delay of getting time-saving, retention-enhancing training aids to the Fleet training institutions.

The loss of environmental engineering support would greatly impact the Navy's readiness. Recent EPA decisions to shut down activities not in compliance could have severe impacts on the primary mission of the Navy. Weapons and training related items would not be available for certification of personnel.

Loss of the treaty support capability at Indian head would render the Navy unable to meet international treaty requirements. The specialized expertise of our computer scientists and chemical engineers makes IHDIV a leader in this field and of great importance to the NIPO.

- In past conflicts, we have experienced great success in quickly hiring the number of people with the required skills needed to perform our operations. We hired 135 temporary explosive workers from over 800 applications to support Operation Desert Shield/Desert Storm.

- Administrative and clerical positions are easily filled because many employees are willing to take lower grade work to take advantage of working closer to home, no parking fees, and lower transportation costs. These same positions are difficult to fill in the National Capital Region.

Because of our close proximity to Washington, DC, IHDIV is able to meet the needs of a variety of lifestyles. We have plentiful, affordable housing, lower crime rate, free parking, and no traffic congestion. Our quick access to Washington, DC (a 30 minute drive) offers the opportunity to live in a vital urban area, with a quick commute to work at IHDIV. For individuals that prefer suburban living, there are numerous apartments, townhouses, and single family homes throughout surrounding Maryland and Virginia areas.

Our proximity to a large number of major universities and local colleges, enhanced by collaborative work initiatives, attracts professionals and non-professionals alike who want to pursue advanced degrees.

Recreational opportunities abound in Indian Head and surrounding areas. Indian Head is a short drive from the Chesapeake Bay, Atlantic Ocean and Blue Ridge Mountains providing something to meet almost everyone's needs.

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

"An Investigation into Propellant Stability," G. Stine, *Journal of Analytical Chemistry Volume 63*, 1991

"Have LC Lab, Will Travel (Testing Propellant Stability After Desert Storm)," G. Stine, *Journal of Analytical Chemistry Volume 64*, 1992

"Concurrent Engineering: The Cost Effective Solution for the Development and Support of Military System and Equipment," K. Grote, *Journal of American Society of Naval Engineers (ASNE)*, July 1993.

"Nitro- and Fluoropolyformals, II Novel Polyformals from a.w-Fluoro-and Nitrodiols," H. Adolph, L. Nock, J. Goldwasser, and R. Farncomb, *Journal of Polymer Science*, Vol. 29, 719-727, 1991.

"Defect Density Measurements in Shocked Single Crystal Ammonium Perchlorate by X-Ray Photoelectron Spectroscopy," B. C. Beard, H. W. Sandusky, B. C. Glancy, and W. L. Elban, *Journal of Materials Research* 7, 3266 (1992).

"Quantitative Correlation of XPS Linewidth with Dislocation Density in Shock Loaded Ammonium Perchlorate," B. C. Beard, H. W. Sandusky, B. C. Glancy, and W. L. Elban, *Surface and Interface Analysis* 20, 140 (1993).

"Polynitroalkyl Derivatives of $SF_5N{=}CCl_2$, Nitrations of SF_5 Imines," M. E. Sitzmann and R. D. Gilardi, *J. Fluorine Chem.* 63, 203 (1993).

"Polynitroaliphatic Explosives Containing the Pentafluorosulfanyl (SF5) Group: The Selection and Study of a Model Compound.", M. E. Sitzmann, W. H. Gilligan, D. L. Ornellas, and J. S. Thrasher, *Energetic Mat.*, 8(4), 352 (1990).

"N-Pentafluorosulfanyl-N-Nitro Carbamates", M. E. Sitzmann, *J. Fluorine Chem.*, 52(2), 195 (1991).

"The Isolation of a Bi(2,4,6,8-tetraazabicyclo[3.3.0]octane) from the Reaction of Flyoxal with Benzylamine," M. Chaykovsky, W. M. Koppes, T. P. Russell, R. Gilardi, C. George, and J. L. Flippen-Anderson, *J. Org. Chem.*, 1992, 57, 4295-4297

"Structure-Reactivity Aspects of Nitroalkyl Acetate Hydroysis," D. E. Gallis, B. J. Acken, J. A. Warchaw, A. L. Richardson, DeL R. Crist, D. Cichra, *J. Org. Chem.*, 55, 1990.

"High Bubble Energy Explosive Testing," R. Doherty and D. Cichra, *Shock and Vibration Technology Review,* Vol. 2, No. 4, July/Aug 1992.

"Nitro- and Fluoropolyformal. III. copolyformals from Mixtures of Fluoro- and Nitro a.w.-diols." L. A. Nock, J. M. Goldwasser, and H. G. Adolph, *Journal of Polymer Science*, Vol. 29, 1133-1149, 1991.

"Hydrogen Migrations in a Constrained Cyclohexylidene. H(ax)/H(eq) Shift Ratios in Thermal and Photic Bamford-Stevens Reactions," A.G. Stern, A. Nickon, M. C. Ilao, *Tetrahedon*, 1993, 49 (36), 8107-8118.

"Hydrogen Rearrangements in Carbenes. Inherent Migration Ratios in Thermal and Photic Bamford-Stevens Reactions," A. Nickon, A. G. Stern, M. C. Ilao, *Tetrahedon Lett.*, 1993, 34 (9), 1391-1394.

"Syntheses of Brexan-2-one and Ring Expanded Congeners," *J. Org. Chem*, 1992, 57, 5342-5352.

"Hydrogen Trojectories in Alkene to Carbene Rearrangements. Unequal Deuterium Isotope Effects for the Axial and Equatorial Paths," A. Nickon, M.C. Ilao, A. G. Stern, M. F. Summers, *J. Am. Chem. Soc.*, 1992, 114, 9230-9232.

"A Convenient Laboratory Synthesis of Cyanogen," R. L. Willer, D. J. Park, A. G. Stern, *Synthetic Commun.*, 1990, 20, 2901-2906.

"Polynitroaliphatic Explosives Containing the Pentafluorosulfanyl (SF 5) Group: The Selection and Study of a Model Compound," M. E. Sitzmann, W. H. Gilligan, D. L. Ornellas and J. S. Thrasher, *J. Energetic Mat.*, 8 (4), 352, 1990.

"Improved Synthesis of 2,2,2-Trinitroethyl Ethers," M. E. Sitzmann and H. G. Adolph, *Synth. Comm.*, 20 (21), 3303, 1990.

"N-Pentafluorosulfanyl-N-Nitro Carbamates," M. E. Sitzmann, *J. Fluorine Chem.*, 52 (2), 195, 1991.

"Synthesis and Stability of 2,4,6-Trinitrobenzylamine," M. E. Sitzmann and H. G. Adolph, *Heteroatom Chem.*, 4 (1), 51, 1993.

"Polynitroalkyl Derivatives of SF5N=CC12: Nitrations of SF5 Imines," M. E. Sitzmann and R. D. Gilardi, *J. Fluorine Chem.*, 63, 203, 1993.

e. **List all technical books and/or chapters written by the in-house technical staff that were published or accepted for publication since 1 January 1990.** None during this time period.

f. **Identify any Nobel laureates employed at this activity.** We have no Nobel laureates employed here at this time.

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

1990:

Michael Bonsack Award, Harry Bagley, from Consortium for Advanced Manufacturing International.

1992:

ADPA Bronze Medal Award for Excellence in Undersea Warfare, J. R. Goeller 19 Nov 1992.

Jerry Forbes - R13 - Made a Fellow of APS in 1992

1993:

J. Scott Deiter - Received Best Paper Award at 24th International Annual Conference of IDT at Karlsruhe, Germany, Topic of Conference: Energetic Materials-Insensitivity and Environmental Awareness - 1993

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

1990

-Navy Meritorious Civilian Service Award, Recipient - Stephen Mitchell, for technical expertise in the investigation of USS IOWA Turret 2 casualty and overall service to the federal government.

-Navy Meritorious Civilian Service Awards, Recipients - Kenneth Basom, Charles Gauthier, Melvin Hudson, Darrell Perry, T. Craig Smith, Gail Stine, Frank Valenta, David Williams, for technical skill/knowledge in their field of endeavor used in the IOWA investigation and overall service to the federal government.

-Special Act Award, Dominic Monetta, for developing and commencing implementation of a program to exploit new technology for the continuous manufacture of insensitive energetic material.

-Navy Meritorious Civilian Service Award, Charles Gauthier, and a Special Act Award.

-Navy Meritorious Civilian Award in support of USS IOWA technical investigation, Frank Tse.

-The Technical Cooperation Program (TTCP) Achievement Award, June 1990, for contributions to TTCP collaboration in pyrotechnic ignition transfer, presented by DDR & E, to Frank Valenta.

-George W. Patterson Award for Outstanding Accomplishment, 9/90, for Exceptional Achievements in Propulsion Field.

-Navy Meritorious Civilian Service Award, Horst Adolph, 1990

-Navy Distinguished Civilian Service Award, Dominic Monetta, 1990

-Post-Doctoral Award, to Dr. Howard Chen given by National Academy of Sciences, July 90.

-Horst Adolph - Rll - Meritorious Civilian Award - 1990

1991

-Dr. George W. Patterson Award for Outstanding Accomplishment, Gail Y. Stine, 1991, For technical support during the IOWA Investigation.

-Navy Meritorious Civilian Service Award, Pamela Clements, 1991, for technical expertise in environmental protection, safety and occupational health division.

-Department of the Army Research & Development Achievement Award, 1991, to Steve Mitchell, Susan Peters, for technical achievement (patent for high energy nitramine gun propellants which lead to selection of M43 propellant for use in M900E1 tank ammunition).

-Navy Meritorious Civilian Service Award, 1991, John McDevitt, technical expertise and excellent mechanical aptitude in processing solid propellants and explosives.

-Special Act Award, 1991, Irma Dalcanton, Gail Stine, for technical competence used to conduct chemical analysis of gun propellant samples in Saudi Arabia for Desert Shield/Desert Storm.

-Navy Superior Civilian Service Award, Roger Smith, 1991, technical excellence.

-Navy Superior Civilian Service Award, Ora J. Thornburg, 1991, technical expertise in the area of energetic material, propulsion systems and weapons led you to initiate a worldwide analysis of state-of-the-art manufacturing technology as related to energetic materials.

-Invention Award, 1991, to Charles W. Smith

-Invention Award, Oct 91, to John R. Renzi "Silver Snoopy Award", given by NASA, 17 Nov 92 to John R. Renzi

-Department of the Navy Award of Merit for Group Achievement December 1991.

<u>1992</u>

-Best Paper ADPA, Michael Lateulere, 10/92

-Dashiell Award for Excellence, John Ferguson, 1992, for technical expertise in the area of Rocket Motor Production.

-Dr. George W. Patterson Award for Outstanding Accomplishment, Walter Carr, 1992, for technical expertise in CDN Chemistry.

-Process Improvement Award, Robert Peranich, Ashley Johnson, 1992, for technical knowledge of RAW RDX and improving the process of production of RAW RDX at Indian Head.

-Navy Meritorious Civilian Service Award, Luther Odel Norman, 1992, technical expertise as an Equipment Specialist (Ordnance).

-Navy Meritorious Civilian Service Award, Laimonis Spozais, 1992, technical expertise in the structural design engineering field.

-NAVSEA Engineer of the Year Award, Walter Carr, 1992, for his technical expertise in the nitration of materials.

1993

-Special Act Award, Tom Bergeron, Charlie Gifford, 1993, for work on 150 gallon APV.

-Navy Meritorious Civilian Service Award, Hermann S. Haiss, 1993

-Dashiell Award for Excellence, Robert Kaczmarek, 1993, technical excellence for the distributed Explosive Mine Neutralization System (DEMNS).

-Dr. George W. Patterson Award for Outstanding Accomplishment, David W. Carpenter, 1993, for technical excellence in support of all rocket and JATO development and product improvement programs conducted at Indian Head.

-Meritorious Civilian Service Award, Kenneth Morin, 1993, technical expertise in the field of Environmental Engineering.

-Audubon Award for Environmental Achievement, Michael Lateulere, 9/93.

-NAVSEA Quality Champion Group Achievement Award for use of sidewinder reclaimed hardware, 10/93, to James McDermott, Robert Theison, George Cullins.

-Quality Achievement Award, 11/93, to David Lee, Walt Arbogast, for improving efficiency of gun propellant safety surveillance program.

-Patent Award, John Delaney, 10/93 for apparatus for cleaning mines.

-Special Act Award, Marc Magdinec, 12/93, $3,500, for Insensitive Munitions (IM) expertise.

-Invention Awards awarded to Kirk E. Newman, James A. Gusack, Phyllis E. Obney, James T. Johnson, Frank E. Kolstrom, Sharon M. Boyles.

-Gregory S. Harris, Federal Laboratory Consortium 1993 Award of Merit for Excellence in Technology Transfer.

1994

-DON Superior Civilian Service Award, Marc Magdinec, 3/9

-Superior Support Award for AN/UYS-2 issued by NAVSEA PMO 428 to Larry Camiello, Michael Augustus.

-Invention Awards awarded to Sharon M. Boyles, Phyllis E. Obney, Robert H. Rast.

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

Patent #	Date	Inventor	Title
4894462	1990	Collignon	Preparation Of Spheroidal 3-Nitro-1,2,4-Triazol-5-One
4944815	1990	J. Consaga	Bonding Agent of Composite
4955939	1990	J. Petrousky	Shaped Charge with Explosively Driven Liquid Follow Through
4956168	1990	Wagaman	Synthetics Of Hydroxylamine Salts
4978482	1990	Gotzmer, Gill	Melt Cast Thermoplastic Elastomeric Plastic Bonded Explosive
4988397	1991	Adolph	Energetic Binders For Plastic-Bonded Explosives
4997499	1991	Adolph	Method Of Preparation Bis(Dinitropropyl) Formal/Dinitrobutyl .....
5000093	1991	Filler	Warhead Casing
5003180	1991	Christianson	Method Of Recycling Dosimeters
5010804	1991	Lee	Launching Projectiles With Hydrogen Gas Generated From Titanium-Water...
5017356	1991	Willer,Park,Stern	An Improved Synthesis of Cyanogen from Glyoxime
5022742	1991	Hains	Fast Shutter Fpr Protection From Electromagnetic Radiation
5025102	1991	Sitzmann	Bis(2-Fluoro-2,2-Dinitroethyl)Carbonate, Pentafluorosulfanylimine
5041661	1991	C. Clark	Method of Producing Triaminoguanidine Nitrate
5052272	1991	Lee	Launching Projectiles With Hydrogen Gas Generated From Aluminum Fuel....

5017356	1992	Willer,Day,Stern	Process for Producing Improved Poly(Glycidyl Nitrate)
5081255	1992	Sitzmann	High Melting Aromatic Nitrate Esters
5114506	1992	J. Consaga,Collignon	Complexation of Cyclodextrin Nitrate with Nitrate Ester Plasticizers
5120369	1992	L. Malotky	Hazardous Material Removal Using Strippable Coatings
5143047	1992	Lee	Material And Method For Fast Generation Of Hydrogen Gas And Steam
5149911	1992	Ringbloom	Flexible Sheet Explosive
5155281	1992	Sitzmann	Improved Procedure For Chemical Compounds
5162494	1992	Willer,Day,Stern	Isotactic Poly(Glycidyl Nitrate) and Synthesis thereof
5182092	1993	T. Liggett	Hydroxylammonium Nitrate Process
5183938	1993	Sitzmann	N,N'-Bis(4,4,4-Trinitrobutyryl)Hydrazine
5186770	1993	Adolph	Bis(2-Nitro-2-Azapropyl)Ether
5192379	1993	C. Johnson	Densifying & Stablizing Ingredient
5193475	1993	Zovko	Improved Thurst Expansion Engine
5194103	1993	Sitzmann	High Density Energetic Materials
5194659	1993	Sitzmann	High-Melting Amino Aromatic Nitrate Esters
5205983	1993	A. Camp	Energetic Plasticizer & Improved Gas Producing Charges
5214189	1993	Sitzmann	N-(2-Hydroxyethyl Nitrate)-2,4,6-Trinitrobenzamide
5218574	1993	Peregrim	Electrical Firing Circuit
5221810	1993	Spahn	Embedded Can Booster

5223057	1993	K. Mueller	Monopropellant Composition
5233929	1993	Spahn	Booster Explosive Rings
5239821	1993	Guirguis	Underwater Turbojet Engine
5241071	1993	Sitzmann	2-Polynitroalky-5-Perfluoroalkyl-1,3,4-Oxadiazoles
5243075	1993	Cason-Smith	Process For Producing N-Chloromethyl Nitramines
5250730	1993	Cason-Smith	Process For Producing Hydroxy Terminated Nitramines
5256220	1993	Baroody,Kamlet, Adolph,Haiss	Liquid Monopropellants
5262544	1993	Chaykovsky, Koppes	5,7-Dinitro-5,7-Diaza-1,3-Dioxabi cyclo(3:3:0)Octan-2-One
5266675	1993	Adolph, Cason-Smith	Energetic Polymer
5267513	1993	Guirguis, Kim	Detonation Through Solid-State Explosive Fiber Bundle
5271332	1993	Guirguis	Modified Channel Effect For Solid Explosive Detonation Waves
5274103	1993	Sitzmann	1,3,4-Oxadiazoles Containing The Pentafluorothio (Sf5) Group
5276171	1994	Koppes	2-Azido-2,2-Difluoroethanol
5292951	1994	Sitzmann	1,3,4-Oxadiazoles Containing The Pentafluorothio (Sf5) Group

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

Date	Inventor	Title
1990	Adolph, Nock	2,2,3,3,4,4,5,5-Octafluorohexane-1,6-diol-co-3-nitro-3-aza-1,5-diol polyformals and Method of Preparation (Confidential)
1990	Sitzmann	Bis(2-Fluoro-2,2-Dinitroethyl)Carbonate, Pentafluorosulfanylimine

1990	Koppes,Collignon,Weedon,Cichr	Chemical
1990	Nelson	Chemical Process
1990	Adolph	Chemical Process
1990	Baroody,Adolph,Gotzmer	Energetic Melt Cast Binder Systems for Explosives
1990	Adolph, Nock	Hydroxy-Terminated Copolyformals of Fluorodiols with Nitrodiols
1990	Lee	Launching Projectiles With Hydrogen Gas Generated From Titanium-Water...
1990	Lee	Launching Projectiles With Hydrogen Gas Generated From Aluminum Fuel....
1990	Christianson	Method Of Recycling Dosimeters
1991	Cichra,Nock	Alternate Methods of Preparation of e and y Polymorphs of Hexanitroisowurzitane
1991	Ross,Gotzmer,Argentar	Binders For Melt Castable Plastic Bonded Explosives
1991	Nock,Turner,Cichra,Russell	Chemical
1991	Collignon,Consaga	Complexation Of Cyclodextrin Nitrate With Nitrate Ester Plasticizers
1991	Lee	Concentration Of Isotopic Hydrogen By Temperature Gradient Effect In....
1991	Adolph	Energetic Melt Cast Explosives
1991	Ringbloom,Savage	Flexible Sheet Explosive
1991	Sitzmann	High Density Energetic Materials
1991	Sitzmann	High Melting Aromatic Nitrate Esters
1991	Lee	Material And Method For Fast Generation Of Hydrogen Gas And Steam
1991	Collignon,Consaga	Nitration Of Cyclodextrin
1991	Lee	Poly (fluoroalkoxyphosphazene - Cycloaliphatic Nitramine Based Molding Powders

1991	Lee, Consaga	Steady-State, High Dose Neutron Generation & Concentration Apparatus....
1991	Guirguis	Underwater Turbojet Engine
1992	Sitzmann	2-Polynitroalky-5-Perfluoroalkyl-1,3,4-Oxadiazo les
1992	Spahn	Booster Explosive Rings
1992	Guirguis,Kim	Detonation Through Solid-State Explosive Fiber Bundle
1992	Kim, Spahn	Dynamic Compaction Processing System
1992	Adolph,Cason-Smith	Energetic Polymer
1992	Sitzmann	High-Melting Amino Aromatic Nitrate Esters
1992	Stern, Koppes	Improved Ammonium Dinitrimide (ADN) Synthesis
1992	Cason-Smith	Improved Process for N-Chloromethyl Nitramines
1992	Cason-Smith	Improved Process for Synthesis of 1,7-Dihydroxy-2,4,6-trinitro-2,4,6-triazaheptane (3ND)
1992	Zovko	Improved Thurst Expansion Engine
1992	Guirguis	Modified Channel Effect For Solid Explosive Detonation Waves
1992	Sitzmann	N,N'-Bis(4,4,4-Trinitrobutyryl)Hydrazine
1992	Sitzmann	N-(2-Hydroxyethyl Nitrate)-2,4,6-Trinitrobenzamide
1992	Lee	Nitridation of Hafnium
1992	Sitzmann,Nock,Cason, Koppes	Process For Preparing Ammonium Dinitramide
1992	Cason-Smith,Adolph	Process For Producing Hydroxy Terminated Nitramines
1992	Cason-Smith	Process For Producing N-Chloromethyl Nitramines
1993	Sitzmann	1,3,4-Oxadiazoles Containing The Pentafluorothio (Sf5) Group

1993	Koppes	2-Azido-2,2-Difluoroethanol
1993	Koppes,Chaykovsky	5,7-Dinitro-5,7-Diaza-1,3-Dioxabicyclo(3:3:0)Octan-2-One
1993	Sandusky	A Universal Receiver Having Pneumatic Safe/Arm/Firing Mechanism
1993	Turner,Sandusky,Nock,Cichra	Chemical
1993	Duong,Wilmot	Densensitized Solid Rocket Propellant Formulation
1993	Tran,Collignon,Johnson	High Energy Plastic Bonded Explosives
1993	Koppes, Stern	Improved Ammonium Dintramide Synthesis (Confidential)
1993	Harrison	Mine Classification System
1993	Koppes,Sitzman	Pentafluorosulfanylnitramide Salts (U)
1993	J. Johnson	Round Strand Cutter & Vacuum Chuck
1993	Chaykovsky,Bedford	Spiro(N,N'-Dinitroethylenediamino)Cyclotriphosphazenes
1994	R. Rast	Miniscale Ballistic Motor Testing
1994	Sitzmann	N,N,-Bis[tris(nitroxymethyl)methyl]oxamide

k. **Identify any in-house staff that are members of the National Academy of Engineering**. None of our in-house staff are members of the National Academy of Engineering.

l. **Identify any in-house staff that are members of the National Academy of Sciences**. None of our in-house staff are members of the National Academy of Sciences.

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

We have signed two CRDAs since 1 January 1990:

1) Applied Research Relating to Injection Loading Machine (NCRADA-IHDNSWC-93-001).

2) Applied Research into Environmentally Safe Demilitarization Technologies for Conventional Ammunition (NCRADA-IHDNSWC-94-002)

n. **What has been the activity's annual royalty income from CRDAs and patent licenses for each year since 1 January 1990?** We receive no royalties from our CRDAs and patent licenses.

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

The Indian Head Division operates at the subsystem and component level. Although we do not operate at the system level, we've developed significant numbers of end item prototypes and process technologies for the Armed Forces, including the following:

PROCESSING TECHNOLOGIES

Nitramine Propellants (LOVA)
(Ref: Patent Application #07-360942, "Gun Propellant," S. Peters, S. Mitchell, J. Headden, 4/26/89 and
"Improved Processing of Highly Filled Nitramine Propellants," (Classified), 1993)
Indian Head developed nitramine propellants throughout the 1980's in response to the DoD request for low vulnerability ammunition (LOVA). 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. The success of M43 propellant was the result of this program. This propellant is used in the Army's 105mm kinetic energy round which is fired from the MlAl battle tank. The propellant has met all of the Army's performance requirements and has been delivered under budget and on schedule.

We are continuing our development of these propellants to meet the Army's and Navy's requests for higher gun performance. Some examples of the systems we are supporting are the 120mm round for MlA2 tank, Electro-thermal Chemical (ETC) gun and the 5" 54 caliber gun performance enhancement programs.

Otto Fuel II
(Ref: Technical Manual for Otto Fuel II, S6340-AA-MMA-010, and Otto Fuel II Monopropellant Handbook, IHSP 70-50)
In the early 1960's Indian Head developed a new fuel for torpedo propulsion. This monopropellant replaced the inefficient and unsafe dual propellant system that had been in use since World War 11. Since this fuel was developed by an Indian Head employee, Dr. Otto Reitlinger, it was called Otto Fuel II. This fuel continues to be in use in the MK 46 and 48 torpedo systems and we continue to be the sole producer of the material. When the Navy's requirements were greater we aided in the start-up of a commercial supplier. We are now the sole supplier due to the reduction in requirements. We are the lead organization in developing an even safer torpedo fuel and have initiated small scale development efforts.

Solventless Nitroglycerin Lacquer
(Ref: Specifications and Test Methods for Lacquer, Polyethylene-Glycol-NG Solventless #26055 Amendment, Jan '94 and SOP 440-011, NG Formulation Processing)
During the 1980's and early 1990's Indian Head has supplied nitroglycerin (NG) to a California-based private contractor for use in the production of the third stage section of the Trident II missile. We are the only qualified source for this material. The material was being delivered in mixture with methylene chloride to make it safe to transport. Methylene chloride is a known carcinogen and environmental hazard. The contractor requested that we develop a new mixture or lacquer as it is called that would solve these problems. Indian Head met this challenge by developing a NG-polyethylene glycol lacquer that was safe to handle and was relatively environmentally benign. This material is still in use in the production of the Trident II missile.

Chapparal Nitroglycerin Lacquer
(Ref: Quality Test and Inspection Procedure No. 680, Specification and Tests for Solvent)
In the mid-1980's a private contractor requested that we develop and produced an improved NG lacquer for use in the production of the Chapparal missile. Improvements to the desensitizing solvent system were needed to improve the processing characteristics of the lacquer. Indian Head succeeded in this development and delivered many thousands of pounds. The Chapparal missile is still in use today.

Pelletized Nitrocellulose (PNC) Manufacturing Process
(Ref: U.S. Patent No. 3702353, "Continuous Process for Manufacturing Small Particle Nitrocellulose," L. Henderson, R. Wilson, 7 Nov 72; U.S. Patent No. 3671515, "Spherical Production of Small Particle Nitrocellulose," C.D. Cox, T. Liggett, 20 Jun 72; and IH Technical Publication No. 381, "Process for Producing Pelletized Nitrocellulose, 29 Jun 73)
Indian Head developed the process to change the morphology (form and structure) of fibrous nitrocellulose (NC) to spherical PNC in the 1960's. This change in morphology meant that the use of NC was expanded to underwater explosives. Its previous uses were limited to rocket motor propellants. This research led to the development of PBXN-103 which is the most widely used underwater explosive today. It is used in the MK46 torpedo warhead, the Quickstrike mine, the Submarine Launched Mine Neutralization (SLMN) explosive charge and the MK 57 mine destructor. All of these systems are presently in use.

High Performance Liquid Chromatography (HPLC) Application on High Energy Explosive PBXN-103
(Ref: Engineering Change Proposal 6320-IH-93-500).
HPLC is an analytical chemical test method evaluated to determine the chemical composition of a high explosive material, PBXN 103. The current method available to test this explosive, known as Bromination (wet chemistry) has a history of presenting a 10 to 30 percent error in the test results. Also the bromination method requires a minimum of 17 hours of operation and uses carcinogenic solvents. All the carcinogenic materials were eliminated and the test operation reduced to 2 hours using the HPLC. The accuracy of the test results was improved to 4 percent. Standard instructions are now being prepared (see reference) to standardize the test method to be used in the laboratories nationwide.

END PRODUCTS

TOMAHAWK CRUISE MISSILE

MK 81 Digital Weapons Simulator
(Ref: Technical Manual ST890-AK-MMO-01B)
The Mk 81 DWS simulates the electrical and electronic interface that normally exists between the Tomahawk Weapons Control System AN/SWG-2 and the Tomahawk Cruise Missile RGM-109. This microprocessor controlled simulator analyzes both discrete and digital input signals, and is capable of responding to the TWCS as any variant of the Tomahawk Cruise Missile. The DWS is shipboard equipment used for system testing, training, troubleshooting, and operational certification.

LINK 11 Interface Converter CV-3878/SWG
(Ref: Technical Manual SW-269-BA-MMO-010 TO -130)
The LIC is a microprocessor-controlled, shipboard device that interfaces the ship's Naval Tactical Data System to the Tomahawk Weapons Control Systems AN/SWG-2 or -3. The device converts the parallel NTDS data signals to Mil-STD-188C serial data which is directed to the Link 11 Preprocessor in the TWCS. The unit is capable of performing internal self-test as well as transmitting simulated target signals to the TWCS for complete system evaluation.

MK 17 Canister Trainer
(Ref: Technical Manual SW850-GA-MMM-010)
The MK 17 Canister Trainer simulates the mass characteristics of the Tomahawk missile loaded in the MK 10 Canister. It is used at the naval schools, weapons stations, and other maintenance activities to train both Navy and civilian personnel in loading and handling of Tomahawk missiles. The trainer also has limited electrical simulation capabilities for booster arm/safe condition, and weapon identification lines.

AN/WSN-5 Navigation Simulator
(Ref: Operator Guide 654-WSN5-001)
This device simulates the electrical interface that normally exists between the Tomahawk Weapons Control System and the AN/WSN-5 Inertial Navigation System. This PC-based simulator programmed in Ada high-level computer language provides simulated time mark, status, navigation, and attitude data to the TWCS based upon its automatic ship's motion model. The simulator is used in the Fleet and at naval schools for system certification, testing, training, and whenever real INS data is inappropriate.

Block II/II TOMAHAWK Loop-Back Cable Products
(Ref: Technical Manual SW269-BA-MMO-010)
These products consist of various wrap-cap and cable assemblies that are used on Tomahawk capable ships for system training. The tactical missiles are disconnected from the weapons system, and the cable assemblies are installed. This enables ship's force to utilize the tactical Tomahawk control consoles at any time when use of simulators is undesireable.

Launcher Surveillance System
(Ref: Operational Logistics Support Summary 4105-Y)
The Launcher Surveillance System is a closed-circuit television system used aboard all DD-963, CGN-38, CG-47, and DDG-51 class ships to remotely monitor missile launcher operations from the Combat Information Center, Damage Control Centers, and the bridge. The systems consist of external cameras, camera controllers, video recorders, and monitors. The systems are required by the Tomahawk Material Logistics certification process for security and safety reasons.

MINE CLEARANCE SYSTEMS

MK 22 Mod 4 Rocket Motor
(Ref: IHTR 955 dtd 14 Jun 85 and TM9-1375-215-14 M58 and M59 Linear Demolition Charges)
The motor with a line charge is named the MICLIC mine clearance system. The MICLIC is the only system in the U.S. Marine Corps and U.S. Army inventory that is used to quickly clear a path through an anti-tank minefield and was used during Desert Storm. The MK 22 Mod 4 rocket motor was the first "tractor" type motor designed for mine clearance deployment. The benefit of this design was that it eliminated the possibility of flame impingement on the towed C-4 type explosive line charge.

MK 22 Mod 3 Rocket Motor
(Ref: IHTR 925 dtd 16 Nov 84 and TM9-1375-215-14 dtd Jan 92)
The MK 22 Mod 3 rocket motor is used as a propulsion unit for the M58 and M59 Linear Demolition Charges. The motor with the line charge is named the MICLIC mine clearance system. The U.S. Marine Corps is the only current user of the Mod 3 motor. The Mod 3 was a Product Improvement Program (PIP) to the Mod 2 motor. The PIP redesign incorporated N-5 type propellant to improve the low-temperature motor performance. The Mod 3 also incorporated protection against hazards of electromagnetic radiation to ordnance (HERO) and redesigned the launch lugs to provide a stronger support for the motor on the launch rail.

Anti-Personnel Obstacle Breaching System (APOBS)
(Ref: IHTR 1503 dtd 29 May 92 and TM1375-12/1 dtd July 92).
The APOBS is a two man portable personnel-mine and wire obstacle mine clearance system. It is not yet fielded, but prototypes were used by the Marine Corps during Desert Storm. When fielded, the users will be the U.S. Marine Corps and the U.S. Army. Indian Head developed the MK 126 Rocket Motor that deploys the APOBS Line Charge. We are also the sole system integrator and fabricator to date.

Subcaliber Inert Linear Demolition Charge (SCILDC)
(Ref: IHTR 1529 dtd 29 May 92)
The SCILDC is a training device that replicates the essential steps in employing the MKs 1 and 2 anti-tank minefield clearing systems. For training the U.S. Marines and the U.S. Army currently use the MKs 1 and 2 systems except the live line charge is replaced with an inert charge. This method of training is costly and limits the sites training can take place

because of the size of the system. SCILDC was designed, developed and qualified by Indian Head to supplement the Marine Corps and Army's use of the larger MKs 1 or 2 systems for training. The system includes a rocket motor, inert line, and container that interfaces with the current launcher/container used by the MKs 1 and 2. SCILDC is currently going through the Engineering Change Proposal process for incorporation into inventory.

Lightfoot
(No published technical report).
Lightfoot is a manportable rocket deployed line charge system used to clear a small path through an anti-personnel minefield. Indian Head designed, developed and put this system into service in the mid to late 80s. The system user is classified. The system includes a rocket motor, towing harness, detonation cord line charge, firing drive, launch rod and container. Along with designing the system, Indian Head also transferred processing technology to industry for system fabrication/assembly.

MK 57

MK 57 Destructor
(Ref: Standard Test Procedure No. 1, Part Name: Electrical Assembly, Drawing Number: 5468043).
The test console for the MK 47 Safety Device (this device fires the MK 57) automates the in-process and acceptance electrical testing of the MK 47 and its components. A computer controls the testing and documents the test results. The test console has reduced testing time from 4 hours to 1/2 hour per test and reduced production costs for the MK 47. A supplier of the major electrical component of the MK 47 has duplicated the console and since has compressed their delivery schedule.

MK 57 Inert Rocket Motor/Tactical Air Combat Training Subsystem On-site Repair Team
The on-site repair originated in 1990 to address the shortage of MK-57 Inert Rocket Motors. The shortage began to impact Navy's training capability with Sidewinder and thus impacting Fleet Readiness. The shortage was produced by the F/A-18 vibration spectrum and the lack of qualified manufacturers of aft hangers for the motor. The team developed procedures to remove and replace the aft and center hangers off the motor at the air station level. This provided quick response and eliminated the loss of training assets. The procedure was further developed to be incorporated into the Sidewinder I-level maintenance manual (NAVAIR AIM-9-2.1). The onsite repair team extended the process to the Tactical Air Combat Training Subsystem (TACTS) community. This community includes the Navy and Air Force assets.

PROPELLANTS

Low Vulnerability Ammunition (LOVA) Propellants
(Ref: Technical Manual TM 43-0001-28)
M43 LOVA propellant is used in the M900 105 mm APFSDS-T cartridge. The M900 is an anti-tank round loaded and fired from the M68 series 105mm gun mounted on the Army's

M1 tanks.

Conventional Ammunition Propellants
(Ref: Technical Manual SW030-AA-MMO-010)
Navy Cool (NACO) propellant was developed and qualified by Indian Head. It is currently in use in 5"/54 MK 67 Mod 3 Propelling Charges. These propelling charges are the only full charges used in the 5"/54 Gun System. Production is now under the Single Manager at Radford AAP.

STANDARD MISSILE

Standard Missile Propulsion Remote Arming Device (RAD). Documented in current Standard Missile Processing Description (SMPD) in use at Naval Weapons Stations.

JATO ROCKET MOTORS

MK 129 MOD 0 JATO Rocket Motor
(Ref: Unmanned Aerial Vehicle-Medium Range Booster Qualification Test Report, Document Number UAVMR-BOLL dated 6 May 1991)
The MK 129 MOD 0 Rocket Motor was designed by the NSWC/IHD for Teledyne/Ryan to launch the Mid-Range Unmanned Aerial Vehicle. This design reduced the MRUAV development costs dramatically by applying propulsion technology from the in-production MK 23 JATO Rocket Motor program to the new vehicle instead of incurring the cost of a "clean sheet of paper" design.

SR121 JATO Rocket Motor
(Ref: IHTR 1080 Rocket Motor SR121-NP-1 Qualification Testing 1 June 1987)
The SR121 JATO Rocket Motor was designed by the NSWC/IHD to reduce the ever increasing cost of the commercially designed TX-632 Rocket Motor used to launch Army/Air Force MQM-107 Target Drone. This is the workhorse target drone for Army/Air Force training and weapons testing. This JATO Rocket Motor gave the DOD a compatible Technical Data Package at a cost far lower than the cost of buying the commercial design. The procurements of this JATO Rocket Motor have been successfully competed keeping MQM-107 Target Drone operational costs to a minimum.

MK 23 MOD 2/3 JATO Rocket Motor
(Ref: NAVAIR 11-85M-2 JATO Technical Manual)
The MK 23 MOD 2/3 JATO Rocket Motor is a workhorse for the DOD. This Rocket Motor is used to launch Navy/Air Force BQM-34 Firebee Target Drones and to propel high speed test sleds across the country. This JATO Rocket Motor was a 1970's NSWC/IHD Product Improvement of the 1950's vintage Aerojet design. It incorporated composite propellant technology into existing hardware designs to improve produceabillty and to eliminate the unpredictable operational failures of the original design. This unit remains in production today at NSWC/IHD to meet DOD's continuing demand for low cost rocket propulsion units.

MK 91 MOD 0 JATO Rocket Motor
(Ref: NAVAIR 11-85M-2 JATO Technical Manual)
The MK 91 MOD 0 JATO Rocket Motor was designed by the NSWC/IHD to increase the pay load capability of the BQM-74 Target Drone. Over 10,000 of thees rocket motors were built by the NSWC/IHD to launch this low cost target drone for Navy weapons testing and aircrew tralning.

MK 117 MOD 0 JATO Rocket Motor
(Ref: NAVAIR ll-BSM-2 JATO Technical Manual)
The MK 117 MOD 0 JATO Rocket Motor is the lastest and highest performance version of the rocket motors used to launch the BQM-74 Target Drone. This rocket motor is a NSWC/IHD product improvement of the MK 91 MOD 0 JATO Rocket Motor to enable the target drone to carry heavier pay loads under more extreme launch conditions. Significant improvements in rocket motor thrust alignment and energy delivered were incorporated into this design to meet the needs of the rapidly evolving target drone capability. This unit is currently in production at the NSWC/IHD.

MK 128 MOD 0/1 JATO Rocket Motor
(Ref: NAVAIR 11-85M-2 JATO Technical Manual)
The MK 128 MOD 0/1 JATO Rocket Motor was developed by NSWC/IHD to enable continued short field and adverse weather capability for Navy C-130 Aircraft. The MK 6 JATO Rocket Motor is used for significantly reducing the takeoff distance of C-130 Aircraft used by the Navy, the Marines, and the National Science Foundation in Antarctica, which were last produced in 1964. A large inventory of these rapidly deteriorating rocket motors still exists.

SURFACE-TO-AIR MISSILES

Smokey SAM (Surface-to-Air Missile) Simulator
(Ref: NAVAIR 11-75-63 TO Technical Manual 11Ll-2-23-1 14 November 1989, Smokey SAM Simulator/Antiaircraft Artillery Visual Cueing System)
In the 1970's the NAWC/China Lake demonstrated a very low cost concept for surface-to-air missile visual cueing of aircrews during training. In the 1980's the NSWC/IHD took this concept and designed an under $50.00 rocket that simulated a Soviet SA-7 SAM launch visual conditioned over 500,000 Smokey SAMs to the Air Force and Navy. These are currently being used every day to have the survival skills of the DOD pilots and aircrews.

SAGGER SAM Simulator
(Ref: Short Range SAGGER Simulator (SRSS) dated 9 Jul 92, Fort Monroe, VA NSWC/IHD Technical Report)
The Sagger SAM is an adaptation of the Smokey SAM designed by the NSWC/IHD to simulate the launch of a Soviet Sagger Anti-Tank Missile. The Army has recently qualified this unit for training use and is beginning to deploy it at various training sites.

NO-FLY SAM
(Ref: IHSP 88-283 dated 15 Nov 88, Smokey SAM Simulate System NSWC/IHD Tech-

nical Repart)
The No-Fly SAM is a NSWC/IHD adaptation of the Smokey SAM to provide safer helicopter training. Due to the low altitude nature of helicopter operations, a SAM training device that did not fly into the air was designed. The NSWC/IHD designed at a very low cost modification of the Smokey SAM Simulator that produced the launch smoke signature of a Soviet SA-7 SAM but did not leave the ground. This simulator has been successfully demonstrated in Marine helicopter training.

2.75 INCH ROCKET MOTOR

MK 66 MOD 1 2.75-Inch Rocket Motor
(Ref: IHSP 72-90 The Rocket Motor Mark 66 MOD 0 Design, Development and Release for Production Safety Review 20 Mar 72)
(Ref: IHSP 89-289 -2.75-Inch Rocket Motor Mark 66 Data Book)
The NSWC/IHD designed the MK 66 MOD 1 2.75-Inch Rocket Motor to meet the Army's requirement for unguided air-to-ground rockets in the 1970's. This rocket motor significantly improved the range and accuracy of rockets over the Vietnam era MK 4/40 2.75-Inch Rocket Motors. The NSWC/IHD participated with the Army's Radford Army Ammunition Plant In the production of over one million of these rocket motors that now outfit all Army helicopters as their primary mid-range air-to-ground weapon.

MK 66 MOD 2 2.75-Inch Rocket Motor
(Ref: NAVAIR 11-85-5 Technical Manual)
The NSWC/IHD product improved the MK 66 MOD 1 2.75-Inch Rocket Motor to meet the Navy's requirement for a HERO-Safe Aircraft Rocket System. The MK 66 Mod 2 Rocket Motor incorporated innovative radio frequency filtering into the MK 66 Rocket Motor. The NSWC/IHD has participated in the manufacture of over one million MK 66 MOD 2 Rocket Motors dellvered to the Navy, the Air Force, and the Army's Special Operations Forces.

AAC-838 2.75-Inch Rocket System Launcher Repair
(Ref: Technical Directive Aviation Armament Change (AAC) 838 LAU-61/68 Series)
In the mid 1980's the 2.75-Inch Launcher inventory was experiencing a high number of rocket hang fires. This was a hazard to the launching aircraft and was consuming launcher assets at a high rate. The NSWC/IHD designed and tested a procedure to modify launchers without disassembly to prevent hangfires. Tiger Teams from NSWC/IHD deployed world wide to modify necessary Fleet training assets. At the same time Navy Depots were set up and trained to perform this modification on the remaining inventory during normal maintenance.

5.0 INCH ROCKET MOTOR

MK 71 MOD 0 5.0-Inch Rocket Motor
(Ref: NAVAIR 11-85-5 Rockets Technical Manual)
The MK 71 MOD 0 5.0-Inch Rocket Motor was a NSWC/IHD product improvement of the Vietnam era MK 16 5.0-Inch Rocket Motor. This design incorporated a new nozzle and fire assembly into the design to significiantly improve air-to-ground accuracy.

MK 71 MOD 1 5.0-Inch Rocket Motor
(Ref: NAVAIR 11-85-5 Rockets Technical Manual)
The MK 71 MOD 1 5.0-Inch Rocket Motor was designed to increase the stand off range of attach aircraft. The rocket motor incorporated new propellant technology and took advantage of additional propellant volume allowed by the incorporation of new nozzle and for assembly introduced in the MK 71 MOD 0 without having to change the Rocket Systems launchers. This version of the 5.0-inch Rocket Motor was produced and delivered by the NSWC/IHD in the 1980's and is the primary component off the Navy's current 5.0-Inch Aircraft Rocket System inventory.

AAC-837 5.0-Inch Rocket System Launcher Retrofit
(Ref: Technical Directive Aviation Armament Change (AAC) 837)
In the mid 1980's the 5.0-Inch LAU-10 Series Launcher inventory was experiencing cracking of the launcher skin that could lead to Foreign Object Damage of the aircraft. The NSWC/IHD designed and tested retrofit procedures to prevent loss of launcher parts due to skin cracking. Tiger Teams deployed from NSWC/IHD to train Navy Intermediate and Depot Maintainance Activities on the retrofit procedures. The NSWC/IHD also supplied the retrofit kits to the maintain activities to repair all Navy 5.0-Inch Rocket System Launcher assets.

SIDEWINDER ROCKET MOTOR

Sidewinder Unique Fixtures

Indian Head has designed and manufactures several fixtures unique to the Sidewinder Rocket Motor. The fixtures are:

Sidewinder Alignment Fixtures (581-174-001 and 93D-Y-015)
Sidewinder Aft Skid Surface Wear Fixture (88C-Y-061)

The alignment fixtures allow for the installation and alignment of hangers on Sidewinder Rocket Motors thus eliminating any missile hang fires on the aircraft. The skid surface wear fixture measures aft hanger wear produced by the F/A-18 aircraft. Procedures and requirements are found in the 0-level maintenance manual (NAVAIR 01-AIM9-2) and the I-level maintenance manual (NAVAIR AIM-9-2.1).

MK 48 TORPEDO

Torpedo, MK48 MODs 1,3,4
Ref: OP 4020 YEAR IOC: 1972
The MK48 Torpedo is the Navy's premier Heavyweight Torpedo currently in fleet inventory and in use against surface ships, submarines, and other naval targets. NSWCWODET was the Technical Development Agent (TDA) for this weapon during all phases of development up to IOC, and currently continues as TDA for the warhead supporting the fleet with lethality and upgrade information regarding the ADCAP (Advanced Capabilities) version of the Torpedo.

Torpedo, MK48, ADCAP Version
Ref: OP 4020 Year: Classified
The MK48 ADCAP (Advanced Capability) Torpedo is the latest version of heavyweight 21 inch diameter torpedo being placed into fleet inventory. This system replaces the existing version of the Mk48 Torpedo system currently in fleet inventory by increasing numerous abilities related to ASW and ASW/UW warfare.

Warhead, Torpedo, MK107 Mod 1
Ref: OP 4020 Year IOC: 1972
The MK107 Mod 1 is the heavyweight warhead for the MK48 Torpedo, currently in fleet inventory. This system is currently being updated from the existing warheads of the Mk48 Torpedo system currently in fleet inventory by increasing numerous abilities related to ASW and ASW/UW warfare. DEFINING

Electronics Assembly, MK12
Ref: OP 4020 Year IOC: 1972
The electronics assembly is an electronic device that provides information and control of the firing functions for the Torpedo MK48. It is mated and installed in the Warhead MK103 as the last step in the torpedo assembly process. The assembly receives its electrical power from the Torpedo MK48 and independently responds to influences to control warhead effectiveness. DEFINING

Exploder, Torpedo, MK21
Ref: OP 4020 Year IOC: 1972
The exploder mechanism is an electro-mechanical device that provides independent control of the safety and arming functions for the Torpedo MK48. It is mated with the Arming Device MK2 and installed in the Warhead MK103 as the last step in the torpedo assembly process. The exploder mechanism receives its electrical power from the Torpedo MK48 and independently responds to post-launch environmental influences to control warhead safing and arming.

Arming Device, Torpedo, MK2
Ref: OP 4020 Year IOC: 1972
The MK2 is the Arming Device for the MK48 Torpedo, currently in fleet inventory. The arming device contains the explosive devices to initiate the MK103 warhead. The MK 37 contains detonators out of line with the explosive warhead until armed by the exploder mechanism.

MK 50 TORPEDO

Warhead, Torpedo, MK 122 MOD 0
Ref: SW516-AA-MMM-120/ (U)MK50 YEAR IOC: 1992 (CNO ltr Ser 09/2U590289 of 27 Oct 92)
The MK 122 MOD 0 is an advanced shaped charge warhead for the lightweight Torpedo MK 50. The warhead includes a hull structure, a removable explosive cartridge, torpedo system cable assemblies, and mounting points for other system components.

Exploder Mechanism, Torpedo, MK 22 MOD 0
Ref: SW516-AA-NMM-120/ (U)MK50 YEAR lOC: 1992 (CNO ltr Ser 09/2U590289 of 27 Oct 92)
The exploder mechanism is an electro-mechanical device that provides independent control of the safety and arming functions for the Torpedo MK 50. It is mated with the Arming Device MK 37 and installed in the Warhead MK 122 as the last step in the torpedo assembly process. The exploder mechanism receives its electrical power from the Torpedo MK 50 and independently responds to post-launch environmental influences to control warhead safing and arming.

Arming Device, Torpedo, MK 37 MOD 0
Ref: SW516-AA-MMM-120/ (U) MK50 YEAR IOC: 1992 (CNO ltr Ser 09/2U5902S9 of 27 Oct 92)
The arming device contains the explosive devices to initiate the MK 122 warhead. It is housed in the Exploder Mechanism MK 22. The MK 37 contains two Electric Detonators MK 113 MOD 0 and two Explosive Leads MK 31 MOD 0; the detonators are out of line with the explosive leads, fully shielded, and the bridgewires electrically shorted until armed by the exploder mechanism. The modular design concept used for the arming device and exploder mechanism facilitate testing of both components during torpedo assembly and maintenance.

Arming Device, Torpedo, Practice MK 40 MOD 0
Ref: SW516-AA-MMN-120/ (U)MK50 YEAR IOC: 1992 (CNO ltr Ser 09/2U590289 of 27 Oct 92)
The practice arming device is an inert version of the Arming Device MK 37. The practice arming device is used for training purposes. It mates with the exploder mechanism and fits into the training and proofing versions of the Torpedo MK 50 from which the live arming device is excluded by safety interfaces.

Sensor, Torpedo, Target MK 7 MOD 1
Ref: 5w516-AA-MMM-120 / (U) MK5O YEAR IOC: 1992 (CNO ltr Ser 09/2U590289 of 27 Oct 92)
The target sensor is a module containing a transducer and processing electronics. It provides the electronic fire signal to the Exploder Mechanism MK22, causing initiation of the warhead firing train.
The target sensor is mounted in the warhead hull prior to torpedo assembly.

LIMPETS

LIMPET MK4 MOD 0
Ref: SUMMARY OF TECHNICAL EVALUATION: NOL 532:JDB:ff, 17 MAY 73 IOC: 1975
A unique man emplaced warhead/firing device/S&A assembly for attack of maritime targets by Naval Special Warfare forces.

LIMPET ASSEMBLY MODULAR MK 5 MOD 0
Ref: CRITICAL ITEM PRODUCT FABRICATION SPECIFICATION WS 19294 IOC: 1979
An assembly consisting of unique warhead ,firing system, and attachment system for use by Naval Special Warfare forces to attack major maritime targets.

DEMOLITION FIRING DEVICE MK 23 MOD 1
Ref: NOL TR 65-61 (CONF); EVALUATION OF DEMOLITION FIRING DEVICE MK 23 MOD 0 (U);28 APR 1965 IOC: 1966
A mechanical time delay firing device providing a preselected delay time from 15 minutes to 12 hours for use with standard demolition charges.

LIMPET MK 1 MOD 2, 3
Ref: RELEASE TO PRODUCTION RECOMMENDATION FOR THE DEMOLITION CHARGE MK 36 MOD 1, AND SERVICE USE APPROVAL RECOMMENDATION FOR THE LIMPET MK1 MOD 2 ASSEMBLY; NOL WHITE OAK Ltr: 5105:JSA:dn,3930, Ser 030, 7 JAN 1974 IOC: 1971
An assembly of the MK 36 demolition charge and MK 39 S&A with various firing devices for underwater swimmer attack against stationary steel hulled floating targets to which it is attached by self contained magnets.

<u>DEMOLITION FIRING DEVICES</u>

DEMOLITION FIRING DEVICE MK 24 MOD 2
Ref: PRODUCT SPECIFICATION FOR FIRING DEVICE, DEMOLITION, MK 24 MOD 2, WS 13449 IOC: 1974
A special purpose firing device and S&A for the control of unique demolition charges used by Naval Special Warfare attack on maritime targets.

DEMOLITION FIRING DEVICE MK 48 MOD 0
Ref: CNO Ltr: 04211/AMG, 7 OCT 1977, SUBJ: APPROVAL FOR SERVICE USE IOC: 1978
Provides 12 user selected electronic delay firing times between 15 minutes and 72 hours. The time delay may be preset or set at the target.

TUBULAR DEMOLITION CHARGE KIT MK 75 MOD 0
Ref: NOLTR 74-210 IOC: 1976
A buoyant 25 foot long flexible, 50-pound demolition charge. The center cavity can be flooded to sink the charge over obstacles, coral, etc. for removal or channelling.

SAFING AND ARMING DEVICE MK 39 MOD 0
Ref: NOL TN 9368 IOC: 1971
Provides positive mechanical 15 minute out-of-line safety for firing trains of man emplaced explosive weapons, ordnance, and demolition charges.

AIRCREW ESCAPE PROPULSION SYSTEMS/PROPELLANT ACTUATED DEVICES

ROCKET CATAPULTS (ROCATS)

MK 1 MOD 1 Rocket Catapult (ROCAT)
(Ref: NAVAIR 11-85-1)
The MK 1 MOD 1 ROCAT is a self contained, mechanically initiated, two stage, solid propellant booster and rocket used on the ejection seat on the A-4E/L aircraft to propel the man/seat mass to a height necessary for a safe parachute deployment. Repair specification WS 24353 governs the rework of this item and is an Indian Head document. MIL-A-85097 controls the procurement of this item and is also an Indian Head controlled document.

MK 12 MOD 1 ROCAT
(Ref: NAVAIR 11-85-1)
The MK 12 MOD 1 ROCAT is a gas actuated, two stage, solid booster and rocket. The two stage rocket catapult is used on the ejection seat of the OV-10 aircraft to propel the man/seat mass to a height necessary for safe parachute deployment. Repair specification NOS510-174TD-003 governs the rework of this item and MIL-A-85097 governs the procurement. Both documents are Indian Head controlled.

MK 18 MOD 0 ROCAT
(Ref: NAVAIR 11-85-1)
The MK 18 MOD 0 ROCAT is a gas actuated, two stage, solid booster and rocket. The Rocket Catapult is used on the ejection seat of the T-2 aircraft to propel the man/seat mass to a height necessary for safe deployment of the parachute. Repair specification WS 23423 governs the rework of this item and MIL-A-85097 governs the procurement. Both documents are controlled by Indian Head.

MK 16 MOD 2 Rocket Catapult
(Ref: NAVAIR 11-85-1)
The MK 16 MOD 2 ROCAT is a self-contained, gas initiated, two-phase, solid propellant booster and rocket used on the ejection seat of some A/TA-4, all A/TA-7 and S-3 aircraft to remove the ejection seat and aircrewmember mass from the aircraft and propel them to a height necessary for safe parachute deployment. The MOD 2 version of this unit is currently undergoing qualification and the work on initial production lot has commenced. The MOD 2 version utilizes a more environmentally friendly propellant than the MOD 1 version. The rework of this unit is governed by NOS 504-174-TD-046 and the procurement by MIL-A-85097. Both documents are controlled by Indian Head.

CKU-S/A/A Rocket Catapult
(Ref: NAVAIR Tech Manual 11-85-1, T.O. 11P1-31-7)
The CKU-5/A/A ROCAT is the main propulsion unit in the ACES II ejection seat, used in the escape systems of the F-15, F-16, F117, F-22, A-10, B-lB, and B2 aircraft. This unit replaced the CKU-5/A ROCAT and incorporated a dual-actuated firing mechanism to eliminate single points-of-failure and improve reliability.

CKU-5B/A Rocket Catapult
(Ref: IHTR 1572 of 16 October 1992)
This unit replaced the CKU-5/A/A ROCAT (See above). It incorporates a new sustainer grain composite propellant formulation that eliminated two ingredients that were highly toxic to manufacture and dispose of, and had severely limited availability.

CKU-7/A Rocket Catapult
(Ref: NAVAIR Tech Manual 11-85-1, T.O. 11P1-31-7)
The CKU-7/A ROCAT is the main propulsion unit in the escape systems used in the T-38, F-5E, and F-5F aircrafts This unit replaced the M-38 ROCAT and incorporated government owned booster and sustainer grain, composite propellant formulations, replacing proprietary formulations with limited availability. It also increased the upper weight limit of the crew-seat combination that was allowed for a successful ejection.

M9 and M37 Rocket Catapult
(Ref: T.O. 11P1-1-7)
The M9 ROCAT is the main propulsion unit in the escape system used in the F-5A/B aircraft currently in-service in many allied Air Forces. The M37 ROCAT, an M9 derivative, is used in the CF-5 aircraft (the Canadian version of the F-5) used by Canada and several other allied nations. This unit was designed by the government to support Northrop's original ejection seat developed for the F-5 and T-38, has been used throughout the life of the F-5A/B, and is still in-service supporting our allies nearly 30 years after its development.

CKU-10/A and CKU-11/A Rocket Catapults
(Ref: current publication not available)
The CKU-10 and CXU-11 ROCATs are completely redesigned replacements for the M9 and M37 ROCATs respectively (see above). The CKU-10 and CKU-11 will incorporate the following improvements over the replaced items: producibility and availability of components, longer service-life, expand the low-temperature envelope from -40 degrees F to -65 degrees F (the standard for current escape systems), and provide improved Dynamic Response Index at all operating temperatures. The CKU-10 and CKU-11 are currently entering initial production.

UNDERSEAT ROCKET MOTORS

MK 74/75/76/86/87/88/92 MOD 1 USRMs
(Ref: NAVAIR 11-85-1)
The MK 74/75/76/86/87/88/92 MOD 1 Underseat Rocket Motors are self-contained, gas actuated, solid-propellant rockets used on the ejection seats of the F-14A, A-6, EA-6B, and F-4 aircraft to supplement the upward thrust of the ejection gun. The MOD 1 versions of these units are rework versions of the original Martin-Baker designed units. They utilize domestic materials where possible. NOS 504-174-TD-044 governs the rework and MIL-A-85097 governs the procurement of these units. Both documents are controlled by Indian Head.

MAN/SEAT SEPARATOR MOTORS

MK 82 MOD 1 and MK 90 MOD I Man/Seat Separator Motors
(Ref: NAVAIR 11-85-1)
The MK 82/90 MOD 1 Man/Seat Separator Rocket Motors are gas actuated, solid propellant rockets used on the ejection seat of the A/TA-4, A/TA-7, and S-3A/B aircraft to separate the ejection seat from the ejecting aircrewman. The MOD 1 design is currently undergoing qualification and the initial stages of production are occurring. The MOD 1 design will replace the MOD 0 design with a more environmentally friendly propellant and incorporate dual initiation. MIL-A-85097 governs the procurement of this item and is controlled by Indian Head.

CARTRIDGES/CARTRIDGE ACTUATED DEVICES

INITIATORS

An initiator is an actuating source for the operation of the firing mechanisms of other cartridge/propellant actuated devices used in aircrew escape systems. These devices generally produce a gas pressure output and consist of a chamber with a pressure outlet port, a firing mechanism and cartridge. They are classified in accordance with the method of actuation (mechanical or gas pressure) and function time (delay or nondelay). Delay initiators perform an additional sequencing function during the operation of the escape system.

JAU-54/A Initiator, Arm/Fire Device
(Ref: NAVAIR Manual 11-100-1.1)
This device is a manually operated safe/arm type initiator which functions the emergency ground egress system of the AH-1 Cobra helicopter. This item is procured by the Army.

JAU-2/A25 Initiator
(Ref: Air Force TO 11P3-1-7)
This initiator provides hot gas to pressurize the ballistic subsystem that initiates the egress sequence in the T-33, F-100, and F-101 aircraft.

JAU-13/A Delay Initiator
(Ref: NAVAIR Manual 11-100-1.1)
This initiator incorporates dual delay cartridges which arm the rocket deployed drogue parachute release and 7000-foot aneroid actuator in the aircrew escape system of the AV-8B aircraft.

JAU-14/A Delay Initiator
(Ref: NAVAIR Manual 11-100-1.1)
This initiator provides a function similar to the JAU-13/A Delay Initiator in the AV-8B aircrew escape system with the exception that it arms the 14,000-foot aneroid actuator.

M99 Cartridge Actuated Initiator
(Ref: NAVAIR Manual 11-100-1.1)
This initiator provides gas pressure to actuate other ballistic devices in the aircrew escape systems of the A-4, A-6, A-7, AV-8, F-16, OV-10, S-3 and T- 2 aircraft.

M53 Cartridge Actuated Initiator
(Ref: NAVAIR Manual 11-100-1.1)
This initiator provides gas pressure to actuate other ballistic devices in the aircrew escape systems of the A-4, A-6, A-7, AV-8, F-16, OV-10, S-3 and T- 2 aircraft.

M3A1 Cartridge Actuated Initiator
(Ref: NAVAIR Manual 11-100-1.1)
This initiator provides gas pressure to actuate other ballistic devices in the aircrew escape systems of the F-4 and F-86 aircraft.

M5A2 Cartridge Actuated Initiator
(Ref: NAVAIR Manual 11-100-1.1)
This device supplies gas pressure for actuating other ballistic components in the escape systems of the B-52, B-57 and F-100 aircraft.

M28 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
The M28 Initiator provides a nominal 1,800-psi gas pressure to initiate the ballistic subsystem in the ejection sequence in the B-52 aircraft.

M27 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
This device supplies gas pressure for actuating various components in the escape systems of the B-52, F-5, T-38 and F-104 aircraft.

M26 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
This device supplies gas pressure for actuating various components in the escape systems of the A-10, B-52, F-5, F-100, and T-38 aircraft.

M31 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
The M31 Initiator provides a nominal 1,200-psi gas pressure to initiate the ballistic subsystem in the ejection sequence in the F-105 aircraft.

M30A1 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
The M30A1 Initiator provides a nominal 2,000-psi gas pressure to initiate the ballistic subsystem in the ejection sequence in the T-38 aircraft.

M32A1 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
This device supplies gas pressure for actuating various components in the aircrew escape system of the B-52, T-33, T-37 and T-38 aircraft.

M45A1 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
The M45A1 Initiator provides a nominal 2,800-psi gas pressure to initiate the ballistic subsystem in the ejection sequence of the F-104 aircraft.

M49A1 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
The M49A1 Initiator provides a nominal 1,500-psi gas pressure to initiate the ballistic subsystem in the ejection sequence of the B-52 aircraft.

M110 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
The M110 initiator provides a nominal 1,300-psi gas pressure, after a 1.4-second delay, to support the ballistic subsystem in the ejection sequence of the F-104 aircraft.

M72 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
This device provides gas pressure and a sequence delay between the ejection of the aft and forward seats in the ejection sequence of the T-33 and T- 38 aircraft.

JAU-8/A Propellant Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
This mechanically actuated device is used in the Advanced Concept Ejection Seat (ACES-II) of the A-10, B-1, F-15, F-16 and F-117 aircraft.

M113 Propellant Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
The M113 Initiator provides a nominal 1,400-psi gas pressure to initiate the ballistic subsystem in the ejection sequence of the T/A-37 aircraft.

M120 Cartridge Actuated Initiator
(Ref: Air Force TO 11P3-1-7)
This device supplies gas pressure to actuate a number of devices in the aircrew escape system of the F-5 and T-38 aircraft.

JAU-20/A Initiator
(Ref: NAVAIR Manual 11-100-1.1)
The JAU-20/A Initiator supplies gas pressure for igniting the rocket catapult during an ejection from the A-4, A-7, OV-10, S-3, and T-2 aircraft.

JAU-22/B Initiator
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge is an electrically initiated, gas producing device ejects sonobouy's from the P-3 and S-3 aircraft.

JAU-35/A Propellant Actuated Initiator
(Ref: IHTR 1354)
The JAU-35/A Initiator is an improved version of the JAU-8/A initiator used in the aircrew escape systems of the A-10, B-1, F-15, F-16 and F-117 aircraft.

JAU-52/A Cartridge Actuated Initiator
(Ref: NAVAIR Manual 11-100-1.1)
The JAU-52/A Initiator provides gas pressure to activate the emergency flotation system of the H-46 helicopter.

MW80 Initiator, Arm/Fire Device
(Ref: NAVAIR Manual 11-100-1.1)
This device is a manually operated safe/arm type initiator which functions the emergency ground egress system of the Marine AH-1W Cobra helicopter.

XW70 Initiator, Arm/Fire Device
(Ref: NAVAIR Manual 11-100-1.1)
This device is a manually operated safe/arm type initiator which functions the emergency ground egress system of the Marine AH-1W Cobra helicopter.

IGNITION ELEMENTS

Ignition elements provides an initiation stimulus for cartridges used in aircraft systems and associated equipment. They are electrically initiated bridgewire-type devices which incorporate an ignition charge and one or more transition charges to ensure reliable progression of energy into the output charge.

PVU-13/A Ignition Element
(Ref: NAVAIR Manual 11-100-1.3)
This device supplies gas pressure to ignite the M17 gas generator or the MK 73 MOD 0 Impulse Cartridge used in inert weapon trainers.

M55 Ignition Element
(Ref: NAVAIR Manual 11-100-1.3)
This device furnishes power to unlock the latch pin assembly of various stores release equipment.

MK 17 MOD 0 Electric Ignition Element
(Ref: NAVAIR Manual 11-100-1.3)
This device powers the secondary release system in aircraft bomb racks.

PVU-15/B Ignition Element
(Ref: NAVAIR Manual 11-100-1.3)
The PVU-15/B is used to power the MLU-29/C cutter to sever the restraining cable in the release of nuclear stores from the B-52 aircraft.

IMPULSE CARTRIDGES

Impulse cartridges provide energy to perform a number of functions in aircrew escape and weapon systems (inflating a flotation device, releasing stores, puncturing a diaphragm, driving a piston in a cutter, valve, thruster or pin puller) and respond instantaneously (delay of less than 50 milliseconds) to the initiation stimulus. They contain a percussion primer or an electrical ignition element and a main charge of a pressure producing propellant housed in one casing.

MK 19 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge is used as a power source in stores release/ejector systems on various aircraft.

MK 23 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This device actuates a helicopter rescue hoist cable cutter to cut and release a steel cable and its load in an emergency.

MK 8 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This device releases and ejects stores from various aircraft.

MK 2 MOD 1 Impulse
(Ref: NAVAIR Manual 11-100-1.3)
This device releases and ejects stores from various aircraft.

MK 14 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This cartridge unlocks and removes the canopy from the A-7 aircraft during an emergency escape.

MK 104 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device actuates a telescoped catapult on an ejection seat trainer device.

MK 124 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge powers stores release/ejector mechanisms on various aircraft.

MK 1 MOD 3 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge powers stores release/ejector mechanisms on various aircraft.

MK 73 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge is the power source in the canopy jettison mechanism of the A-6 aircraft and is also used to deploy parachutes from inert nuclear weapon trainers.

MK 9 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge powers stores release/ejector mechanisms on various aircraft.

MK 18 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device forcibly opens and locks the escape door on the A-3 aircraft prior to an emergency escape.

MK 44 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device actuates a helicopter rescue hoist cable cutter to cut and release a steel cable and its load in an emergency.

MK 45 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This device pressurizes the oxidizer and fuel tanks and operates shutoff valves in the rocket motor of the AQM-37 target drone.

MK 47 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This cartridge actuates the ballistically operated inertia reel on the ejection seats of the OV-10 and T-2 aircraft.

MK 105 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device powers a cutter which severs a special purpose electrical cable to jettison the dipping sonar transducer from the H-3 helicopter.

MK 67 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge is the power source which forcible ejects the LAU-17/A missile launcher from various aircraft.

MK 97 MOD 0 Impulse Cartridge
(Ref: NAVSEA TM SW061-AB-ORD-010)
This cartridge provides the ballistic energy to operate mine sweep cable cutters deployed

from ships and helicopters.

MK 127 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device provides power to expel the drogue gun projectile from the T-2 aircraft during an emergency escape.

MK 17 MOD 0 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge powers the BRU-14/A bomb rack used on the P-3, S-3, and H-60 series aircraft.

MK 152 Impulse Cartridge
(Ref: NAVSEA TM SW061-AB-ORD-010)
This cartridge provides the ballistic energy to operate mine sweep cable cutters deployed from ships and helicopters.

MK 153 Impulse Cartridge
(Ref: NAVSEA TM SW061-AB-ORD-010)
This cartridge provides the ballistic energy to operate mine sweep cable cutters deployed from ships and helicopters.

MK 154 Impulse Cartridge
(Ref: NAVSEA TM SW061-AB-ORD-010)
This cartridge provides the ballistic energy to operate mine sweep cable cutters deployed from ships and helicopters.

MK 155 Impulse Cartridge
(Ref: NAVSEA TM SW061-AB-ORD-010)
This cartridge provides the ballistic energy to operate mine sweep cable cutters deployed from ships and helicopters.

MK 156 Impulse Cartridge
(Ref: NAVSEA TM SW061-AB-ORD-010)
This cartridge provides the ballistic energy to operate mine sweep cable cutters deployed from ships and helicopters.

MW19 Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge powers the SEAWARS seawater activated parachute release mechanism used on all Navy ejection seat equipped aircraft (A-4, A-6, A-7, AV-8, F-4, F-14, F/A-18, S-3, T-2, and T-45)

CCU-11/B Impulse Cartridge
(Ref: Air Force TO 11A18-7-7)
This Air Force unique cartridge is used to separate nuclear stores from the F-11 aircraft and

is designed to withstand temperatures of 315°F.

MK 192 MOD 0 Impulse Cartridge
(Ref: NAVSEA TM SW061-AB-ORD-010)
This cartridge provides the ballistic energy to operate mine sweep cable cutters deployed from ships and helicopters. It is capable of operating at external pressures of 2000-psi representing depths of 3/4- mile.

CCU-45/B Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge ejects stores from aircraft missile launchers and bomb racks.

CCU-44/B Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge ejects stores from aircraft missile launchers and bomb racks.

CCU-43/B Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge ejects stores from aircraft.

CCU-61/A Impulse Cartridge
(Ref: NAVAIR Manual 7836)
This device severs the drogue parachute lanyard during emergency escape from the OV-10 aircraft.

CCU-63/B Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This device provides a power source for the ejection of decoys and chaff from aircraft dispenser pods.

CCU-91/B Impulse Cartridge
(Ref: IHD Qualification Report 100157)
This cartridge is used in the stores release system of the Air Force F-117 aircraft.

CCU-107/B Impulse Cartridge
(Ref: Air Force TO 11A18-7-7)
This cartridge ejects stores from aircraft missile launchers and bomb racks.

CCU-41/B Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.3)
This cartridge provides a power source for the ejection of chaff.

CCU-69/A Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device powers the restraint harness inertia reel during the pre-ejection phase of escape from the A-4, A-7, AV-8 and S-3 aircraft.

CCU-33/B Impulse Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device provides gas pressure to function the personnel parachute spreader gun incorporated in the ejection seats of the A-4, A-7, AV-8, S-3 and T-2 aircraft.

GAS GENERATORS

Gas generators are cartridge actuated devices which produce gases at high pressure for a specific duration and of a predetermined volume and are used in both aircrew escape and weapon systems. They consist of a percussion or electrically initiated cartridge and a constant volume chamber which allows controlled burning of the output propellant to ensure the desired gas generation profile is achieved.

M17 Gas Generator
(Ref: NAVAIR Manual 11-100-1.3)
This device provides gas pressure to forcibly eject the parachute from an nuclear weapon training shape.

FIRE EXTINGUISHER CARTRIDGES

Fire extinguisher cartridges are used to release a fire extinguishing agent into the area surrounding an aircraft engine in the event of a fire. They are electrically initiated and provide a detonation output or propel a slug to rupture a diaphragm which retains the fire extinguishing agent in a pressurized container.
CCU-68/A Aircraft Fire Extinguisher Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This cartridge releases fire extinguishing agents into the engine nacelles/compartments of the C-2, E-2, H-1, H-2, H-46, H-53, P-3 and S-3 aircraft.

CCU-93/A Aircraft Fire Extinguisher Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This cartridge releases fire extinguishing agents into the engine nacelles/compartments of the C-2, E-2, H-1, H-2, H-46 and S-3 aircraft.

CCU-94/A Aircraft Fire Extinguisher Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This cartridge releases fire extinguishing agents into the engine nacelles/compartments of P-3 aircraft.

THRUSTERS/REMOVERS

Thrusters and removers are cartridge actuated devices which incorporate a piston and are designed to produce an output stroke of a specified force and velocity. They are used to jettison canopies and hatches in aircrew escape systems, and operate release mechanisms, valves and safe/arm devices. They consist of a cylindrical housing, a gas generating cartridge, and a piston which extends from the the housing upon actuation to perform the required work function.

M2A2 Thruster
(Ref: Air Force TO 11P6-1-7)
The M2A2 thruster is a damped ballistic device which properly orients the ejection seat prior to ejection from the B-52 aircraft.

M3A3 Thruster
(Ref: Air Force TO 11P6-1-7)
This device releases a control column and provides gas pressure to continue the ejection sequence in the B-52 aircraft.

M16 Thruster
(Ref: Air Force TO 11P6-1-7)
The M16 Thruster is a damped ballistic device which positions a crewmember's feet during ejection from the B-52 aircraft.

M15 Thruster
(Ref: Air Force TO 11P6-1-7)
The M15 Thruster is a damped ballistic device which positions a crewmember's feet and leg guards during ejection from the B-52 aircraft.

M13 Thruster
(Ref: NAVAIR Manual 11-100-1.1)
This device unlocks the canopy latches at the beginning of the ejection sequence from the TA-4 aircraft.

M25A1 Thruster
(Ref: Air Force TO 11P6-1-7)
This device jettisons the canopy of the F-5 and T-38 aircraft prior to aircrew escape.M26 Thruster
(Ref: Air Force TO 11P6-1-7)
The M26 Thruster separates the canopy from the F-104 aircraft during an emergency escape.

TCU-1/B Thruster
(Ref: NAVAIR Manual 11-100-1.3)
This thruster releases the CTU-2/A survival container for support of ground troops in emergencies.

M1A3 Remover
(Ref: Air Force TO 11P4-1-7)
The M1A3 Remover is a telescoping device that removes the canopy from the F-86 aircraft prior to aircrew escape.

M3A1 Remover
(Ref: Air Force TO 11P4-1-7)
The M3A1 Remover is a telescoping device that removes the canopy from the T-33 aircraft prior to aircrew escape.

M4 Remover
(Ref: Air Force TO 11P4-1-7)
The M4 Remover is a telescoping device that removes the canopy from the F-100 aircraft prior to aircrew escape.

RAU-3/A Aircraft Canopy Remover
(Ref: Air Force TO 11P4-1-7)
This item is a three tube, telescoping ejection device designed to jettison the canopy from the T-37, F-86, F-100 and F-101 aircraft.

RAU-1/A Remover
(Ref: Air Force TO 11P4-1-7)
The RAU-1/A remover provides the ballistic energy to remove the canopy of the EB-57 aircraft in preparation for aircrew escape.

EXPLOSIVE BOLTS

Explosive bolts are mechanical fastening devices having the special feature of a built-in explosive release. Generally, an explosive bolt has a cavity containing a permanent explosive charge. In the area where the bolt is intended to separate when fired either a notch is machined around the outside of the bolt shaft, or the cavity is undercut to weaken it. The two types of explosive bolts commonly used are: explosive bolts in which the shock wave generated by the detonation of a high explosive is used to break and separate the bolt, and explosive bolts in which the high pressure generated in the cavity of the bolt is utilized to break and separate the bolt.

MK 5 MOD 0 Explosive Bolt
(Ref: NAVSEA TM SW061-AB-ORD-010)
This device releases an emergency distress signal bouy from Trident submarines in the event the ship is disabled.

DELAY CARTRIDGES

Delay cartridges provide a controlled delayed response from the time of initiation to cartridge output. These cartridges are used mainly to provide sequencing functions in aircrew escape systems where certain functions must be complete before others can begin. A delay cartridge usually consists of a casing containing several different charges; an ignition charge several pyrotechnic compositions compressed in a delay column, and an output charge. The ignition charge is ignited by a percussion primer or electrically heated bridgewire.

MK 4 MOD 1 Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device automatically actuates a parachute release after a delay of 0.75-second during the ejection sequence from the A-4, A-7, and T-2 aircraft.

MK 5 MOD 2 Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This cartridge automatically actuates a parachute release 2.0 seconds after a pilot or crewmember has escaped from the A-3 or T-34 aircraft.

MK 6 MOD 2 Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This cartridge automatically actuates a parachute release 3.0 seconds after a pilot or crewmember has escaped from the A-3 or E-2 aircraft.

CCU-42/A Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This cartridge provides a sequencing delay between man/seat separation and parachute deployment during emergency escape from the F-5 and T- 38 aircraft.

CCU-58/A Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This cartridge initiates the harness release actuator during an emergency escape from the A-4 and A-7 aircraft.

CCU-59/A Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This delay cartridge supplies gas pressure for opening the personnel parachute during the ejection sequence from the A-4, A-7, OV-10, S-3 and T- 2 aircraft.

CCU-73/A Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device actuates the harness release actuator during the ejection sequence from the T-2 aircraft.

CCU-76/B Delay Cartridge
(Ref: N/A)
This cartridge is used in a classified application.

CCU-76/B Delay Cartridge
(Ref: N/A)
This cartridge is used in a classified application.

CCU-89/B Delay Cartridge
(Ref: Air Force TO 11A17-2-7)
This cartridge is used on the cargo delivery system of combat rubber raiding craft to drop

underwater demolition items.

CCU-86/A Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device actuates the parachute static line cutter in the OV-10 aircraft escape system.

CCU-87/A Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device actuates the personnel parachute thruster which initiates parachute withdrawal during high speed ejections from the OV-10 aircraft.

CCU-88/A Delay Cartridge
(Ref: NAVAIR Manual 11-100-1.1)
This device actuates the personnel parachute thruster which initiates parachute withdrawal during low speed ejections from the OV-10 aircraft.

CATAPULTS

Catapults provide a propulsive means of ejecting an ejection seat and crewmember from an aircraft during an emergency escape. Catapults generally incorporate a gas operated firing mechanism, percussion primed cartridge and two or more telescoping tubes to push the ejection seat up the guide rails and away from the aircraft.

M3A1 Catapult
(Ref: Air Force TO 11P1-14-7)
This catapult is used to propel pilot and copilot ejection seat from the B-52 aircraft in an emergency.

M4A1 Catapult
(Ref: Air Force TO 11P1-14-7)
This catapult is used to propel the downward ejecting crewmember ejection seats from the B-52 aircraft in an emergency.

CKU-8/A Catapult
(Ref: Air Force TO 11P1-31-7)
The CKU-8/A Catapult is an improved version of the M5A1 Catapult used in the emergency escape system of the T-37 aircraft.

CARTRIDGE ACTUATED CUTTERS

Cartridge actuated cutters are used to sever helicopter rescue hoist cables, parachute reefing lines, electrical cables, pressure hoses, etc. They incorporate impulse or delay cartridges and can be mechanically or electrically initiated. The pressure output from the cartridge drives a cutter blade against a fixed anvil to sever the target material.

MK 18 MOD 0 Cartridge Actuated Cutter
(Ref: NAVAIR Manual 11-100-1.3)
This device severs a nylon reefing line attached to the recovery parachute of the MQM-74 target drone.

M8 Cartridge Actuated Cutter
(Ref: Air Force TO 11P12-2-7)
The is a gas fired device that is capable of cutting a 2-inch diameter bundle of electronic cables in the B-52 in an emergency. The severed cables disable sensitive electronic equipment.

MK 4 MOD 0 Face Curtain Cable Cutter
(Ref: NAVAIR 11-100-1.1)
This device severs the ejection seat face curtain cable during man/seat separation during emergency escape from the T-2 aircraft.

M21 Cutter
(Ref: Air Force TO 11P17-9-7)
This cutter provides a 2.0-second delay when cutting a reefing line on cargo delivery parachutes. The delay allows the cargo to decelerate prior to full parachute deployment.

M22 Cutter
(Ref: Air Force TO 11P17-9-7)
This cutter provides a 4.0-second delay when cutting a reefing line on cargo delivery parachutes. The delay allows the cargo to decelerate prior to full parachute deployment.

MK 20 MOD 0 Propellant Actuated Cutter
(Ref: NAVSEA TM SW061-AB-ORD-010)
This is a hand held cable cutter used for covert applications where 1-inch cable or bars need to be severed.

M724 Cutter
(Ref: NAVAIR Manual 11-100-1.3)
This cutter is a special design for the Army that provides dual delay cutting action on 2,000-lb test nylon straps to release cargo for during rapid deployment.

MLU-58/B Propellant Actuated Cutter
(Ref: NAVAIR Manual 11-100-1.3
The MLU-58/B cutter is dual primed Army cargo release device.

DESTRUCTIVE CABINETS/DOCUMENT DESTROYERS

MK 35 MOD 0 Single Drawer Destructive Cabinet
(Ref: IHD Qualification Report 100131)
This is a security cabinet designed to have pyrotechnic/oxidizer destruct capability to destroy classified materials during hostile take-over conditions (Anticompromise Emergency

Destruct - ACED). The MK 35 MOD 0 is a full stand alone unit which has the capability of destroying 50-lbs total of paper, microfiche, and limited amounts of circuit boards. This is required and has been installed aboard all T-AGOS class surveillance ships within the SOC.

MK 36 MOD 0 Multi-Drawer Destructive Cabinet
(Ref: IHD Qualification Report 100224)
This item is a three drawer version of the single drawer unit. It is a stand alone unit and has the capability of destroying 120-lbs of classified material as noted above for the single drawer unit. This item is also used aboard the T-AGOS class ships and USNS Observation Island. There are several land installations as well.

MK 1 MOD 1 Portable Document Destroyer
(Ref: IHTR 1117)
This is a portable stand alone unit capable of destroying 30-lbs of paper, microfiche and circuit board materials. Destruction is accomplished by means of a pyrotechnic/oxidizer combination. Material to be destroyed must be removed from secure areas and loaded into the unit for destruction.

FACILITIES AND EQUIPMENT

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

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

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

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

7. **General Facilities.**

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

* We sell a variety of used, excess, or scrap items (equipment, tooling, furniture, scrap metals, etc.) that are turned into our Property Disposal Office. Revenue from the sale of these items is reinvested into the activity. In FY93, we earned $128K from the sale of items.

* We also gain revenues from selling timber, firewood, fishing licenses, and hunting licenses. In FY93, we made $5K from selling firewood and timber and $1.6K from selling fishing and hunting licenses. These revenues are re-invested in our Natural Resources Program.

*In FY93 we earned approximately $8.4K from the recycle of items such as aluminum cans and paper. This revenue is re-invested in our Recycling Program

* We participate in energy rebate programs. In FY93, we received $30K in rebates from PEPCO for using energy efficient lighting and HVAC systems in our facilities. This money has been re-invested in our energy programs. We expect to receive a $1M PEPCO rebate in FY94 from additional efforts of re-lamping our facilities with energy efficient lighting.

* Our Morale, Welfare, and Recreation (MWR) program collects user fees from patronage of recreational facilities (fitness centers, golf course, etc.) and food service clubs. **We expect to generate close to $1.5M from users fees this fiscal year. This income and any potential "profit" will be re-invested in MWR/Quality of Life programming.**

b. What MILCON projects are currently programmed to be completed by the end of FY1995? For each project provide:

*P-068, CHEMICAL LABORATORY REPLACEMENT:

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

This facility is necessary to upgrade existing laboratory space and, more importantly, provides the capacity to absorb the Explosive Research function transferring from Dahlgren Division Detachment White Oak (PER brac 93). It is required to support the Chemical Characterization and Synthesis/Formulation functions, as well as the chemical processing, production and environmental testing functions critical to Indian Head's mission. This project will provide a 21,600 square feet (SF) laboratory consisting of concrete masonry walls, concrete foundation and floor, cast-in place concrete roof, heating ventilation and air conditioning, chemical fume hoods, plumbing system, fire protection system, interior and exterior electrical service, static grounding, lightning protection, and paving and site improvements. Other facility features include controlled temperature and humidity, a hot water heating system, compressed air system, propane gas piping, emergency diesel generator, and mounted lab benches and wall cabinets.

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

2.7 Explosives; 2.12 Weapons Propulsion; 2.13 Other Ordnance

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

Installed equipment does not exceed the threshold guidance of paragraph 6, page 12, of this data call.

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

21,600 Square Feet; Category Code 310.13

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

CWE = $4.34 Million; Planned BOD = May 1994

*P-122, CHILD DEVELOPMENT CENTER:

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

This facility will provide child development services for 230 children. The project will provide a 17,642 SF single story permanent building consisting of masonry bearing walls, sloped metal roofing, steel truss roof with batt insulation, slab on grade, fire protection and sprinkler systems, heating, ventilation, and air conditioning, utilities, and site improvements including play areas, fencing, sidewalks, curbs, roadway, parking, and landscaping.

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

10.9 Activity Mission and Function Support

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

Installed equipment does not exceed the threshold guidance of paragraph 6, page 12, of this data call.

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

17,642 Square Feet; Category Code 740.74

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

CWE = $2.1 Million; Planned BOD = August 1995

*P-059 (I), MIX, ASSEMBLE AND CURE FACILITY, PHASE I

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

The Mix, Assemble and Cure Facility (P-059 Phase I and II) provides a secure, environmentally compliant capability to mix, assemble and cure composite propellant and explosive in one facility. It was designed and constructed to provide the flexibility to support all current and any future propellant and explosive requirements by the DoN or DoD. The facility consists of a 13,770 SF steel structure with metal siding and roofing, concrete slab, explosion proof devices and electrical fixtures, static grounding, lightning protection, temperature and humidity control, blast and fire resistant construction, fragment defeating barriers, fire protection system, utilities, site improvements, roadways, primary electrical power feeder, and associated processes and support equipment and equipment shelter.

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

2.7 Explosives; 2.12 Weapons Propulsion

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

Installed equipment that exceeds the $500,000 threshold includes:

(a) Vented Suppressive Shield (portable and can be moved but it will require major alterations to the facility)
(b) Casting Stand (portable and can be moved with major difficulty)
(c) Curing Ovens (portable and can be moved with major difficulty)
(d) X-Ray Equipment (portable and can be moved with major difficulty)

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

13,770 Square Feet; Category Code 226.56

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

CWE = $6.6 Million; Planned BOD = December 1994

*P-059 (II), MIX, ASSEMBLE AND CURE FACILITY, PHASE II:

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

The Mix, Assemble and Cure Facility (P-059 Phase I and II) provides a secure, environmentally compliant capability to mix, assemble and cure composite propellant and explosive in one facility. It was designed and constructed to provide the flexibility to support all current and any future propellant and explosive requirements by the DoN or DoD. The facility consists of a 5,191 SF Mix Building and a 1,160 SF Control Building, which is necessary for the control of remote operations. These buildings will be constructed of reinforced concrete walls and roof, concrete slab, explosion proof devices and electrical fixtures, temperature and humidity control, static barriers, fire protection system, utilities, site improvements, roadways, control instrumentation, and associated process and support equipment and equipment shelter.

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

2.7 Explosives; 2.12 Weapons Propulsion

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

Installed equipment that exceeds the $500,000 threshold includes:

(a) 420 Gallon Vertical Mixer (portable and can be moved without difficulty)
(b) Solid Feed System (portable and can be moved with major difficulty)

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

5,191 Square Feet (Mix Building); Category Code 226.56
1,160 Square Feet (Control Building); Category Code 226.56

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

CWE = $5.84 Million; Proposed BOD = March 1995

*P-963, INDUSTRIAL WASTE WATER TREATMENT FACILITY, PHASE I:

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

This project consists of a collection system and an industrial waste water treatment plant for removing nitrates from process waste water generated from the Biazzi and Moser chemical plants. This is a proactive venture which will keep us compliant with the Chesapeake Bay Initiative to reduce the level of nutrients in the Bay and with future environmental requirements. The process will utilize eight existing "interim" treatment satellite sites for the primary removal of nitrate esters and this project's facility to remove high concentrations of salts discharged from the Biazzi and Moser chemical plants. The project scope consists of a 3,400 SF treatment plant, two equalization basins, an evaporation treatment building, a laboratory building, and two salt storage silos.

Upon start-up of MILCONs P-106 and P-963, IHDIV will have reduced nutrient loading to the lower Potomac region by 95%.

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

2.7 Explosives; 2.12 Weapons Propulsion

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

Installed equipment does not exceed the threshold guidance of paragraph 6, page 12, of this data call.

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

3,400 Square Feet; Category Code 831.14

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

CWE = $5.88 Million; Planned BOD = October 1994

*P-106, INDUSTRIAL WASTE WATER TREATMENT FACILITY, PHASE II:

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

This project will provide for a system to collect, monitor, and connect waste water discharges from 46 processing buildings to the sanitary sewer system eliminating the need for outfalls. Each building will also be equipped with a catch tank, holding tank, and alarm system. This project also includes the installation of a continuous soda water neutralization and storage facility for the Moser Plant's satellite site and the installation of two pre-treatment systems in the Organic Chemical Plant to eliminate concentrations of Total Suspended Solids in the generated waste water. This project will allow for the treatment of industrial waste water prior to discharge into the sanitary sewer system.

Upon start-up of MILCONs P-106 and P-963, IHDIV will have reduced nutrient loading to the lower Potomac region by 95%.

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

2.7 Explosives; 2.12 Weapons Propulsion

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

Installed equipment does not exceed the threshold guidance of paragraph 6, page 12, of this data call.

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

No additional square footage will be generated by this project. Category Code 832.30.

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

CWE = $4.17 Million; Proposed BOD = October 1994

c. What MILCON projects are currently programmed to be executed/completed after FY1995? For each project provide:

*P-073, CAD/PAD MANUFACTURING AND REWORK FACILITY:

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

This project will consolidate manufacturing, testing, rework, and assembly of Cartridge Actuated Devices (CAD)/Propellant Actuated Devices (PAD) used in aircrew escape systems for all Navy and Air Force fighter and attack aircraft into two environmentally controlled buildings. This will provide the capability to handle all existing propellant formulations, including high performance hygroscopic formulations. Besides providing the capability for all current CAD/PAD designs, the consolidation would improve the quality and efficiency of operations by minimizing handling, transportation, and environmental exposure. Coupled with the currently programmed equipment upgrades, the facility would be in compliance with all existing and foreseen environmental and OSH requirements. This project will provide two single-story buildings, one steel frame with metal siding and roofing, one concrete block with shingle roof, a prefabricated hazardous material storage shed, utilities, fire protection system, heating, ventilation, and air conditioning system, paving, site improvements, explosion proof devices and electrical fixtures, static grounding, lightning protection, and demolition of four existing facilities and associated utilities.

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

2.13 Other Ordnance

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

Installed equipment does not exceed the threshold guidance of paragraph 6, page 12, of this data call.

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

27,540 Square Feet; Category Code 226.65

(5) CWE & planned BOD.

CWE = $5.3 Million; Proposed BOD = February 1996

*P-113, HAZARDOUS WASTE TREATMENT FACILITY:

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

This project will modify an existing flashing furnace to handle combustibles such as cardboard, wood, rags, and plastics that are contaminated with insignificant amounts of propellant, explosive, or pyrotechnics (PEP) eliminating open air burning of these materials.

This modification will provide changes to the Pollution Control System and installation of an overhead bridge crane and material feed system at Building 1770. A 3,000 square feet facility, steel frame with metal siding and roofing, shall be built to serve as a staging area for pre- and post-processing operations in Building 1770. Operations to be done include sorting, inspection, disassembly, and preparation of PEP contaminated combustibles and metal items.

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

2.7 Explosives; 2.12 Weapons Propulsion; 2.13 Other Ordnance

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

Installed equipment does not exceed the threshold guidance of paragraph 6, page 12, of this data call.

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

3,000 Square Feet, Category Code 831.14

(5) CWE & planned BOD.
CWE = $3.4 Million; Proposed BOD = September 1996

*P-146T, EXPLOSIVE TEST FACILITY:

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

This project will construct a new Explosives Test (Bombproof) Facility at Indian Head Division to replace current capabilities at Dahlgren Division Detachment White Oak, Maryland (disestablished per BRAC 93) to conform with existing and future Navy and DoD requirements and satisfy EPA regulations. This facility is essential to support the Explosives Research and Underwater Warheads functions which organizationally became part of the Indian Head Division on 3 April 1994 (physical move from FY95-FY97). This facility is required to perform scientific and engineering studies on detonation properties, explosive sensitivities, warhead prototyping, and warhead design. Two independent experts in the field of detonation physics (one from Los Alamo National Laboratory and one from the University of Maryland at College Park) concluded that these experiments must be conducted in the controlled environment of a Bombproof facility versus the open air. A total of nine structures will be constructed to support the explosives test functions. The construction of these facilities includes reinforced concrete containment walls, bombproof chambers including instrumentation and control rooms, computer systems, explosion proof devices and electrical fixtures, waste water treatment system, static grounding, lightning protection, fire protection system, exhaust systems with air pollution control devices, temperature/humidity control, utilities, site improvements, paving, internal communication system, covered walkways, and parking.

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

2.7 Explosives

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

Installed equipment that exceeds the $500,000 threshold includes:

(a) Gas Gun (portable and can be moved with major difficulty)
(b) Two X-ray Systems (portable and can be moved with major difficulty)

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

19,350 Square Feet; Category Code 310.15

(5) CWE & planned BOD.

CWE = $10.3 Million; Proposed BOD = December 1996 R

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

Quantico U.S. Marine Reservation, Quantico VA, has the nearest military airfield and pier, 6 miles away straight across the Potomac River. By road, Quantico is 50 miles away. Andrews Air Force Base is the nearest military airfield by road, 21 miles away. Not considering our pier which has a dredged depth of 20 ft., Washington Navy Yard, 26 miles away, has the nearest pier by road.

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

144 certified magazines used for storage of explosives with a Net Explosive Weight (NEW) of 15,361,477 lbs.

temperature/humidity control, utilities, site improvements, paving, internal communication system, covered walkways, and parking.

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

2.7 Explosives

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

Installed equipment that exceeds the $500,000 threshold includes:

(a) Gas Gun (portable and can be moved with major difficulty)
(b) Two X-ray Systems (portable and can be moved with major difficulty)

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

19,350 Square Feet; Category Code 310.15

(5) CWE & planned BOD.

CWE = $10.90 Million; Proposed BOD = December 1996

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

Quantico U.S. Marine Reservation, Quantico VA, has the nearest military airfield and pier, 6 miles away straight across the Potomac River. By road, Quantico is 50 miles away. Andrews Air Force Base is the nearest military airfield by road, 21 miles away. Not considering our pier which has a dredged depth of 20 ft., Washington Navy Yard, 26 miles away, has the nearest pier by road.

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

144 certified magazines used for storage of explosives with a Net Explosive Weight (NEW) of 15,361,477 lbs.

LOCATION

8. Geographic Location.

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

SYNERGY

Within the Naval Surface Warfare Center a synergism of complimentary expertise exists between **surface ship capabilities at Carderock Division, combat systems capabilities at Dahlgren Division and the component-level energetics technology at Indian Head Division.** The move of the explosives R & D and underwater warheads from White Oak to IHDIV, coupled with their close physical proximity, has made the Indian Head and Dahlgren Divisions a very powerful warheads and explosives team. This teaming further strengthens the functional connection to Carderock. The Underwater Explosives measurements group at IHDIV supports the Carderock Division in its ship shock sea trials by providing explosive effects on ship structures; precision shock, bubble, in situ effect measurement analysis, and ship and model response measurement. The functional integration and close proximity of these three Divisions is key to the successful and cost effective delivery of full spectrum research, development, test and evaluation, engineering and fleet support.

Our close proximity to the D.C. metropolitan area affords rapid and close coordination with NSWC and other headquarters organizations. Additionally, we fall within the clustering of universities and private industry which allows close cooperation and creates a synergism of proximity, promoting teamwork, efficiency and transfer of knowledge. Recent examples include CRADAs signed between IHDIV and Talon Manufacturing Company, Inc., Paw Paw, West Virginia, and IHDIV and the University of Maryland, which provide for sharing scientific and technical knowledge, expertise and advice, physical facilities and special instrumentation.

FACILITY

IHDIV is located on a peninsula. The surrounding water and government owned land, which is restricted to development, provides good isolation. The energetics work we do requires an infrastructure with separated, hardened buildings, established Explosive Safety Quantity Distance arcs, large amounts of processing water, and the utilization of steam for processing. River water is used for processing and fire protection at no added costs. Indian Head has its own power and steam generation capability. There is no developable land adjacent to the Division, and the Code of Federal Regulations gives the Commander complete authority over the adjacent waterway. This location provides natural isolation. Consequently, there is no threat of encroachment caused by high density residential or industrial development.

FUNCTIONS

Over $1.2 billion in facilities and equipment already exist at IHDIV to perform its energetics mission. Because of the hazardous nature of energetics manufacturing, this tremendous capital outlay was required to ensure safe and efficient processes for IHDIV and other government and contractors whom we support. IHDIV meets all special requirements for explosive arcs, environmental concerns, and operator safety. Although the ability to support specific functions may exist at other locations, it only exists in pieces. Reconstituting the full-spectrum capability currently available at Indian Head at another location or locations would not make good business sense because:

- Regardless of the receiving location, costs to reconstitute would be prohibitive.

- The lack of volume, coupled with costs of facilities and expertise does not make these functions attractive to private industry from a return-on-investment standpoint

- **Contracting regulations stop Navy from establishing a long-term commitment with industry which is critical for the explosive and propellant business because of high facility cost and the expertise required for safe process and end product development.**

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

Our location, within 30 miles of Washington D. C., makes us readily accessible to our headquarters customers. Our proximity to the concentration of Navy home ports on the East and Gulf Coasts positions us with easy access to our fleet customers.

We are co-located with the Navy's Naval Ordnance Command (NOC) and the Triservice Explosive Ordnance Disposal (EOD) School and EOD Technology Division. The NOC depends on IHDIV, Safety Technical Center for ordnance safety expertise and IHDIV, Ordnance Environmental Support Office for ordnance environmental expertise. **Through our development and processing of ordnance and energetics, we have developed a sizable pool of experts in ordnance and explosive safety and environmental matters. We draw upon this expertise to share knowledge within the entire ordnance community.** Beginning in FY 95, the Naval Ordnance Center (NOC) will be our sponsor for CAD/PAD rework and quality evaluation (surveillance.) With co-location, we have gained efficiencies in exchanging information and developing a shared knowledge base. We support the EOD community via design, develop, manufacture, and testing of equipment for low-intensity conflict applications.

Working with Department of Energy, IHDIV is a member of the Molten Salt Oxidation Task Force; a team comprised of universities, government agencies, and private industry. We worked closely with local DOE personnel, local contractors, and Georgia Tech representatives on disposal of hazardous materials. We continue collaborative efforts through sharing of data and studies, building on a well established relationship.

IHDIV serves as a consultant to NASA on propellants, propellant processing, and propellant safety issues. Under a Memorandum of Understanding, IHDIV reviewed proposals for the Advance Shuttle Rocket Motor (ASRM) and worked collaboratively with Marshall Space Flight Center of Huntsville, Alabama. Our proximity to NASA headquarters enhanced the working relationship through frequent meetings and exchange of information.

Additionally, we are within short commute of 3 major airports, making us easily accessible to customers located outside the immediate geographic area.

FEATURES AND CAPABILITIES

9. Computational Facilities.

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

We have a **SGI Power Challenge** multiprocessor workstation which provides "supercomputing" performance capability. We use Silicon Graphics (SGI) and Hewlett-Packard (HP) RISC-based workstations to perform internal and external ballistic, thermal, and structural analyses, as well as the dynamic analysis of mechanical systems. The SGI Power Challenge workstation has 20 gigabytes of disk space providing parallel processing capability. It can support up to 12 CPU's and 6 gigabytes of RAM. When software is run in parallel, the SGI Power Challenge RISC (SSR) processor can deliver 0.6 gigaFLOPS per CPU board. We have access to and have used supercomputers at Minnesota Supercomputers and at Dahlgren, but with the high performance computing and client-server solution the Power Challenge offers, the need to access supercomputers off-base has greatly diminished.

Our scientific and engineering capabilities include **Vax minicomputers, Tektronix, SUN, Silicon Graphics (SGI) and Intergraph** workstations to perform ballistic and structural mechanical design analysis. Circuit board design and analysis is performed on Apollo workstations and Vax minicomputers. Production level drawing package and technical manual preparation is accomplished with SGI workstations and graphic terminals plus 80486 personal computers. Hewlett Packard minicomputers are used for data acquisition and test analysis for static firings and surveillance data. We have geographic information systems on computer workstations that support safety quantity distance arcs and the Chemical Weapons Treaty.

The Division's computing and networking capability is an integrated system designed to meet the needs of data manipulation and communication. The Division manages and operates a mid-split **CATV Broadband Network**. The existing cable plant encompasses 132 buildings and accommodates data, voice, and video communications. Currently, there are over **800 LAN users** accessing remote host computers, and over 900 PC network users accessing forty-eight Novell file servers. The network backbone ties together twenty-seven remote ethernets using bridges and routers over a 10mb (ten megabit) 802.4 token bus channel and a proprietary 2mb channel. We have two spans of **fiber optic cabling** installed and are working to interconnect another fourteen buildings. Connections to external networks are accomplished via NAVNET and DDN (Defense Data Network). There are four video channels in use for live monitoring of station activities as well as **satellite video broadcasts**.

Our data center consists of a Honeywell DPS8000 mainframe computer, a prime 955 minicomputer, three SUN RISC-based workstations, a Netframe Superserver and several intel-based fileservers all protected by a separate uninterruptable power supply (UPS) building in close proximity. All systems support business applications such as financial management, logistics management, and payroll.

Our **Video Teleconferencing Center** (VTC) consists of 35" monitors, pan-tilt-zoom cameras, an audio system, high resolution graphics system, a BARCO projector, a CODEC, a 1/2" VHS tape recorder, a 35 mm slide player, a facsimile machine, an overhead (ELMO) system and cabinets/racks to house the equipment. We are a member of the DCTN (Defense Commercial Telecommunications Network) that allows us to communicate with over 150 other VTC sites.

10. **Mobilization Responsibility and Capability.**

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

The Indian Head Division's primary wartime mission is to provide energetic material and technical support for assigned weapon systems, weapons or components and perform additional tasks as directed. Based on **NAVSEA Logistics Support & Mobilization Plan (NAVSEA letter 3060 OPR 0341B Ser 03/0158 S-664 of 8 Nov 91), Memorandum of Agreement with the Army, and other DD1519s**, Indian Head Division is the assigned emergency producer for such items as: MK23, MK25 and MK117 JATO Rocket Motors, M43 LOVA Propellant, MK90 Rocket Motor Grain, M55 Ignition Element, JAU-13A Initiator Cartridge, and JAU-14A Initiator Cartridge.

To meet an unforeseen threat before Operation Desert Storm, NAVSEA (PMS-407) and Marine Corps Systems Command (PEO Mine Warfare), issued an urgent order for two mine-clearing systems, the underwater MK57 Mine Neutralization System for the Navy and the land-based Anti-Personnel Obstacle Breaching System (APOBS) for the Marine Corps. **Engineers and production crews at Indian Head worked around the clock to complete the designs, conduct testing, and rapidly produce the two systems for service in the Gulf.**

To support the mobilization effort, and to meet an unforeseen threat presented in the war fighting desert environment, Indian Head provided the Army with a Low-Vulnerability (LOVA) gun propellant for its armor-piercing rounds, used in Army M-1 Tanks. LOVA provided sufficient velocity to penetrate enemy tanks from an effective stand-off range. **Indian Head rapidly accelerated from Low Rate Initial Production and met demands for one million pounds of the propellant.** We also increased production of MK22 rocket motors for the MICLIC mine-clearing system. We provided vital support for the Tomahawk cruise missile which was extremely important during early days of the war. The Division is the Tri-Service Acquisition Agent and single manager for the cartridge-actuated and propellant-actuated devices (CADs/PADs) used in every aircrew escape system and bomb ejection system and on every Tomahawk missile in the fleet. As the full-service CAD/PAD center, IHDIV supplied more than one million CADs and PADs for use in Desert Storm.

After the battles of Desert Storm, the thousands of pounds of gun and rocket propellants had to be reincorporated into a variety of Navy, Marine, and Army armaments or returned to permanent storage sites, but no one knew the conditions of the stabilizers after six months of exposure to the harsh desert environment. **Indian Head responded quickly by setting up a mobile laboratory in the Gulf to test propellants on site instead of shipping them back to the states. We tested 450 lots of 20 different types of propellant**

for stabilizer depletion.

Indian Head proved during the Desert Storm mobilization effort the essential need for a government-owned research, development, test and production base to support tri-service readiness in times of crisis, and is prepared to respond in kind when the next crisis occurs. The Division demonstrated its distinctive ability to quickly develop and test ordnance products and systems, start up and accelerate production, transition production to private industry, manage acquisition and provide emergency support and troubleshooting to meet unforeseen needs in a war-fighting environment. Additionally, because our facilities are typically run on a five-day, eight-hour shift, we have the ability to significantly increase output by running up to 24-hour, seven-day week operation using temporary employees to augment the peacetime workforce.

Since short, high intensity conflicts are much more likely in today's world than prolonged wars, Indian Head's quick production response and multiple capabilities will continue to be vital to defense readiness for future contingencies. **Indian Head's Desert Storm experience confirms the Army's position, as indicated in their *Ammunition Sector Report of 1993* (Jerry Lynch, PM4), that unless you maintain a warm base, you cannot support a similar type conflict.** Because we had a flexible workforce and facilities and a warm base that allowed us to respond quickly at the onset of the U. S. build-up, we were able to ramp up LOVA production rates to 50,000 pounds per month within one month and 90,000 pounds per month in 60 days.

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

2.7 Explosives
2.3 Rockets
2.12 Weapons Propulsion
2.13 Other Ordnance
8.2 Countermeasures

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

None spent solely maintaining readiness to execute mobilization responsibilities. Our facilities are used for other purposes and there is no cost because its a matter of redeployment of existing people and facilities to accelerate production in response to crisis situations. Whereas, Army or industry with inactive large-volume production capacity could take several years to come on line, which would be catastrophic for future Desert Storm type contingencies.

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

45 Navy Selected Reserves from Unit NSWC 106 would report to Indian Head. The unit is staffed and trained to perform critical maintenance and repair of unique production equipment that is vital to our national interest in time of Crisis Response.

The flexible core of civilian workforce, augmented by temporaries, would be reassigned from peacetime operations to meet surge/mobilization requirements of a given contingency.

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

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

(2) **If no, what repairs, renovations and/or additions are required to provide adequate facilities? What is the estimated cost of this work**? None

(3) **Are there any restrictions that would prevent work (noted in paragraph 10.b.(2) above) from taking place (i.e., AICUZ, environmental constraints, HERO, etc.)? If yes, describe.** NO

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

Multi-base casting powder facilities (double-base & triple-base) would be activated. Other production facilities are currently active. Output would be increased by adding additional shifts.

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

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

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

QUALITY OF LIFE

12. **Military Housing**

(a) Family Housing:

(1) Do you have mandatory assignment to on-base housing? (circle) yes **NO**

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

Type of Quarters	Number of Bedrooms	Total number of units	Number Adequate	Number Substandard	Number Inadequate
Officer	4+	6	6	0	0
Officer	3	16	16	0	0
Officer	1 or 2	8	8	0	0
Enlisted	4+	67	67	0	0
Enlisted	3	75	75	0	0
Enlisted	1 or 2	84	84	0	0
Mobile Homes		52	52	0	0
Mobile Home lots		52	52	0	0

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

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

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

Pay Grade	Number of Bedrooms	Number on List[4]	Average Wait
O-6/7/8/9	1	N/A (See Note 1)	N/A
	2	N/A	N/A
	3	N/A	N/A
	4+	0	0 DAYS
O-4/5	1	N/A	N/A
	2	N/A	N/A
	3	2	7 DAYS
	4+	0	(See Note 2)
O-1/2/3/CWO	1	N/A	N/A
	2	0	4 DAYS
	3	2	37 DAYS
	4+	0	5 DAYS
E7-E9	1	N/A	N/A
	2	0	4 DAYS
	3	1	22 DAYS
	4+	0	13 DAYS
E1-E6	1	0	9 DAYS
	2	1	13 DAYS
	3	5	26 DAYS (See Note 3)
	4+	0	29 DAYS

[4]As of 31 March 1994.

Note 1 - N/A means units of this type and grade are not carried in our inventory.
Note 2 - Unable to provide average based on the size of the population was only one family.
Note 3 - The average wait days for on-base housing is 26 days. However, we also have off-base family housing located closer to neighboring activities. The average waiting period for off-base housing is 92 days. Special requests by neighboring activities to house their personnel is accommodated by this special housing and therefore was not used in our calculations. The combined wait days is 39 days.

(5) What do you consider to be the top five factors driving the demand for base housing? Does it vary by grade category? No If so provide details.

	Top Five Factors Driving the Demand for Base Housing
1	Relatively high cost of private housing as compared to amount of BAQ/VHA, particularly for junior enlisted personnel.
2	Ready availability of MWR and Child Care Facilities.
3	Short waiting period for housing.
4	Close proximity to other military activities; can absorb housing overflow.
5	Tranquility/Low crime rate.

(6) What percent of your family housing units have all the amenities required by "The Facility Planning & Design Guide" (Military Handbook 1190 & Military Handbook 1035-Family Housing)? 100%

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

Type of Quarters	Utilization Rate
Adequate	83%
Substandard	0
Inadequate	0

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

Fund Quarters (Single Family)	84%
Wherry Housing, La Plata and Waldorf	67%
Mobile Home Park	97%

Housing Utilization Report as of 31 March 1993:

- Fund Quarters (Single Family)	-94%
- Wherry Housing, La Plata and Waldorf	-61%
- Mobile Home Park	-95%

An increase in our utilization is expected due to the overflow of military from the Naval Surface Warfare Center, Dahlgren and the metropolitan area. Our Single Family Homes will show an increase as a result of a new command, Naval Ordnance Center, that is a tenant of Indian Head Division, Naval Surface Warfare Center.

(b) <u>BEQ</u>:

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

Type of Quarters	Utilization Rate
Adequate	59%
Substandard	N/A
Inadequate	N/A

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

Yes. Our utilization has increased from 59% to 72% for two main reasons. First, there has been an increase in class attendance at the EOD School. Second, as a result of a change in DoD Minimum Standards of Adequacy effective 1 Oct 93, several of our two man rooms were converted to one man rooms.

Overall occupancy is under 95% because of different starting times of classes scheduled at the EOD School. Occupancy does run over 95% when new students report in prior to the departure of the graduating classes.

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

$$\textbf{AOB} = \frac{\textbf{(\# Geographic Bachelors x average number of days in barracks)}}{\textbf{365}} = 10.5$$

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

Reason for Separation from Family	Number of GB	Percent of GB	Comments
Family Commitments (children in school, financial, etc.)			
Spouse Employment (non-military)			
Other			
TOTAL	14*	100	

* We are unable to further define information on geographical bachelors into the categories above. Indian Head Division does not conduct a geographical bachelor survey when individuals report on board, therefore no specific information is available regarding the reasons for the family separation.

(5) How many geographic bachelors do not live on base? No data available.

(c) <u>BOQ</u>:

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

Type of Quarters	Utilization Rate
Adequate	100%
Substandard	62%
Inadequate	N/A

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

Yes. Our utilization has increased for substandard units from 62% to 67% for two main reasons. First, there has been an increase in class attendance at the EOD School. Second, as a result of a change in DoD Minimum Standards of Adequacy effective 1 Oct 93, several of our two man rooms were converted to one man rooms.

Overall occupancy of substandard is under 95% because of different starting times of classes scheduled at the EOD School. Occupancy does run over 95% when new students report in prior to the departure of the graduating classes.

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

$$\text{AOB} = \frac{\text{(\# Geographic Bachelors x average number of days in barracks)}}{365} = 4.5$$

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

Reason for Separation from Family	Number of GB	Percent of GB	Comments
Family Commitments (children in school, financial, etc.)			
Spouse Employment (non-military)			
Other			
TOTAL	6*	100	

* We are unable to further define information on geographical bachelors into the categories above. Indian Head Division does not conduct a geographical bachelor survey when individuals report on board, therefore no specific information is available regarding the reasons for the family separation.

(5) **How many geographic bachelors do not live on base? No data available.**

(d) **<u>BOQ/BEQ Housing and Messing</u>.**

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

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft
BEQ 902/721 E1 - E4	185	99	185	185 ea. bedrm				
BEQ 1542/721 E5 - E6	56	28	56	217 ea. bedrm				
BEQ 1752/721 E5 - E6	94	94	94	164 ea. bedrm				
BOQ 968/724 W-1 - O-2	19	9	1	617 ea. bedrm	18	156 ea. bedrm		
BOQ 969/724 O-3 and above	18	8			18	152 ea. bedrm		
BOQ 970/724 O-3 and above	17	8	1	617 ea. bedrm	16	156 ea. bedrm		

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

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

(3) **Provide data on the BOQs and BEQs projected to be assigned to your plant account in FY 1997. The desired unit of measure for this capacity is people housed. Use CCN to differentiate between pay grades, i.e., E1-E4, E5-E6, E7-E9, CWO-O2, O3 and above.**

Facility Type, Bldg. # & CCN	Total No. of Beds	Total No. of Rooms	Adequate		Substandard		Inadequate	
			Beds	Sq Ft	Beds	Sq Ft	Beds	Sq Ft
BEQ 902/721 E1 - E4	165	99	165	185 ea. bedrm				
BEQ 1542/721 E5 - E6	48	28	48	217 ea. bedrm				
BEQ 1752/721 E5 - E6	94	94	94	164 ea. bedrm				
BOQ 968/724 W-1 - O-2	12	9	6	617 ea. bedrm	6	152 ea. bedrm	0	0
BOQ 969/724 O-3 and above	7	6	6	617 ea. bedrm	1	152 ea. bedrm	0	0
BOQ 970/724 O-3 and above	8	8	8	617 ea. bedrm				
BOQ 969/724 Family Room for PCS Transients	4	1	4	156 ea. bedrm				

FOOTNOTES:

*Two-man rooms are being made into one-man rooms to meet new occupancy standards of adequacy. This will raise the utilization by an estimated 12%.

*Four-man, three-man, and two-man apartment style living quarters will be converted to one-man household living environments as EOD School downsizes at no cost to the government. Natural attrition will allow for this.

*Certificates of non-availability (CNAs) for civilian government employees will be significantly reduced because adequate quarters can be provided in Fiscal Year 97.
*This should bring our transient utilization up to an estimated 83% based on CNAs given out through the past fiscal year.

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

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

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

Facility Type, CCN and Bldg. #	Total Sq. Ft.	Adequate		Substandard		Inadequate		Avg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	
721/902	15,890	189	15,890	0	0	0	0	118
722/2144	7,000	172	7,000	0	0	0	0	110

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

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

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

Facility Type, CCN and Bldg. #	Total Sq. Ft.	Adequate		Substandard		Inadequate		Avg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	
721/902	15,890	189	15, 890	0	0	0	0	118
722/2144	7,000	172	7,000	0	0	0	0	110

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

a. FACILITY TYPE/CODE:
b. WHAT MAKES IT INADEQUATE?
c. WHAT USE IS BEING MADE OF THE FACILITY?
d. WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
e. WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
f. CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
g. HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

13. MWR Facilities. For on-base MWR facilities[1] available, complete the following table for each separate location. For off-base government owned or leased recreation facilities indicate distance from base. If there are any facilities not listed, include them at the bottom of the table.

LOCATION **Indian Head Division, NSWC** **DISTANCE** **on base**

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Auto Hobby	Indoor Bays	6	N
	Outdoor Bays	N/A	N/A
Arts/Crafts	SF	N/A	N/A
Wood Hobby	SF	N/A	N/A
Bowling	Lanes	4	Y
Enlisted Club	SF	4150	Y
Officer's Club	SF	8260	Y
Library	SF	1815	N
Library	Books	18000	N/A
Theater	Seats	N/A	N/A
ITT	SF	45	Y
Museum/Memorial	SF	464	N/A
Pool (indoor)	Lanes	N/A	N/A
Pool (outdoor)	Lanes	6	N *
Beach	LF	N/A	N/A
Swimming Ponds	Each	N/A	N/A
Tennis CT	Each	7	N/A

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

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Volleyball CT (outdoor)	Each	4	N/A
Basketball CT (outdoor)	Each	2	N/A
Racquetball CT	Each	3	N/A
Golf Course	Holes	9	N *
Driving Range	Tee Boxes	3	N *
Gymnasium	SF	11393	Y
Fitness Center	SF	6740	Y
Marina	Berths	24	Y
Stables	Stalls	N/A	N/A
Softball Fld	Each	1	N/A
Football Fld	Each	1	N/A
Soccer Fld	Each		N/A
Youth Center	SF	1988	N/A
Little League Fld.	Each	3	N/A
Skeet Range	Fields	2	N
Pavilion	Each	3	Y
Recycling Warehouse	SF	2522	Y
Childcare Center	SF	6720	Y
Golf Club House	SF	5220	N *
Fitness Center Annex (Stump Neck)	SF	1214	Y
Recreation Bldg.	SF	1320	N/A
Recreation Change House	SF	860	N/A
Concession Stand	SF	640	N *
Amphitheater	Each	1	N/A

*** Current financial reports reflect a loss, but these losses are temporary, as depreciation and closure for the winter months cause early year losses. The**

operations will finish the fiscal year at a profit, as the collection of fees will commence in the spring and summer months. Such fees collected are sufficient to cover losses incurred in the fall and winter months and all expenses experienced in the spring and summer.

In addition we provide the following receation entertainment programs programs to Indian Head Divison, NSWC personnel and its tenants:

comprehensive intramural sports leagues
summer day camp
cabins and cottage rental
youth programs
outdoor concerts
holiday special events
tickets and tours
bingo
retirement and farewell parties

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

14. **Base Family Support Facilities and Programs.**

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

Age Category	Capacity (Children)	SF			Number on Wait List	Average Wait (Days)
		Adequate	Substandard	Inadequate		
0-6 Mos*	8	1433			22	184
6-12 Mos*						
12-24 Mos	10	717			20	305
24-36 Mos	12	1758			11	30
3-5 Yrs	24	3723			11	30

*Data is for 0-12 Mos

A Child Development Center (P-122) MILCON is currently programmed and is scheduled to be completed in August 1995. It will house a total of 230 children.

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

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

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

There are numerous licensed home care providers and licensed day care centers in the local community. We also use our Family Home Care program to take care of our waiting list. In addition, we provide phone numbers of outside agencies providing care.

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

We currently have one certified family home care provider.

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

There are no military child care facilities within 30 minutes of the base.

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

Service	Unit of Measure	Qty
Exchange	SF	7562
Gas Station	SF	N/A
Auto Repair	SF	N/A
Auto Parts Store	SF	N/A
Commissary	SF	N/A
Mini-Mart	SF	N/A
Package Store	SF	N/A
Fast Food Restaurants	Each	2
Bank/Credit Union	Each	1
Family Service Center	SF	N/A
Laundromat	SF	N/A
Dry Cleaners	Each	N/A
ARC	PN	N/A
Chapel *	PN	120
FSC Classrm/Audit.*	PN	120

* Multi-Use Facility

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

City	Distance (Miles)
National Capital Region	20
Washington, DC	30
Annapolis, MD	48
Baltimore, MD	64
Richmond, VA	100
Philadelphia, PA	165
Norfolk, VA	176

16. **Standard Rate VHA Data for Cost of Living:**

Paygrade	With Dependents	Without Dependents
E1	$489.47	$262.31
E2	$500.97	$301.12
E3	$494.03	$347.93
E4	$587.14	$389.45
E5	$646.93	$428.09
E6	$721.99	$464.05
E7	$744.85	$487.55
E8	$750.72	$535.46
E9	$775.26	$553.81
W1	$635.69	$482.78
W2	$672.30	$527.31
W3	$678.54	$551.58
W4	$665.13	$589.74
O1E	$567.07	$420.64
O2E	$612.76	$488.54
O3E	$632.23	$534.87
O1	$481.03	$354.46
O2	$526.62	$410.06
O3	$579.05	$487.52
O4	$692.21	$601.95
O5	$659.71	$545.57
O6	$665.47	$550.82
O7	$619.48	$503.30

17. **Off-base Housing Rental and Purchase**

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

Type Rental	Average Monthly Rent		Average Monthly Utilities Cost
	Annual High	Annual Low	
Efficiency	$350	$350	Not available
Apartment (1-2 Bedroom)	$500	$500	$112.28
Apartment (3+ Bedroom)	$1,000	$1,000	$138.32
Single Family Home (3 Bedroom)	$1,200	$600	$129.94
Single Family Home (4+ Bedroom)	$1,450	$600	$139.56
Town House (2 Bedroom)	$900	$650	$119.94
Town House (3+ Bedroom)	$1,000	$650	$138.32
Condominium (2 Bedroom)	0	0	$119.94
Condominium (3+ Bedroom)	$825	$725	$138.32

Rented 4/1/93-3/31/94

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

Type Rental	Percent Occupancy Rate
Efficiency	72%
Apartment (1-2 Bedroom)	94%
Apartment (3+ Bedroom)	95%
Single Family Home (3 Bedroom)	No way to quantify market. Multiple Listing Service (MLS) has 80 units.
Single Family Home (4+ Bedroom)	No way to quantify market. MLS has 31 units.
Town House (2 Bedroom)	98%
Town House (3+ Bedroom)	75% MLS has 57 units.
Condominium (2 Bedroom)	MLS has 3 units.
Condominium (3+ Bedroom)	MLS has 1 unit.

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

Type of Home	Median Cost
Single Family Home (3 Bedroom)	$132,850
Single Family Home (4+ Bedroom)	$167,250
Town House (2 Bedroom)	$92,900
Town House (3+ Bedroom)	$95,725
Condominium (2 Bedroom)	$58,000
Condominium (3+ Bedroom)	$80,000

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

Month	Number of Bedrooms		
	2	3	4+
January	23	150	3
February	26	162	3
March	28	175	3
April	8	81	3
May	7	85	3
June	12	99	2
July	14	107	3
August	18	103	3
September	17	108	3
October	17	125	3
November	19	134	4
December	23	133	3

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

Principal housing cost drivers include market conditions (demand for housing and land relative to available supply), land and related infrasructure costs, labor and material cost, zoning changes, building codes.

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

Rating	Number Sea Billets in the Local Area	Number of Shore billets in the Local Area
BM	0	1
EN	0	1
SK	0	0
SH	0	0
MS	0	0

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

Location	% Employees	Distance (mi)	Time(min)
Indian Head MD	23.9	1	1.7
Waldorf MD	15.2	15	25.7
LaPlata MD	10.4	18	30.9
Bryans Road MD	5.8	5	8.6
Nanjemoy MD	4.5	18	30.9

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

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

Institution	Type	Grade Level(s)	Special Education Available	Annual Enrollment Cost per Student	1993 Avg SAT/ ACT Score	% HS Grad to Higher Educ	Source of Info
Charles County	Public	Pre-K - 12	YES	$0*	872 SAT	37% - 4 yr, 26% - 2 yr	Charles County Bd of Ed
Star of the Sea	Private	K - 8	NO	$1,887			Mrs. Moore Secretary
Ryken	Private	9 - 12	NO	$3,775	931 SAT	75% - 4 yr, 24% - 2 yr	Mrs. Norris Director
Bishop Ireton	Private	9 - 12	NO	$6,600	999 SAT	98% - 4 yr	Susan Capkas

*It cost the county $5,300 per student to educate per year.

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

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		Graduate
				Courses only	Degree Program	
Charles County Public Schools	Day	YES	YES	NO	NO	NO
	Night	YES	YES	NO	NO	NO
Charles County Community College, LaPlata MD	Day	NO	NO	YES	YES	NO
	Night	YES	YES	YES	YES	NO
Florida Inst. of Technology, Alexandria VA	Day	YES	NO	NO	YES	YES
	Night	YES	NO	NO	YES	YES
George Washington Univ., Washington DC	Day	NO	NO	YES	YES	YES
	Night	NO	NO	YES	YES	YES
Marymount University, Arlington VA	Day	NO	NO	YES	YES	YES
	Night	NO	NO	YES	YES	YES
Mount Vernon College, Washington DC	Day	YES	NO	YES	YES	YES
	Night	YES	NO	YES	YES	YES

St. Mary's College, St. Mary's MD	Day	NO	NO	YES	YES	YES
	Night	NO	NO	YES	YES	NO
Strayer College, Alexandria VA	Day	YES	NO	NO	YES	YES
	Night	YES	NO	NO	YES	YES
University of MD, Waldorf MD	Day	NO	NO	YES	YES	NO
	Night	NO	NO	YES	YES	YES

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

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		Graduate
				Courses only	Degree Program	
George Washington Univ., Washington DC	Day	NO	NO	NO	NO	NO
	Night	NO	NO	NO	NO	YES
	Corres-pondence	NO	NO	NO	NO	NO
Board of Adult Education and Charles County Community College, LaPlata MD	Day	NO*	NO	YES	YES	NO
	Night	NO*	NO	YES	YES	NO
	Corres-pondence	NO	NO	NO	NO	NO
Career and Technology Center, Pomfret MD	Day	YES - PT	YES	NO	NO	NO
	Night	NO	YES	NO	NO	NO
	Corres-pondence	NO	NO	NO	NO	NO
University of Maryland University College, Waldorf MD	Day	NO	NO	YES	YES	YES
	Night	YES	NO	YES	YES	YES
	Corres-pondence	NO	NO	NO	NO	NO

*Board of Education - Adult Education Classes - Upon special request, classes can be offered Day/Night.

COOP Students attend the following Colleges and Universities:
Capital College, Laurel MD
Charles County Community College, LaPlata MD

Howard University, Washington DC
The University of Maryland, Baltimore Campus, Baltimore MD
The University of Maryland, College Park MD
The University of Frostburg, Frostburg MD
Virginia Polytechnic Institute and State University, Blacksburg VA
Virginia State, Petersburg VA

21. **Spousal Employment Opportunities.**

Provide the following data on spousal employment opportunities.

Skill Level	Number of Military Spouses Serviced by Family Service Center Spouse Employment Assistance			Local Community Unemployment Rate
	1991	1992	1993	
Professional				
Manu-facturing				
Clerical	14 hired	3 hired	none	
Service	5 registered	4 registered	8 registered	
Other		20 counseled	13 counseled	3.6%** (March 1994 figure)

*The nearest Family Service Center is located in Anacostia.
**Figures are not kept by type of employment sought.

The Human Resources Office Military Spouse Coordinator helps military spouses

- Prepare SF-171s
- Find jobs in the local and Washington D.C. areas
- Use national employment referral systems such as the Defense Outplacement Referral Service

22. **Medical/Dental.**

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

NO, the local civilian health care system provides a full complement of medical and dental services.

The Branch Medical and Dental Clinics, two of our tenants, provide medical and dental services to over 400 active duty personnel. Besides holding sick call twice a day and providing routine appointments to active duty members, they arrange specialty care with other Medical Treatment Facilities (MTFs). Laboratory, Pharmacy and X-Ray Technicians complement the medical staff.

There is a physician referral service provided by the local community to assist individuals in finding the services they need. Available dental services include preventive care, restorative and surgical care, and cosmetic care. There are dental practices that cater to children and teens, adults or the entire family. Services are available for day, night and weekend appointments, and many practices offer same day emergency treatment. Almost every dental specialty can be found within a 30 minute drive including periodontics, orthodontics, oral and maxillofacial surgery, and TMJ and myofaxcial disorders.

The full spectrum of medical services are available, with Board Certified Specialists in almost every field, including family practice, oncology, orthopaedic surgery, otolaryngology, pediatrics, psychiatry, general surgery, urology, cardiology, and gastroenterology. Many physicians are associated with local medical schools, such as John Hopkins Medical Center, keeping abreast of state-of-the-art technologies and practices. Additionally, many local physicians practice at a number of renown hospitals in the Washington metropolitan area, such as Washington Hospital Center and Childrens' Hospital.

There are two full service hospitals; a number of urgent care centers that treat emergencies and perform minor surgical procedures; and a number of walk-in clinics for minor injuries and illnesses; all within a 30 mile radius. This ensures treatment is available 24 hours a day. Our easy access to the Washington Metropolitan area provides access to some of the best health care available.

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

NO, the local civilian health care system provides a full complement of medical and dental services.

The Branch Medical Clinic, one of our tenants, provides medical services to over 3100 dependents of active duty military, as well as retired military and their dependents. The clinic provides routine medical appointments and sets up specialty care with other MTFs. Laboratory, Pharmacy and X-Ray Technicians, as well as a CHAMPUS Representative, complement the medical staff. Although no dental care is available for dependents on-site in the military health care system, they have access to the massive services available in the civilian health care system and nearby Andrews Air Force Base.

R

REQUEST FOR CLARIFICATION
from Base Structure Analysis Team (BSAT)

Control #: 001

Data Call #5 Question #23

INDIAN HEAD DIVISION, Naval Surface Warfare Center

REPLY:

1993 Crime Rates

*Statistics are for Charles County, MD.

Charles County, MD Crimes per 100,000 Population

Violent Crimes

540

Property Crimes

3,879

Drug Crimes

474

Mark Michienzi Code 051A (301) 743-4575 9/12/94

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

NOTES: *Stats for Indian Head, MD only, FY 93 Off-Base Data not yet available, *Military dependent counted as civilian, N/A reflects information not available.

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

Crime Definitions	FY 1991	FY 1992	FY 1993
5. Customs (6M)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A
6. Burglary (6N)			
Base Personnel - military	5	0	0
Base Personnel - civilian	3	0	2
Off Base Personnel - military	included in figure below	included in figure below	
Off Base Personnel - civilian	17	5	
7. Larceny - Ordnance (6R)			
Base Personnel - military	0	0	0
Base Personnel - civilian	1	0	1
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A
8. Larceny - Government (6S)			
Base Personnel - military	7	3	5
Base Personnel - civilian	18	17	17
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A

Crime Definitions	FY 1991	FY 1992	FY 1993
9. Larceny - Personal (6T)			
Base Personnel - military	22	14	17
Base Personnel - civilian	33	29	12
Off Base Personnel - military	included in figure below	included in figure below	
Off Base Personnel - civilian	53	54	
10. Wrongful Destruction (6U)			
Base Personnel - military	32	21	23
Base Personnel - civilian	67	65	57
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A
11. Larceny - Vehicle (6V)			
Base Personnel - military	0	2	5
Base Personnel - civilian	0	0	2
Off Base Personnel - military	included in figure below	included in figure below	
Off Base Personnel - civilian	17	9	
12. Bomb Threat (7B)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A

Crime Definitions	FY 1991	FY 1992	FY 1993
13. Extortion (7E)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A
14. Assault (7G)			
Base Personnel - military	30	19	9
Base Personnel - civilian	14	14	4
Off Base Personnel - military	included in figure below	included in figure below	
Off Base Personnel - civilian	8	8	
15. Death (7H)			
Base Personnel - military	0	0	0
Base Personnel - civilian	1	0	0
Off Base Personnel - military	0	0	
Off Base Personnel - civilian	0	0	
16. Kidnapping (7K)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A

Crime Definitions	FY 1991	FY 1992	FY 1993
18. Narcotics (7N)			
Base Personnel - military	0	0	0
Base Personnel - civilian	1	0	0
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A
19. Perjury (7P)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A
20. Robbery (7R)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	
Off Base Personnel - civilian	0	0	
21. Traffic Accident (7T)			
Base Personnel - military	18	10	14
Base Personnel - civilian	82	56	35
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A

Crime Definitions	FY 1991	FY 1992	FY 1993
22. Sex Abuse - Child (8B)			
Base Personnel - military	1	1	1
Base Personnel - civilian	2	1	0
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A
23. Indecent Assault (8D)			
Base Personnel - military	2	0	0
Base Personnel - civilian	2	0	0
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A
24. Rape (8F)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	0	0	
Off Base Personnel - civilian	1	1	
25. Sodomy (8G)			
Base Personnel - military	0	0	0
Base Personnel - civilian	0	0	0
Off Base Personnel - military	N/A	N/A	N/A
Off Base Personnel - civilian	N/A	N/A	N/A

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.1 Gun Systems
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 3.8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $518K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.1 Gun Systems
Life Cycle Work Area	13. Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0.4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $58K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.1 Gun Systems
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 1.0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $92K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $14K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.1 Gun Systems
Life Cycle Work Area	15. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0.0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $27K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $38K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.2 Guided Missiles
Life Cycle Work Area	3. Advanced Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $35K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.2 Guided Missiles
Life Cycle Work Area	4. Engineering and Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 1.4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $167K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.2 Guided Missiles
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 18.1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,930K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $35K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.2 Guided Missiles
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 36.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $5,114K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $34K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.2 Guided Missiles
Life Cycle Work Area	12. Repair

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 13.8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,660K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $22K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.2 Guided Missiles
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 61.6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $6,528K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $72K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.2 Guided Missiles
Life Cycle Work Area	15. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $47K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.3 Free Fall Weapons and Rockets
Life Cycle Work Area	3. Advanced Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $0

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $4K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.3 Free Fall Weapons and Rockets
Life Cycle Work Area	4. Engineering and Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $0

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $23K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.3 Free Fall Weapons and Rockets
Life Cycle Work Area	9. Modernization

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $0

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $773K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.3 Free Fall Weapons and Rockets
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 9.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,341K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$284K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.3 Free Fall Weapons and Rockets
Life Cycle Work Area	12. Repair

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 8.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $772K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $65K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.3 Free Fall Weapons and Rockets
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 13.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,216K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $148K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.4 Torpedoes
Life Cycle Work Area	12. Repair

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .7 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $79K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$1K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.5 Mines
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.5 Mines
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 6.2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $766K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $56K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.5 Mines
Life Cycle Work Area	9. Modernization

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 1.6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $182K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	2. Exploratory Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $258K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $2K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	3. Advanced Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 10.6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,338K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $991K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	4. Engineering and Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 1.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $180K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	6. Operational Systems Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $109K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 25.1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $3,914K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $127

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $150K

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	8. Acceptance Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $18K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 4.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $472K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $8K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	13. Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $15K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $254K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $3K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.7 Explosives
Life Cycle Work Area	15. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 15.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,524K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $452K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $15K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.8 Launchers
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 10.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,341K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $7K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.8 Launchers
Life Cycle Work Area	8. Acceptance Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 8.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,022K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $6K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.8 Launchers
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 10.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,395K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $36K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.8 Launchers
Life Cycle Work Area	12. Repair

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $16K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.8 Launchers
Life Cycle Work Area	13. Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $2K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.8 Launchers
Life Cycle Work Area	15. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 18 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $2,919K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $28K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.9 Fire Control
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $27K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.10 Weapons Data Links
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0.0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.10 Weapons Data Links
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0.2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $26K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.10 Weapons Data Links
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0.6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $71K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	2. Exploratory Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 5.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $753K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $1K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	3. Advanced Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 6.0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $825K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $15K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	4. Engineering & Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $257K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $26K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	5. RDT&E Management Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 4.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $564K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $14K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	6. Operational Systems Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 2.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $280K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $13K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 221.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $33,788K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $925K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $337K

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	8. Acceptance Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 5.2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $611K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $1,713

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	9. Modernization

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 8.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,261K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$354K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

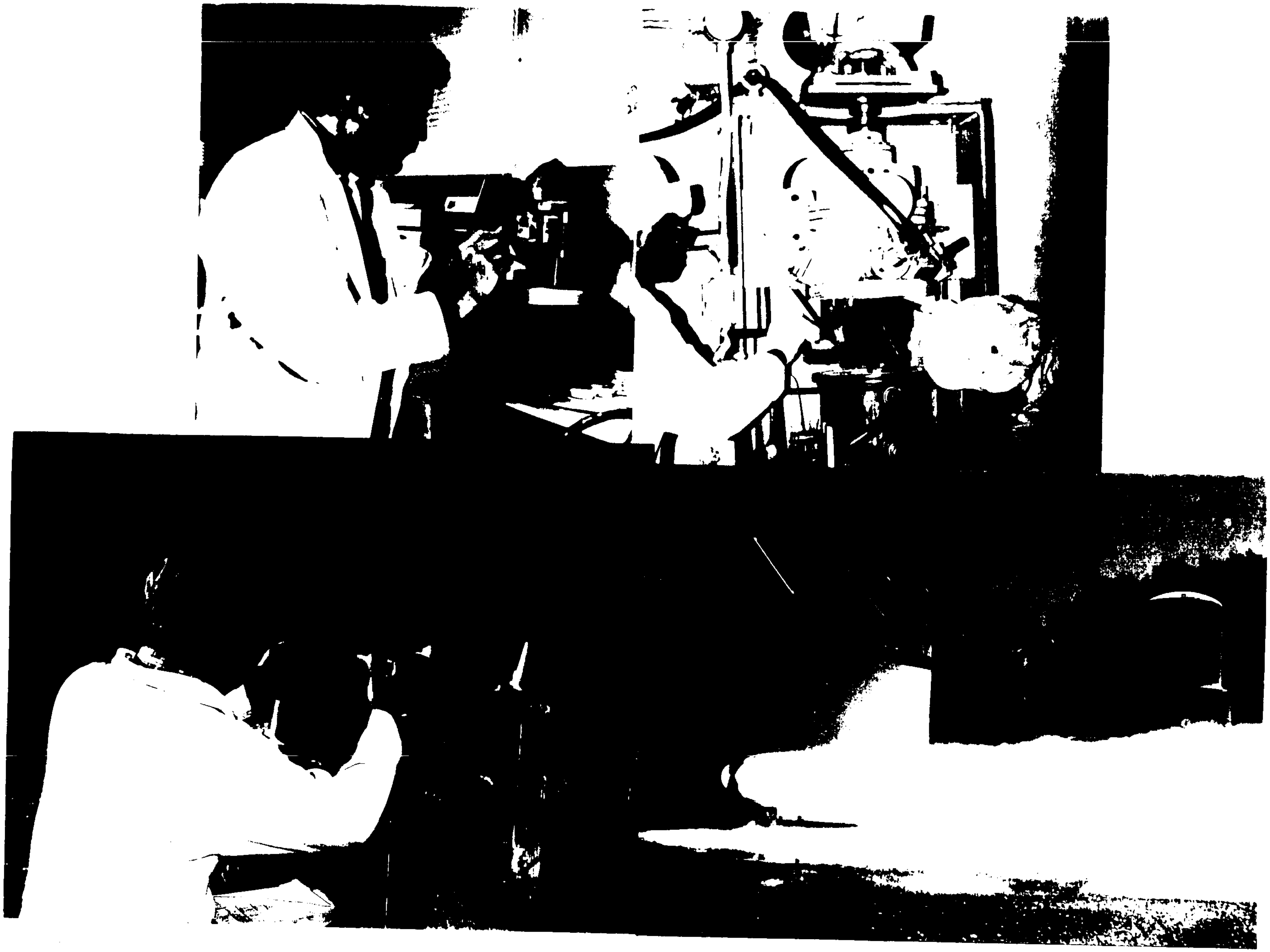
Note:
In-House Expenditures - Is comprised of the total obligation authority for direct labor, direct material, direct travel, direct equipment, direct computer support, other direct support services and all overhead.

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

Indian Head Division certified instructors train DOD and foreign students in the inspection, disassembly, and maintenance of missile systems.

Indian Head designed and manufactured rocket systems are used to deploy an explosive array designed to neutralize a variety of mine and other obstacles

Utilized in Desert Storm, the Mk 22 line throwing rocket was designed, developed and manufactured at Indian Head Division.



Development of new energetic materials from the lab through scale up, production, and test.

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 105.7 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $14,220K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $2,096K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	12. Repair

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 16.8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $2,030K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $247K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $18K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	13. Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 12.4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,502K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $6K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $232K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 22.4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $3,021K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $235K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.12 Weapons Propulsion
Life Cycle Work Area	15. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 2.8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $357K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $1K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	2. Exploratory Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0.8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $98K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	3. Advanced Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 3.7 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $954K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $4K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.9 Activity Mission and Function Support
Life Cycle Work Area	13. Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $58K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $4K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $200K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.9 Activity Mission and Function Support
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 4.7 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $498K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $1,638K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.9 Activity Mission and Function Support
Life Cycle Work Area	15. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 17.1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $2,225K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $814K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $10,405K

Note:

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

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

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TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.9 Activity Mission and Function Support
Life Cycle Work Area	NONE

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 122.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $13,670K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $5,608K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $1,909K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	11. Generic Technology Base 11.1 Computers
Life Cycle Work Area	2. Exploratory Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 6.4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $3,591K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $199K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $23,416K

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	11. Generic Technology Base 11.2 Software
Life Cycle Work Area	2. Exploratory Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $748K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $637K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $469K

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	11. Generic Technology Base 11.10 Other Technology Base Programs
Life Cycle Work Area	2. Exploratory Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $78K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $40K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

BRAC 95

DATA CALL # 5

MILITARY VALUE

TAB B

UNDER SEPARATE COVER

TAB C

RANGE RESOURCES

RANGE CAPABILITY FORM

RANGE RESOURCES
RANGE CAPABILITY FORM

Technical Center Site	Indian Head Division, NSWC
Range Nomenclature or Title	EOD Procedures Test and Validation Range

1. **List all the ranges that your activity maintains and operates. Provide the following information on each range**:

This range is Class 1 property owned by Indian Head Division, NSWC. It is operated and controlled by the Explosive Ordnance Technology Division (EODTD) of the Naval Ordnance Center (NOC), a tenant of the Indian Head Division, NSWC.

a. **A brief statement of what the range is used for**.

This range is used for research, development, testing and evaluation of joint service explosive ordnance disposal publications, equipment and render safe procedures.

b. **Geographic location of the range**.

The range is located on the Stump Neck Annex of the Indian Head Division, NSWC on a peninsula in the Potomac River roughly 30 miles south of Washington, D.C.

c. **Distance from the range to the activity's headquarters facility (main site)**.

The range is co-located with the EODTD (the operating activity) on the Stump Neck Annex of the Indian Head Division, NSWC in Indian Head, MD.

The Stump Neck Annex is only 1/3 of mile from the Indian Head Divsion, NSWC, separated by the Mattawoman Creek. It is 10 miles by road.

d. **Range size in square miles**.

Range size is 108,900 sq. ft. or .004 square miles.

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.1.4 Weapons-Related Training Systems
Life Cycle Work Area	12. Repair

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 19.1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $4,423K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$210K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.1.4 Weapons-Related Training Systems
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 3.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $429K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$24K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.1.4 Weapons-Related Training Systems
Life Cycle Work Area	17. Training/Operational Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 15.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $2,167K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$453K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $52K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.2 Logistics Planning and Implementation
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 2.4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $242K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.2 Logistics Planning and Implementation
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $58K

b. **Out-of-House Expenditures.** Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.2 Logistics Planning and Implementation
Life Cycle Work Area	15. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 20.6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,975K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $293K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.2 Logistics Planning and Implementation
Life Cycle Work Area	16. Retirement

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $88K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.3 Facilities Engineering
Life Cycle Work Area	2. Exploratory Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $25K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.3 Facilities Engineering
Life Cycle Work Area	3. Advanced Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 8.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,115K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $1,283K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $100K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.3 Facilities Engineering
Life Cycle Work Area	9. Modernization

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 3.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $578K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $(78)

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.3 Facilities Engineering
Life Cycle Work Area	15. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $40K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $166K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

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TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.3 Facilities Engineering
Life Cycle Work Area	NONE

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $64K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $1,751K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.8 Other Subsidiary Systems or Components
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 1.2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $144K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $244K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.9 Activity Mission and Function Support
Life Cycle Work Area	5. RDT&E Management Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 2.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $220K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $225K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.9 Activity Mission and Function Support
Life Cycle Work Area	9. Modernization

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $13K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $9K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.9 Activity Mission and Function Support
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 33.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $4,349K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $153K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $1,124K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	4. Engineering & Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 6.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $974K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$13K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	6. Operational Systems Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 3.0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $383K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $19K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 90.7 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $11,580K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $953K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $4,807K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	8. Acceptance Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 27.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $4,069K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $313K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $360K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	9. Modernization

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 6.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $848K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $43K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 110.6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $17,204K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $7,360K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	12. Repair

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 32.6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $4,769K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $339K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	13. Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 20.1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $2,431K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$6K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 18.8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $2,267K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $40K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.13 Other Ordnance
Life Cycle Work Area	15 Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 4.3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $608K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $160K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.14 Explosive Ordnance Disposal
Life Cycle Work Area	2. Exploratory Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $20K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.14 Explosive Ordnance Disposal
Life Cycle Work Area	4. Engineering and Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $138K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $1K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	2. Weapons Systems 2.14 Explosive Ordnance Disposal
Life Cycle Work Area	6. Operational Systems Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $75K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	5. Sensors & Surveillance Systems 5.3 Special Sensors
Life Cycle Work Area	4. Engineering and Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $109K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $196K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	5. Sensors & Surveillance Systems 5.3 Special Sensors
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 3.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,432K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $25K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	5. Sensors & Surveillance Systems 5.5 Ocean Surveillance
Life Cycle Work Area	4. Engineering and Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $29K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	5. Sensors & Surveillance Systems 5.5 Ocean Surveillance
Life Cycle Work Area	6. Operational Systems Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $(1)K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $3K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	5. Sensors & Surveillance Systems 5.5 Ocean Surveillance
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 2.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $300K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $249K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	6. Navigation 6.4 Weapons Navigation Systems
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $101K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	7. C3I 7.1 Submarine
Life Cycle Work Area	4. Engineering and Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $47K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding.
$0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	7. C3I 7.3 Shipboard
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 1.0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $123K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	8. Defense Systems 8.1 Ballistic Missile Defense
Life Cycle Work Area	3. Advanced Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $10K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	8. Defense Systems 8.2 Countermeasures (CM)
Life Cycle Work Area	2. Exploratory Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 5.8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,120K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $23K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $50K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	8. Defense Systems 8.2 Countermeasures (CM)
Life Cycle Work Area	3. Advanced Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 38.1 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $6,969K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $700K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	8. Defense Systems 8.2 Countermeasures (CM)
Life Cycle Work Area	4. Engineering and Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 1.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $251K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $1K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	8. Defense Systems 8.2 Countermeasures (CM)
Life Cycle Work Area	6. Operational Systems Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 2.9 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $368K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $51K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $117K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	8. Defense Systems 8.2 Countermeasures (CM)
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 60.5 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $12,596K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $192K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	8. Defense Systems 8.2 Countermeasures (CM)
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 8.4 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1,058K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $48K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	8. Defense Systems 8.2 Countermeasures (CM)
Life Cycle Work Area	13. Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 0 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $1K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	8. Defense Systems 8.2 Countermeasures (CM)
Life Cycle Work Area	14. In-Service Engineering

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $19K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	9. Strategic Programs 9.1 Navy Strategic Systems
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $454K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $105K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	9. Strategic Programs 9.1 Navy Strategic Systems
Life Cycle Work Area	13. Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 7.6 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $976K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $4K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	9. Strategic Programs 9.1 Navy Strategic Systems
Life Cycle Work Area	16. Retirement

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 3.2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $426K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $64K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

Note:

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.1.3 Surface Ship-Related Training Systems
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $56K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $13K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.1.4 Weapons-Related Training Systems
Life Cycle Work Area	4. Engineering and Manufacturing Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 1.2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $126K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $20K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.1.4 Weapons-Related Training Systems
Life Cycle Work Area	6. Operational Systems Development

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .8 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $112K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $1K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.1.4 Weapons-Related Training Systems
Life Cycle Work Area	7. Production

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. .3 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $31K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $0

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $1,093K

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.1.4 Weapons-Related Training Systems
Life Cycle Work Area	8. Acceptance Testing

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 8.2 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $965K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $7K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $0

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

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

TECHNICAL FUNCTIONS
FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA FORM

Technical Center Site	Indian Head Division, NSWC
Functional Support Area	10. General Mission Support 10.1.4 Weapons-Related Training Systems
Life Cycle Work Area	10. Program Support

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

1. **In-House Work Years.** Provide the number of in-house government employee (civilian and military) work years for FY1993 that were performed in this functional support area - life cycle work area. Workyears are to be consistent with those used in the preparation of inputs to the President's budget. 10.7 WYs

2. **Expenditures.**

a. **In-House Expenditures.** Provide the total in-house cost in FY1993 for this functional support area - life cycle work area. $2,758K

b. **Out-of-House Expenditures**. Provide the total funds expended during FY1993 for this functional support area - life cycle work area. **Do not** include direct cite funding. $2,486K

c. **Direct Cites.** Provide total direct cite funds expended on contract during FY1993 for this functional support area - life cycle work area. $1,766K

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

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

2. Current Class 2 Assets. Complete Tables 2.1 thru 2.6 below as directed. Tables 2.1, 2.2 & 2.3 will define the Class 2 property owned or leased by your activity (less Detachments). Tables 2.4, 2.5 & 2.6 will define the combined Class 2 assets owned or occupied at your Detachment sites which did not receive this Data Call directly. Report space holdings and assignments as of 31 March 1994. Provide numbered notes to explain imminent changes, additions & deletions such as previous BRAC realignments, MILCON (including BRAC related MILCON) & Special Projects that are currently programmed in the FYDP. Give the project number & title, cost, short description, quantity of additional square footage, award date, estimated/actual construction start date and estimated BOD. Square footage of space is to be reported in "Gross Floor/Building Area" (GF/BA) as defined in NAVFAC P-80. Many of the P-80 Category Code Numbers (CCN's) have assets that are reported in units of measure other than square feet (SF). The only unit of measure desired for this Data Call is SF. Only report the assets in each CCN that are normally reported in SF.*

For your Site:

a. Use Table 2.1 below to indicate the total amount of Class 2 space at your site for which you are the plant account holder as of 31 March 1994.

b. Use Table 2.2 below to indicate the total amount of your Class 2 space reported in Table 2.1 that is assigned to your tenant commands and/or independent activities at your site as of 31 March 1994.

c. Use Table 2.3 below to indicate the total amount of Class 2 space, for which you are not the plant account holder, but which is utilized/leased by you (less Detachments). Provide numbered notes to identify the title and UIC of the plant account holder/lessor, quantity of leased space and the associated lease cost.

***NOTE: All space reported in this section is in gross square feet.**

Table 2.1 Main Site Class 2 Assets of Indian Head Division, NSWC (UIC N00174)

Building type	NAVFAC (P-80) category code	Gross Floor/Building Area (KSF)			
		Adequate	Sub-standard	In-adequate	Total
Operational & Training	100	294.7	101.1	0	395.8
Maintenance & Production	200	698.8	124.9	27.6	851.3
Science labs	310	87.9	3.4	11.5	102.8
Aircraft labs	311	N/A	N/A	N/A	N/A
Missile and Space labs	312	3.9	0	0	3.9
Ship and Marine labs	313	N/A	N/A	N/A	N/A
Ground Transportation labs	314	N/A	N/A	N/A	N/A
Weapon and Weapon Systems labs	315	N/A	N/A	N/A	N/A
Ammunition, Explosives, & Toxics labs	316	223.6	29.1	0	252.7
Electrical Equip. labs	317	31.4	0	0	31.4
Propulsion labs	318	55.3	10.2	0	65.5
Miscellaneous labs	319	52.1	16.2	17.3	85.6
Underwater Equip. labs	320	N/A	N/A	N/A	N/A
Technical Services labs	321	N/A	N/A	N/A	N/A
Supply Facilities	400	526.1	38.4	0	564.5
Hospital & other Medical	500	10.6	0	0	10.6
Administrative Facilities	600	315.7	4.8	2.4	322.9
Housing & Community	700	1,401.7	28.9	19.1	1,449.7
Utilities & Grounds	800	78.4	70.6	1.9	150.9
Other		N/A	N/A	N/A	N/A
	Totals	3,780.2	427.6	79.8	4,287.6

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

(1) FACILITY TYPE/CODE:
(2) WHAT MAKES IT INADEQUATE?
(3) WHAT USE IS BEING MADE OF THE FACILITY?
(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

(1) Facility Type	(2) Cat Code	(3) Reason Inadeq.	(4) Current Use	(5)* Cost to upgrade to substan-dard ($K)	(6) Other possible uses/cost	(7) Current improv. plans/ prgmd funding	(8) Has this facility caused BASEREP C3/C4
**Maintenance and Production	200	Deterioration	Multiple uses	3,185	Storage	None	No
Maintenance and Production	200	Deterioration	Multiple uses	4,707	Storage	None	No
Science Labs	310	Total Deterioration	Vacant	2,283	Labs/Office	None	No
Misc. Labs	319	Total Deterioration	Ether Vault/storehouse	349		None	No
Administrative Facilities	600	Total Deterioration	Vacant	141		None	No
Housing and Community	700	Total Deterioration	Vacant	82		None	No
Utilities and Grounds	800	Deterioration	Multiple Uses	83		None	No

NOTE:
*Upgrade Costs based on 75% of CPV of 9/93
**Facilities approved for demolition by EFD.

Table 2.2 Main Site Class 2 Space of Indian Head (UIC 00174) Assigned to Tenants

TENANT		NAVFAC (P-80) Category Code	GF/BA Assigned (KSF)
Name	UIC		
PERSUPPDET	N242560	600's	1.9
CHESDIVCONTOFC/ROICC	N44200	200's	.3
		600's	2.5
NEX	N30354	700's	7.6
BRMEDCLINIC	N33329	500's	8.4
NAVDENFAC BR	N35753	500's	2.2
NAVSEAADSA	N68636	600's	35.5
NOC	N68963	600's	21.3
NAVSCOLEOD	N62640	100's	203.0
		400's	.7
		700's	2.5
NAVEODTECHDIV	N0464A	100's	56.9
		200's	29.5
		310's	5.3
		315's	.4
		316's	90.6
		319's	7.7
		320's	11.5
		400's	31.3
		600's	35.3
		700's	13.2
		800's	.2
		Total:	567.8

Table 2.3 Class 2 Space Utilized/Leased by Indian Head Division, NSWC (UIC N00174)

Building type	NAVFAC (P-80) category code	GF/BA (KSF)			
		Adequate	Sub-standard	In-adequate	Total
Operational & Training	100	12.0	0	0	12.0
Maintenance & Production	200	N/A	N/A	N/A	N/A
Science labs	310	N/A	N/A	N/A	N/A
Aircraft labs	311	N/A	N/A	N/A	N/A
Missile and Space labs	312	N/A	N/A	N/A	N/A
Ship and Marine labs	313	N/A	N/A	N/A	N/A
Ground Transportation labs	314	N/A	N/A	N/A	N/A
Weapon and Weapon Systems labs	315	3.3	0	0	3.3
Ammunition, Explosives, and Toxics labs	316	N/A	N/A	N/A	N/A
Electrical Equip. labs	317	14.7	0	0	14.7
Propulsion labs	318	13.2	0	0	13.2
Miscellaneous labs	319	N/A	N/A	N/A	N/A
Underwater Equip. labs	320	N/A	N/A	N/A	N/A
Technical Services labs	321	N/A	N/A	N/A	N/A
Supply Facilities	400	N/A	N/A	N/A	N/A
Hospital & other Medical	500	N/A	N/A	N/A	N/A
Administrative Facilities	600	N/A	N/A	N/A	N/A
Housing & Community	700	6.7	0	0	6.7
Utilities & Grounds	800	N/A	N/A	N/A	N/A
Other		N/A	N/A	N/A	N/A
	Totals	49.9	0	0	49.9

Note: The space is being leased because adequate space is not available in the appropriate category. Some space is leased during renovation of other facilities.

For your Detachment sites not receiving this Data Call directly:

e. Use Table 2.4 below to indicate the combined total amount of Class 2 space that is occupied by your Detachments for which you are the plant account holder as of 31 March 1994. Attach a list with the titles and UIC's of these Detachments.

We are not the plant account holder for Indian Head Division Detachments Yorktown, McAlester or White Oak with the exception of Building 1802 at Indian Head Division Detachment Yorktown (responding separately).

f. Use Table 2.5 below to indicate the total amount of your Class 2 space reported in Table 2.4 that is assigned to tenant commands and/or independent activities as of 31 March 1994. Include numbered notes to indicate the Detachment site that hosts the tenant. **N/A**

g. Use Table 2.6 below to indicate the combined total amount of Class 2 space utilized/leased by your Detachments for which you are not the plant account holder. Provide numbered notes to indicate the quantity of leased space and their associated rental cost.

Table 2.4 Class 2 Assets of Indian Head Division (UIC 00174) Occupied by Detachments

Building type	NAVFAC (P-80) category code	GF/BA (KSF)			
		Adequate	Sub-standard	In-adequate	Total
Operational & Training	100				
Maintenance & Production	200				
Science labs	310				
Aircraft labs	311				
Missile and Space labs	312				
Ship and Marine labs	313				
Ground Transportation labs	314				
Weapon and Weapon Systems labs	315				
Ammunition, Explosives, and Toxics labs	316				
Electrical Equip. labs	317				
Propulsion labs	318				
Miscellaneous labs	319				
Underwater Equip. labs	320				
Technical Services labs	321				
Supply Facilities	400				
Hospital & other Medical	500				
Administrative Facilities	600				
Housing & Community	700				
Utilities & Grounds	800				
Other					
Totals		0	0	0	0

Table 2.5 Class 2 Space at Detachment Sites of Indian Head Division, NSWC (UIC N00174) Assigned to Tenants

TENANT		NAVFAC (P-80) Category Code	GF/BA (KSF) Assigned
Name	UIC		
See Table 2.4 above - not applicable			
		Total:	

Table 2.6 Class 2 Space Utilized/Leased by Detachments of Indian Head Division, NSWC (UIC N00174)

Building type	NAVFAC (P-80) category code	GF/BA (KSF)			
		Adequate	Sub-standard	In-adequate	Total-adequateTota
Operational & Training	100				
Maintenance & Production	200				
Science labs	310				
Aircraft labs	311				
Missile and Space labs	312	88.3			88.3 (1)
Ship and Marine labs	313				
Ground Transportation labs	314				
Weapon and Weapon Systems labs	315				
Ammunition, Explosives, and Toxics labs	316				
Electrical Equip. labs	317				
Propulsion labs	318				
Miscellaneous labs	319				
Underwater Equip. labs	320				
Technical Services labs	321				
Supply Facilities	400	61.4			61.4 (1)
Hospital & other Medical	500				
Administrative Facilities	600	3.8			3.8 (2)
Housing & Community	700				
Utilities & Grounds	800	48			48 (1)
Other					
Totals		201.5			201.5

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033

NOTE: None of the space described above is leased.

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

(1) FACILITY TYPE/CODE:
(2) WHAT MAKES IT INADEQUATE?
(3) WHAT USE IS BEING MADE OF THE FACILITY?
(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP?

*No inadequate facilities were identified in 2.6

(1) Facility Type/No.	(2) Cat Code	(3) Reason Inadeq.	(4) Current Use	(5) Cost to upgrade to substan-dard ($K)	(6) Other possible uses/cost	(7) Current improv. plans/ prgmd funding	(8) Has this facility caused BASEREP C3/C4

3. Class 2 Space Available for Expansion. An activity's expansion capability is a function of it's ability to reconfigure and/or expand existing facilities to accept new or increased roles. Such a reconfiguration may require rehabilitation or buildout of a space to support the new or expanded role. A space expansion could include converting an underutilized storage space into laboratory spaces, or buildout of a high bay area into a multifloor office/laboratory space. All questions refer to Class 2 property for which you are the plant account holder as of 31 March 1994. Do not report any currently programmed changes or additions previously reported in question #2 above. Expansion opportunities must follow the guidance of NAVFAC P-80 for the appropriate facility category code, as well as applicable fire and safety codes. Personnel loading density should not exceed those specified in the P-80. Space is only available if it is currently unoccupied or the current occupants are officially designated for relocation. Report space as Net Floor Area (NFA) as defined in the P-80. Do not include opportunities that are being reported by your Detachments who received this Data Call directly. Reported expansion opportunities must be able to accommodate the necessary ancillary facilities and equipment, such as adequate parking space, required to support the amount of people projected.

a. What is the maximum quantity of space that could be made available for expansion to accommodate other functions and/or increased efforts? Report in terms of the "Current NFA" as shown in Tables 3.1 & 3.2. 239,000 SQFT.

b. How much of the space reported in question 3.a. above is currently available with minimal or no reconfiguration costs? Report in terms of the "Current NFA" as shown in Tables 3.1 & 3.2. 50,820 SQFT.

c. Use Table 3.1 below to indicate the constrained growth opportunities for accepting expanded or new roles. Constrained growth is defined as growth limited to buildings and structures currently on your Class 2 plant account. Add numbered notes to highlight and explain opportunities that require remediation or waiver of a restriction or encumbrance as part of the expansion. Provide lettered notes to clearly identify each opportunity with the title & UIC of the site it refers to. The "Current NFA (KSF)" column total should match the quantity provided in question #3.a. above. Annotate those opportunities that were used to obtain the answer to question #3.b. above. Report space once, do not use the same space for different expansion opportunities. Include in this table space that will become available once planned downsizing (separate from BRAC realignments) has been completed, provide the estimated completion date of the downsizing effort.

d. Use Table 3.2 below to indicate additional unconstrained growth opportunities for accepting expanded or new roles. Unconstrained growth allows for construction of new facilities on existing buildable Class 1 property. The only constraint being that the land must currently be on your plant account holdings as of 31 March 1994 and free of existing land use constraints. Limit new buildings to three stories. Add numbered notes to highlight and explain additional opportunities that would require remediation or waiver of a land use constraint as part of the expansion. Provide lettered notes to clearly identify each opportunity with the title & UIC of the site it refers to. Do not include space that has been reported in Table 3.1.

Table 3.1 Constrained Class 2 Space Available for Expansion at Indian Head Division, NSWC (UIC N00174)

Building # / Category Code (3 digit)	Current NFA (KSF)	Additional Capacity Provided By Expansion		Height of High Bay (FT)	Estimated Cost of Rehab ($K's)
		NFA (KSF)	# of Personnel		
012/310	6.38			12	389.18
212/226	2.62			17	136.24
213/229	2.62			17	136.24
214/229	2.62			17	136.24
215/226	2.64			12	137.28
218/226	2.62			17	136.24
219/226	2.62			17	136.24
220/226	2.62			17	136.24
326/226	2.62			17	136.24
327/226	2.66			17	138.32
328/226	2.66			17	138.32
332/229	2.66			17	138.32
334/229	2.95			17	153.4
335/229	2.66			17	138.32
471/226	2.57			17	133.64
477/229	2.57			17	133.64
497/229	13.8			34	717.6
497A/226	2.36			35	122.72

498/226	4.64			27	241.28
499/421	2.2			11	81.4
500/229	2.4			14	124.8
501/216	2.28	2.28	15	18	355.68
505/229	2.57			17	133.64
529/226	0.45			26	23.4
531/226	0.45			26	23.4
532/226	0.45			26	23.4
534/229	0.2			10	10.4
535/226	0.2			10	10.4
536/226	0.2			10	10.4
538/226	0.35			10	18.2
557/226	0.45			11	23.4
564/226	1.53			23	79.56
565/226	1.53			23	79.56
566/226	1.63			23	84.76
569/226	0.3			10	15.6
570/226	0.3			10	15.6
572/226	3.77			10	196.04
579/226	2.58			11	134.16
583/421	1.11			12	41.07
593/421	2.16			11	79.92
616/845	1.51			13	67.95
704/226	13.16			27	684.32
705/226	3.49			14	181.48
706/226	2.38			13	123.76

707/226	2.38			13	123.76
708/226	2.35			28	122.2
709/421	0.62			10	22.94
710/821	0.1			10	4.5
711/421	0.54			9	19.98
785/226	0.36			16	18.72
833/226	1.2	1.2	3	27	187.2
858/226	2.88			14	149.76
859/226	3.53			48	183.56
945/226	0.2			12	10.4
1000/226	0.1			10	5.2
1007/226	1.56			18	81.12
1008/226	0.1			9	5.2
1009/226	1.56			24	81.12
1010/226	0.1			9	5.2
1012/229	0.81			12	42.12
1013/229	0.2			8	10.4
1020/226	0.55			12	28.6
1021/319	0.9	0.9	3	22	164.7
1022/826	1.4			15	63
1024/226	3			40	156
1025/226	0.2			10	10.4
1026/226	3			40	156
1027/226	0.2			10	10.4
1028/226	0.81			12	42.12
1029/226	0.74			24	38.48

1030/226	1.56			21	81.12
1031/226	0.66			27	34.32
1032/226	0.5			19	26
1033/226	0.69			27	35.88
1034/226	0.5			21	26
1035/226	2.35			13	122.2
1036/890	0.56			14	25.2
1037/226	0.1			33	5.2
1038/226	0.1			9	5.2
1039/229	0.32			12	16.64
1044/229	0.3			15	15.6
1142/226	0.1			12	5.2
1143/226	0.1			9	5.2
1148/229	0.62			9	32.24
1152/229	0.1			9	5.2
1159/229	0.1			9	5.2
1161/229	0.1			9	5.2
1164/229	0.1			9	5.2
1197/226	0.2			9	10.4
1198/821	0.2			9	9
1204/229	0.1			9	5.2
1217/229	0.1			8	5.2
1224/226	0.26			10	13.52
1226/229	0.1			8	5.2
1234/226	0.1			8	5.2
1235/226	0.1			8	5.2

1251/229	0.1			8	5.2
1290/229	0.1			7	5.2
1291/229	0.1			7	5.2
1296/229	0.1			7	5.2
1353/229	0.35			12	18.2
1373/229	0.1			10	5.2
1405/219	0.1			7	5.2
1487/229	0.2			10	10.4
1537/229	0.1			8	5.2
1548/831	0.1			8	4.5
1549/831	0.28	0.28	1	20	37.8
1550/831	0.28	0.28	1	20	37.8
1559/226	0.6			11	31.2
1569/831	2.74	2.7	9	31	366.3
1675/730	0.1			7	4.2
1726/441	0.22			7	8.14
1727/441	0.22			7	8.14
1737/441	0.24			11	8.88
1756/831	0.1			12	4.5
Totals	160.1	7.64	32		8993.26

NOTE: All buildings constrained by Explosive Safety Quantity Distance (ESQD) arcs and/or Hazards to Electromagnetic Radiation to Ordnance (HERO) zones.

Table 3.2 Unconstrained Class 2 Space Available for Expansion at Indian Head Division, NSWC (UIC N00174)

Building # / Category Code (3 digit)	Current NFA (KSF)	Additional Capacity Provided By Expansion		Height of High Bay (FT)	Estimated Cost of Rehab ($K's)
		NFA (KSF)	# of Personnel		
160/318	4.85			20	295.85
164/229	9.55	28.65	90	49	3476.2
164B/226	0.1			9	5.2
165/319	0.83			9	50.63
166/229	3.77			18	196.04
167/319	0.61			10	37.21
179/229	1.48			14	76.96
222/316	3			18	183
224/229	2.52			18	131.04
232/229	0.83			15	43.16
253/316	0.4			13	24.4
273/226	0.37			7	19.24
300/852	6.21	6.21	41	20	968.76
301/852	5.95	5.95	40	20	928.2
453/441	17.86			21	750.12
496/226	1.52			13	79.04
528/229	0.67			10	34.84
580/229	3.93			10	204.36
625/219	0.4			10	20.8
629/226	0.1			10	5.2
630/226	0.1			10	5.2

665/229	0.84			16	43.68
844/229	3.36	3.36	11	18	174.72
887/845	0.8			17	36
930/226	0.48			14	24.96
931/226	0.48			14	24.96
932/226	0.48			14	24.96
933/226	0.48			14	24.96
934/226	0.48			14	24.96
935/226	0.48			14	24.96
936/226	0.48			14	24.96
937/226	0.48			14	24.96
1358/441	0.1			10	3.7
1379/219	0.1			8	5.2
1382/219	0.1			6	5.2
1602/610	0.1			10	4.2
1736/811	0.1			12	4.5
6SN/216	1.1			13	57.2
2071/812	0.1			7	4.5
2153/310	1.68			10	102.48
2154/310	1.68			10	102.48
Totals	78.95	44.17	182		8278.99

4. Class 1 Space Available for Expansion.

a. Identify in Table 4.1 below the real estate resources which have the potential to facilitate future development, and for which you are the plant account holder as of 31 March 1994, or into which, though a tenant, your activity could reasonably expect to expand. Complete a separate table for each individual site (i.e., main base, outlying airfields, special off-site areas, etc.) and Detachment that did not receive this Data Call directly. The unit of measure is acres. Developed area is defined as land currently with buildings, roads, and utilities where further development is not possible without demolition of existing improvements. Include in "Restricted" acreage that is restricted for future development due to environmental constraints (e.g. wetlands, landfills, archaeological sites), operational restrictions (e.g. ESQD arcs, HERO, HERP, HERF, AICUZ, ranges) or cultural resources restrictions. Identify the reason for the restriction when providing the acreage in the table. Specify any entry in "Other" (e.g. submerged lands).

b. Are there any constraints such as parking, utilities, legal restrictions that limit the potential for using Undeveloped land for expansion?

All developable unrestricted land has available utilities such as potable water, sewer, electrical utilities, and is without legal restrictions. Depending on the expanded function, growth on some developable Class 1 holdings may be limited by availability of parking although space is available for provision of new parking.

c. Explain the radio frequency constraints/opportunities within your Class 1 holdings.

All HERO constraint areas do not constrain additional Class 1 holdings as they are within the Indian Head Division, Naval Surface Warfare Center's ESQD area. The HERO zones do not reduce the amount of land available for development.

Table 4.1 **Class 1 Resources of Indian Head Division, NSWC (UIC: N00174)**
Site Location: Main Site

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	Included in operational			
Operational	831	663	168 (A)	0
Training	63	41	22 (A)	
R & D	531	424	107 (A)	0
Supply & Storage	66	25	30 (A)	11
Admin	75	75		59
Housing	104	64		40
Recreational	90	90		
Navy Forestry Program	91	0	91 (A/B/D)	
Navy Agricultural Outlease Program	0	0	0	
Hunting/Fishing Programs	Included in recreation			
Other	158	0	158 (B/C)	
Total:	2,009	1,382	576	51

A - Restricted due to ESQD Arcs/HERO
B - Restricted due to environmental constraints, wetlands, steep slopes
C - A portion is restricted due to archaeological sites
D - Per the Forest Management Plan, approximately 535 acres are Forested and within Operational/R&D zones. 90 total acres shown are not in Operational R&D zones. Includes Main Site and Bullets Neck.

d. Of the total Unrestricted Acres reported above, how much of it has existing roads and/or utilities that could support expansion efforts? 51 acres. Explain. Roads and electrical utilities are available.

Table 4.1 **Class 1 Resources of Indian Head Division, NSWC (UIC: N00174)**
Site Location: Stump Neck Annex

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	Included in operational			
Operational	304	187	80 (A)	37
Training	128	128		
R & D	154	37	0	117
Supply & Storage	26			26
Admin	70	11		59
Housing	11	11		
Recreational	101	81	20 (A/B)	
Navy Forestry Program	60	0	60 (A/B/D)	
Navy Agricultural Outlease Program	0	0	0	
Hunting/Fishing Programs	0	0	0	
Other	317		317 (C)	
Total:	1,171	455	477	239

A - Restricted due to ESQD Arcs/HERO
B - Restricted due to environmental constraints, wetlands, steep slopes
C - A portion is restricted due to archaeological sites
D - Per the Forest Management Plan, approximately 663 acres are Forested and within Operational/R&D zones. 90 total acres shown are not in Operational R&D zones. Includes Stump Neck and Rum Point.

d. Of the total Unrestricted Acres reported above, how much of it has existing roads and/or utilities that could support expansion efforts? 44 acres. Explain. Roads and electrical utilities.

Table 4.1 **Class 1 Resources of Indian Head Division, NSWC (UIC: N00174)**
Site Location: Bullets Neck

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance				
Operational	14	2		12
Training				
R & D				
Supply & Storage				
Admin				
Housing				
Recreational				
Navy Forestry Program	26		26 (A)	
Navy Agricultural Outlease Program				
Hunting/Fishing Programs				
Other (Swamp)	7			
Total:	47	2	26	12

A - Restricted due to wetlands, ESQD Arcs, and archaeological sites.

d. Of the total Unrestricted Acres reported above, how much of it has existing roads and/or utilities that could support expansion efforts? 12 acres. Explain. Forested area.

Table 4.1 **Class 1 Resources of Indian Head Division, NSWC (UIC: N00174)**
Site Location: Government Railroad

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance				
Operational				
Training				
R & D				
Supply & Storage				
Admin				
Housing				
Recreational				
Navy Forestry Program				
Navy Agricultural Outlease Program				
Hunting/Fishing Programs				
Other	161	161		
Total:	161	161	0	0

d. Of the total Unrestricted Acres reported above, how much of it has existing roads and/or utilities that could support expansion efforts? N/A. Explain.

Table 4.1 **Class 1 Resources of Indian Head Division, NSWC (UIC: N00174)**
Site Location: Waldorf Housing

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance				
Operational				
Training				
R & D				
Supply & Storage				
Admin				
Housing	4	4		
Recreational				
Navy Forestry Program				
Navy Agricultural Outlease Program				
Hunting/Fishing Programs				
Other				
Total:	4	4		

d. Of the total Unrestricted Acres reported above, how much of it has existing roads and/or utilities that could support expansion efforts? N/A. Explain.

Table 4.1 **Class 1 Resources of Indian Head Division, NSWC (UIC: N00174)**
Site Location: LaPlata Housing

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance				
Operational				
Training				
R & D				
Supply & Storage				
Admin				
Housing	14	9		5
Recreational				
Navy Forestry Program				
Navy Agricultural Outlease Program				
Hunting/Fishing Programs				
Other				
Total:	14	9		5

d. Of the total Unrestricted Acres reported above, how much of it has existing roads and/or utilities that could support expansion efforts? 3 acres. Explain. Unrestricted area contains trailer park with underground utilities and roadways.

5. Base Infrastructure Capacity. Provide base infrastructure data as of 31 March 1994. Provide numbered notes to explain imminent changes, additions & deletions driven by previous BRAC realignments, MILCON (including BRAC related MILCON) & Special Projects that are currently programmed in the FYDP. Give the project number & title, cost, short description, quantity of additional square footage, award date, estimated/actual construction start date and estimated BOD.

a. Utilize Table 5.1 below to provide information on your activity's base infrastructure capacity and load. Do not report this information if you are a tenant activity.

Table 5.1 Base Infrastructure Capacity & Load

	On Base Capacity	**Off base long term contract**	**Normal Steady State Load**	**Peak Demand**
Electrical Supply (KWH)	11,500 KW	14,400 KW*	176,140 KWH*	14,450 KW*
Natural Gas (CFH)	N/A	N/A	N/A	N/A
Sewage (GPD)	514,300 gpd*	N/A	324,600 gpd*	500,200 gpd
Potable Water (GPD)	2,467,920 gpd* **	N/A	1,170,250 gpd*	1,405,000 gpd*
Steam (PSI & lbm/Hr)	880 PSI - 450,000 200 PSI - 66,000	N/A	880 PSI - 138,240 200 PSI - 30,000	880 PSI - 225,000 200 PSI - 66,000
Long Term Parking	97 vehicles	0 vehicles	negligible	negligible
Short Term Parking	4413 vehicles	163 vehicles	1506 veh/day	2152 veh/day

* - numbers include Stump Neck Annex
** - well capacity

b. Maintenance, Repair & Equipment Expenditure Data: Use Table 5.2 below to provide data on facilities and equipment expenditures at your activity. Project expenditures to FY 1997. Do not include data on Detachments who have received this Data Call directly. Do not report this information if you are a tenant activity. The following definitions apply:

Maintenance of Real Property (MRP) Dollars: MRP is a budgetary term used to gather the expenses or budget requirements for facility work including recurring maintenance, major repairs & minor construction (non-MILCON) inclusive of all Major Claimant funded Special Projects. It is the amount of funds spent on or budgeted for maintenance and repair of real property assets to maintain the facility in satisfactory operating condition. For purposes of this Data Call MRP includes all M1/R1 and M2/R2 expenditures.

Current Plant Value (CPV) of Class 2 Real Property: The hypothetical dollar amount to replace a Class 2 facility in kind with today's dollars. Example: the cost today to replace a wood frame barracks with a wood frame barracks.

Acquisition Cost of Equipment (ACE):The total cumulative acquisition cost of all "personal property" equipment maintained at your activity which includes the cost of installed equipment directly related to mission execution, such as lab test equipment.Class 2 installed capital equipment that is an integral part of the facility will not be reported ACE.

Table 5.2 Maintenance, Repair & Equipment Expenditure Data for Indian Head Division, NSWC (UIC: N00174)

Fiscal Year	MRP ($M)	CPV ($M)	ACE ($M)
1985	11.2	897	46
1986	13.6	933	47
1987	17.5	970	59
1988	16.4	1,009	71
1989	16.9	1,049	82
1990	19.4	1,091	91
1991	18.5	1,123	100
1992	17.0	860	110
1993	15.0	1,002	114
1994	14.5	1,048	130
1995	11.1	1,115	139
1996	11.3	1,169	148
1997	11.4	1,227	157

Note:
1. Does not include sponsor owned equipment
2. The hypothetical dollar amount to replace CPV and ACE is roughly twice the values shown in the table.

c. Training Facilities:

(1) By facility Category Code Number (CCN), provide the usage requirements for each course of instruction required for all formal schools on your installation. A formal school is a programmed course of instruction for military and/or civilian personnel that has been formally approved by an authorized authority (ie: Service Schools Command, Weapons Training Battalion, Human Resources Office). Do not include requirements for maintaining unit readiness, GMT, sexual harassment, etc. Include all applicable 171-*xx*, 179-*xx* CCN's.

Type of Training Facility/CCN	School	Type of Training	FY 1993 Requirements			FY 2001 Requirements		
			A	B	C	A	B	C
GBU-24/171-45		Maintenance	500	6	3000			
Smokey Sam/171-45		Operational & Maint.	150	8	800	150	8	800
Standard Missile/171-45	MPMS	Maintenance	32	40	1280	32	40	1280
Vandal/171-45	MPMS	Maintenance	40	40	1600	20	40	800
Respiratory Protection & Personal Protective Equipment*		Operator	800	2	1600	800	2	1600
Lead Training*		Operator	60	2	120	18	2	32
Resource Conservation and Recovery Act Refresher/171-10		Operator	115	8	920	115	8	920
Satellite Site Resource Conservation and Recovery Act/171-10		Operator	55	2	110	55	2	110
Calendar/171-10		Operator	24	8	192	24	8	192
Beg. Harvard Graphics/171-10		Operator	27	16	432	36	16	576
Adv. Harvard Graphics/171-10		Operator	8	16	128	10	16	160
Quest/171-10		Operator	8	40	320	10	40	400
Beg. WordPerfect/171-10		Operator	11	16	176	28	16	448
Beg. DBase/171-10		Operator	8	16	128	5	16	80
Adv. DBase/171-10		Operator	10	16	160	10	16	160

ICON Author/171-10		Operator	8	82	256	8	82	256
ADA (64)/171-10		Operator	10	32	320	8	32	256
Map Info/171-10		Operator	12	32	384	8	32	256
Intro. Windows/171-10		Operator	43	8	344	35	8	280

*Though not designated in the 171/179 CCN, this building is solely dedicated to training. The CCN is being updated to reflect a training facility.

A = STUDENTS PER YEAR
B = NUMBER OF HOURS EACH STUDENT SPENDS IN THIS TRAINING FACILITY FOR THE TYPE OF TRAINING RECEIVED
C = A x B

(2) By Category Code Number (CCN), complete the following table for all training facilities aboard the installation. Include all 171-*xx* and 179-*xx* CCN's.

For example: in the category 171-10, a type of training facility is academic instruction classroom. If you have 10 classrooms with a capacity of 25 students per room, the design capacity would be 250. If these classrooms are available 8 hours a day for 300 days a year, the capacity in student hours per year would be 600,000.

Type Training Facility/CCN	Total Number	Design Capacity (PN)[1]	Capacity (Student HRS/YR)
Missile Propulsion Maintenance School/171-45	5	67	536,000 hr/yr*
Respiratory & Personal Protective Equipment Training Facility	1	8	12,800 hr/hr**

(3) Describe how the Student HRS/YR value in the preceding table was derived.

*4 x (10 + 20 + 15 + 10) = 335 students x 8 hrs = 2680 hours x 200 days = 536,000 hr/yr
**8 students x 8 hrs = 64 hours x 200 days = 12,800 hrs/yr.

[1] Design Capacity (PN) is the total number of seats available for students in spaces used for academic instruction; applied instruction; and seats or positions for operational trainer spaces and training facilities other than buildings, i.e., ranges. Design Capacity (PN) must reflect current use of the facilities.

6. Ship Berthing Capacity. If your activity has the capacity to berth ships fill out the data sheets provided at TAB A.

7. Operational Airfield Capacity. If your activity owns and operates an operational airfield fill out the data sheets provided at TAB B.

8. Depot Level Maintenance Capacity. Fill out the data sheets provided at TAB C if you or your subordinate activities perform depot level maintenance on a piece of equipment or system.

9. Ordnance Storage Capacity. If your activity has the capability to store or maintain weapons and ordnance fill out the data sheets provided at TAB D.

TAB A

SHIP BERTHING CAPACITY

Note: Question numbers in **[ ]'s** are for internal BSAT purposes.

-- **SHIP BERTHING CAPACITY**

1. [11.] For each Pier/Wharf at your facility list the following structural characteristics. Indicate the additional controls required if the pier is inside a Controlled Industrial Area or High Security Area. Provide the average number of days per year over the last eight years that the pier was out of service (OOS) because of maintenance, including dredging of the associated slip:

Table 11.1

Pier/ Wharf & Age[1]	CCN[2]	Moor Length (ft)	Design Dredge Depth[3] (ft) (MLLW)	Slip Width[4] (ft)	Pier Width (ft)[5]	CIA/Security Area? (Y/N)[6]	ESQD Limit [7]	# Days OOS for maint.
Pier 8SN (1947)	151-20	212 ft	16 ft	N/A	40 ft	YES	N/A	212
Wharf 312 (1943)	152-20	900 ft	20 ft	44 ft	112 ft	YES	N/A	200

[1]Original age and footnote a list of MILCON improvements in the past 10 years.
[2]Use NAVFAC P-80 for category code number.
[3]Comment if unable to maintain design dredge depth
[4]Water distance between adjacent finger piers.
[5]Indicate if RO/RO and/or Aircraft access.
[6]Describe the additional controls for the pier.
[7]Net explosive weight. List all ESQD waivers that are in effect with expiration date.

-- **2. [12.]** For each Pier/Wharf at your facility list the following ship support characteristics:

Table 12.1

Pier/ Wharf	OPNAV 3000.8 (Y/N)*	Shore Pwr (KVA) & 4160V (KVA)	Comp. Air Press. & Capacity[1]	Potable Water (GPD)	CHT (GPD)	Oily Waste[1] (gpd)	Steam (lbm/hr & PSI)[2]	Fendering limits[3]
Pier 8SN	N/A	45 KVA	N/A	YES**	N/A	N/A	N/A	20 yds - ice fence off NE corner 20 yds - dolphin off NW corner
Wharf 321	N/A	275 KVA	N/A	YES**	N/A	YES (A)	N/A	20 yds - dolphin off SW corner of Bldg. 321

*Information not available.
**Actual gpd information currently not available.

[1]List only permanently installed facilities.
[2]indicate if the steam is certified steam.
[3]Describe any permanent fendering arrangement limits on ship berthing.

3. [13.] For each pier/wharf listed above state today's normal loading, the maximum capacity for berthing, maximum capacity for weapons handling evolutions, and maximum capacity to conduct intermediate maintenance.

Table 13.1

Pier/Wharf	Typical Steady State Loading[1]	Ship Berthing Capacity	Ordnance Handling Pier Capacity[2]	IMA Maintenance Pier Capacity[3]
Pier 8SN	Dive Boat	4	N/A	4
Wharf 321	Boston Whaler	1	N/A	2 (A)
	Trojan	1	N/A	
	Picket Boat	1	N/A	
	Donzi Speed Boat	1	N/A	

A - 2 boat maximum capacity for maintenance

[1] Typical pier loading by ship class with current facility ship loading.
[2] List the maximum number of ships that can be moored to conduct ordnance handling evolutions at each pier/berth without berth shifts. Consider safety, ESQD and access limitations.
[3] List the maximum number of ships that can be serviced in maintenance availabilities at each pier without berth shifts because of crane, laydown or access limitations.

-- **4. [14.]** For each pier/wharf listed above, based on Presidential Budget 1995 budgeted infrastructure improvements in the Presidential Budget 1995 through FY 1997 and the BRAC-91 and BRAC-93 realignments, state the expected normal loading, the maximum capacity for berthing, maximum capacity for weapons handling evolutions, and maximum capacity to conduct intermediate maintenance.

Table 14.1

Pier/ Wharf	Typical Steady State Loading[1]	Ship Berthing Capacity	Ordnance Handling Pier Capacity[2]	IMA Maintenance Pier Capacity[3]
Pier 8SN	N/A	N/A	N/A	N/A
Wharf 321	N/A	N/A	N/A	N/A

[1] Typical pier loading by ship class with current facility ship loading.

[2] List the maximum number of ships that can be moored to conduct ordnance handling evolutions at each pier/berth without berth shifts. Consider safety, ESQD and access limitations.

[3] List the maximum number of ships that can be serviced in maintenance availabilities at each pier without berth shifts because of crane, laydown, or access limitations.

5. [15.a.] How much pier space is required to berth and support ancillary craft (tugs, barges, floating cranes, etc.) currently at your facility? Indicate if certain piers are uniquely suited to support these craft. **Not applicable.**

6. [15.b.] What is the average pier loading in ships per day due to visiting ships at your base. Indicate if it varies significantly by season. **Negligible**

7. [15.c.] Given no funding or manning limits, what modifications or improvements would you make to the waterfront infrastructure to increase the cold iron ship berthing capacity of your installation? Provide a description , cost estimates, and additional capacity gained. **Not applicable**

8. [15.d.] Describe any unique limits or enhancements on the berthing of ships at specific piers at your base. **Not applicable.**

TAB B

OPERATIONAL AIRFIELD CAPACITY

Note: Question numbers in []'s are for internal BSAT purposes.

Note: The only applicable question to Indian Head Division, NSWC in Tab B is question 36. Answers to all other questions are N/A.

1. [1a.]For the **main airfield and each auxiliary airfield,** answer the following questions:

Airfield Name ____________________

For each runway, give its designation, length, width, load capacity, lighting configurations, and arresting gear types. For each runway list any approach obstructions or any restrictions on flight patterns.

Runway	Length (ft)	Width (ft)	Max load	Lighting				Arresting Gear Type(s)
				F	P	C	N	

F -- Full lighting (runway edge, center, and threshold)
P -- Partial lighting (less than full)
C -- Carrier deck lighting simulated
N -- No lighting

2. [1b.] Provide the **composition** (concrete, asphalt) and **load bearing capacity** of your aprons, ramps and taxiway.

Apron/ramp/taxiway Location - ID	SF	Comp.	Load Bearing Capacity	Comments

3. [1c.] Do you have **high speed taxiways**? Discuss number and impact on airfield operations.

4. [1d.] Are **all runways** with approved instrument approaches served by **hi-speed taxiways**?

5. [1e.] List any restrictions to **runways with approach obstructions** or any **restrictions on flight patterns.** Explain

6. [1f.] For the main airfield and each auxiliary and outlying field, discuss any **runway design features** that are specific to particular types of aircraft (i.e., are the airfield facilities designated primarily fixed wing jet, prop, or helo aircraft?)

7. [2a.] List the **number of flight operations** (take-off, landing, or approach without landing) that the main airfield and all auxiliary fields can support on an hourly basis in both VMC and IMC. Comment on the factors at each field that limit this capacity (e.g., taxiway/runway limitations, airspace, ATC restrictions, environmental restrictions).

Airfield	# Flight Ops/Hr		Comments on Limiting Factors
	IMC	VMC	
Main			
Auxiliary ________			
Auxiliary ________			
Auxiliary ________			

8. [2b.] Provide the average number of **(historical) flight operations** per month conducted at this station and the total number of days during which these operations were conducted. If data is not normally recorded, include estimates (and how derived). A flight operation is defined as a take-off, landing, or approach without a landing.

FY	Main Airfield		Auxiliary Field ________		Auxiliary Field ________		Auxiliary Field ________	
	# Ops	# Days	# Ops	# Days	# Ops.	# Days	# Ops.	# Days
1991								
1992								
1993								

9. [2c.] What percent of your flight operations are Fleet Carrier Landing Practices (FCLPs)?

10. [2d.] Are you designated as an **authorized divert field** for any non-DoD aircraft? Explain.

11. [2d.] Is your airfield designated as a **joint use airfield** (i.e. civilian/military)? Explain.

12. [2e.] What **percentage of total operations are civilian**?

13. [2f.] Describe the major **civilian air traffic structures** (routes, terminal control areas, approaches, etc.) discuss the present and likely future impact of each on air station operations.

14. [2g.] Are there any **air traffic control constraints**/procedures that currently, or may in the future, limit air station operations? If yes, fully explain impact.

15. [4.] List all **NAVAIDS** with published approaches that support the main airfield and/or your auxiliary airfields. Note any additions/upgrades to be added between now and FY1997.

NAVAID	DESCRIPTION/LOCATION

16. [5a.] List all **active duty Navy/USMC squadrons/detachments** and the number of aircraft by type, model, and series (T/M/S), that will be permanently stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Squadron/Det	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001

17. [5b.] Summarize average **visiting squadron/det loading** on air station operations(i.e. airwing/wing weapons deployment).

Squadron/Det Size (#A/C)	Apron Space Used	Hangar Space Assigned	Maintenance Support	Ave length of stay

18. [5c.] If a major percent of flight operations at your air station is from other than permanently stationed squadron/detachments, provide explanation.

19. [6a.] List all **reserve Navy/USMC squadrons/detachments** and the number of aircraft by type, model, and series (T/M/S), which will be stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Squadron/Det	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001

20. [7.] List all **Station aircraft** by number, type, model, and series (T/M/S), which will be parked or stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Squadron/ Custodian	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001

21. [8.] List all **DoD and non-DoD aircraft** not previously listed, by custodian, including number, type, model, and series (T/M/S) of aircraft, which will be parked or stationed/are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Service/ Agency/ Custodian	# of Aircraft (PAA)	Aircraft (T/M/S)	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001

22. [9a.] List other **operational command or support units** (ie. air wing staffs, MWSG, MWSS, MACG, MASS, etc.) stationed at this installation. For each Unit, give the unit identification number/UIC, mission, and facilities required (currently being used) to support the unit (i.e. equipment parking - 2500 SF; maintenance shop-200 SF; etc.).

Support Unit Identification/ UIC	Mission	Facilities Required	Equipment Laydown Requirement (covered/ uncovered in SF)

23. [9b.] Due to BRAC or other realignments, what increases/decreases in operational command or support units will occur at your installation. Provide expected gains/losses by year through 2001.

24. [10a.] List all **other USN/USNR, USMC/USMCR, and other DoD or non-DoD active and SELRES units** not listed previously, that are scheduled to be stationed at this air station at the **end** of the indicated fiscal years.

Unit	Active or Reserve	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001

25. [12b.] For each **Special Use Airspace (SUA)** or airspace-for-special use routinely used by squadrons/units assigned to your installation (regardless of location[1]), indicate how many hours per year are **required for** each user to maintain required **readiness**. Special Use Airspace includes alert areas, military operating areas (MOA), restricted areas, and warning areas which are used for air-to-air, air-to-ground, electronic (EW, ECM), low level training routes (MTRs), and other training.

[1] include RON/domestic deployment training

SUA	Location/ Distance	Types/Uses	Scheduling Authority (UIC)	Squadron/Unit	Training Requirement (types of training)	Yearly Usage Rate (Hrs)

Remarks:

---

[1] include RON/domestic deployment training

26. [12c.] For each **Special Use Airspace (SUA)** or airspace-for-special-use complete the following table:

SUA	Location/ Distance	Types/Uses	Scheduling Authority (UIC)	Fiscal Year	Scheduled	Utilized[1]	Operating Limitations[2]
					# Hours	# Hours	
				1991			
				1992			
				1993			
				1991			
				1992			
				1993			
				1991			
				1992			
				1993			

[1] For the "Utilized" values, provide reasons for hours scheduled, but not utilized (e.g. 40% cancelled due to weather; 10% cancelled for unscheduled range maintenance, etc.).
[2] Provide any comments on operating limitations.

27. [12d.] Assuming that the flight training facility is **not constrained by operational funding** (personnel support, increased overhead costs, etc.), with the present equipment, physical plant, etc. , what **additional use of airspace assets** could be realized? Provide details and assumptions for all calculations.

28. [12h.] In the event that it became necessary to increase base loading at your installation, does the **airspace** overlying and adjacent to your installation have the **capacity** to assume an additional workload? Estimate the percentage of the possible increase. Provide the basis/calculations for these estimates.

29. [17a.] Using the types (and mix) of aircraft currently stationed at your installation, project the additional number of these aircraft (maintain approximate current mix/ratio of A/C) that could be based and parked on your **current parking aprons.**

Provide two estimates:

1. Using NAVFAC P-80 standard measures
2. Using real world planning factors to accomodate a surge demand for space (maintaining safe operating procedures).

Aircraft Type	Current # of Aircraft Parked/Stationed	Maximum Additional Capacity (# of Aircraft)		Total	
		NAVFAC	Surge	NAVFAC	Surge

Provide the **details of your calculations**, including your assumptions on the minimum separation between aircraft, parking angle, folding of aircraft wings and any obstructions that may limit the placement of aircraft on the parking apron spaces. Indicate if taxiway aprons are used in the projection.

30. [18a.] List the **hangars** at the air station. Identify by (P-80) type, year built, dimensions.

Hangar ID/#	Type I, II or (O)ther	Year Built	Hangar Deck Dimensions	Limiting Height	Current Usage	In SF			
						Adequate	Substandard	Inadequate	Total

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your BASEREP.

31. [18b.] For each **hangar** provide **space allocation** information listed in table below. Indicate if OPS/ADMIN space is in a non-contiguous building, Provide subtotal for each hangar.

Hangar #/ID/Type	SQD/Mod# Assignment [1]	Ops + Admin Spaces SF/ Module	Maint Shops SF/ Module (O Level)	Hangar Deck SF/Module	A/C Line parking spaces [2,3]		
					#/ Module	SF	Elec. Pwr.
TOTAL							

[1] Provide which SQD/Det was assigned to the specific module at receipt of this Data Call. (i.e., VFA-15, Hgr 1, Mod C)

[2] Dedicated aircraft parking spaces per Module and total square feet (SF) of A/C line parking spaces

[3] Are there A/C line parking spaces supported by permanently installed electric power? (Y/N)

32. [18f.] List all **squadrons/detachments** normally homeported at this air station that were deployed and **not assigned** hangar/maintenance spaces at receipt of this data call.

Squadron/Detachment	#/Type Aircraft	Deployed Location

33. [18g.] List all **squadrons/detachments** normally homeported at this air station that were deployed and **were assigned** hangar/maintenance spaces at receipt of this data call.

Squadron/Detachment	#/Type Aircraft	Hanger Module Assignment

34. [18h.] Using the types (and mix) of **aircraft** currently stationed at your installation, project the maximum additional number of these aircraft (maintain approximate current mix/ratio of A/C) that could be housed and maintained in **your current hangars**. Provide two estimates:

1. Using NAVFAC P-80 standard measures
2. Using real world planning factors to accomodate a surge demand for space (maintaining safe operating procedures).

Aircraft Type	Current # of Aircraft Parked/Stationed	Maximum Additional Capacity (# of Aircraft)		Total (Current + Additional)	
		NAVFAC	Surge	NAVFAC	Surge

Provide the **details of your calculations**, including your assumptions on the minimum separation between aircraft, folding of aircraft wings and any obstructions that may limit the placement of aircraft in the hangars.

35. [19.] Do you have any of the following **special use facilities** at the Air Station?

CCN	Type of Facility	In SF				# of Units	Year Built
		Adequate	Substandard	Inadequate	Total		
211-01	Aircraft Acoustical Enclosure						
211-02	Nose Hangar						
211-03	Corrosion Control Hangar						
211-75	Parachute/Survival Equipment Shop						
211-81	Engine Test Cell						
211-88	Power Check Pad with Sound Suppression						
211-89	Power Check Pad without Sound Suppression						
211-96	Maintenance, Aircraft Spares Storage						
116-10	Airfield Washrack Pavement						
116-15	Aircraft Rinse Facility						
214-30	Refueling Vehicle Shop						
218-60	Aircraft Ground Support Equipment						
	Other						

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your BASEREP.

36. [21a.] For the following **aircraft support facility** category codes, provide the amount of adequate substandard, and inadequate facilities.

CCN	Facility Type	Unit of Measure	Adequate	Substandard	Inadequate	Total	Number of Units
111-20	Landing Pads	SF	2450			2450	2
121-10	Direct Fueling	OL/GM					
124-30	Fuel Storage	GA					
421-xx	Ammunition Storage	CF/TONS					
425-xx	Open Ammunition Storage	SF					
113-20	Parking Aprons	SF					
113-40	Access Aprons	SF					
116-56	Combat Aircraft Ordnance Loading Area	SF					
	Other						

In accordance with NAVFACINST 11010.44E, an inadequate facility cannot be made adequate for its present use through "economically justifiable means". For all the categories above where inadequate facilities are identified describe why the facility is inadequate; indicate how it is being used and list other possible uses; and specify the costs to remove the deficiencies that make it inadequate. Indicate current plans to remove these deficiencies and the amount of any programmed funds. Discuss any material conditions of substandard facilities which have resulted in a C3 or C4 designation on your BASEREP.

TAB C

DEPOT LEVEL MAINTENANCE CAPACITY

DEPOT LEVEL MAINTENANCE CAPABILITY

Although Indian Head does not function as a depot maintenance activity, our energetics expertise and unique facilities allow us the flexibility to respond to unanticipated or emergency depot support requirements. Our facilities are designed and maintained to accommodate the safety and environmental requirements involved in reworking explosive materials. Our energetics depot capability ensures the readiness and sustainability of weapons propulsion systems and CADs/PADs while providing effective risk management and cost control. Much of the depot support we provide to DoD is inherently governmental. Private corporations do not have the facilities or capabilities to respond to the immediate needs of DoD, and they have not been willing to assume the risk/liability associated with depot support.

We provide a depot maintenance capability for three major commodities: 1) Rocket/Missile Propulsion Systems, 2) Missile Simulators and Trainers, and 3) Cartridge/Propellant Actuated Devices (CAD/PAD)

Rocket/Missile Propulsion Systems

Indian Head possesses the unique facilities and full spectrum energetics capability to support rocket, missile, and gun propulsion systems. This allows us to provide a depot maintenance capability that is unique within both government and industry. We perform maintenance and rework for air-launched missile propulsion systems such as Phoenix, Sparrow, and Sidewinder. As part of the rework program, additional tests are performed on returned units in support of the Quality Evaluation program. This enables IHDIV, as the Navy's expert for Air Launched propulsion systems, to perform statistical anaylsis on fleet returned and accelerated age units to develop and recommend service life limits.

In cases such as the MK 11 Talos Booster (currently used on the Vandal target) and the MK 12 Terrier Boosters there are no industry sources that can perform depot maintenance and regrain. These units, which are not in production but remain in service, require a large motor double-base propellant casting capability unavailable elsewhere. A similar situation exists with the ASROC Booster. Again, there are no industry sources for this extruded propellant product. Radford Army Ammunition Plant (RAAP) is the only other source that has a propellant extrusion capability. However, RAAP does not have the tooling and expertise required to perform this work.

Missile Simulators and Trainers

As with rocket and missile propulsion systems, Indian Head provides a core capability in engineering design, development, manufacture, integration, and maintenance of missile simulators/training shapes, weapons system emulators, and test and diagnostic equipment. Our energetics and propulsion experts are drawing more and more from our weapons simulation capabilities to design and build live-fire, missile-in-the-loop functional ground test software and fixtures.

The depot support we provide for Missile Simulators and Trainers complements the full-spectrum/life-cycle capability we provide for energetics and energetics-based systems.
The rework of trainers involves safing the tactical unit in order to reutilize metal components. Indian Head is uniquely capable of downloading energetics including rocket motors and warheads necessary to safe a tactical unit.

Cartridge/Propellant Actuated Devices and Aircrew Escape Propulsion Systems (CAD/PAD/AEPS)

Indian Head also provides a depot level rework capability for CADs, PADs, and AEPs. Because these devices are man-rated and critical to the successful operation of aircrew escape systems, industry is reluctant to assume the liability associated with efforts other than new production. The rework process involves the disassembly, inspection and refurbishment of components from service-returned CADs/PADs/AEPS. Many companies do not have the capability to perform the level of inspection and testing required to ensure an acceptable level of quality is maintained. Contract efforts for CAD/PAD/AEPS rework are further complicated by the inability to define schedules for the return of assets for rework and the uncertainty of their condition. Consequently, an organic rework capability is required for these items to ensure quality and performance specifications are met and assets are available when required. The CAD/PAD/AEPS depot maintenance function is performed under joint inter-service agreements approved by the Joint Depot Maintenance Analysis Group (JDMAG).

Maintenance and Industrial Activities

Activities that actually perform Depot Level Maintenance should complete **PART I** of this TAB. Warfare Center Headquarters (Owners & Operators) whose subordinate activities actually perform Depot Level Maintenance should complete **PART II** of this TAB. Depot and/or industrial workload capacity is to be reported as a function of the following categories for the period requested.

JCSG-DM: Maintenance and Industrial Activities

Refer to the following notes when filling out the tables in this TAB.

Notes:

1. "Production" equates to the number of items processed per Fiscal Year (FY), unless otherwise specified.

2. Base your responses for FY 1994 and previous years on executed workload, and for FY 1995 and subsequent years on workload as programmed. Unless otherwise specified, use workload mixes as programmed. In estimating projected workload capabilities, use the Activity's configuration as of completion of implementation of the BRAC-88/91/93 actions.

3. Use single shift operations (1-8-5) as the basis for your calculations. Report in specified units of throughput and Direct Labor Man Hours (DLMHs).

4. If any responses are classified, so annotate the applicable question and include those responses in a separate classified annex.

5. Capacity Index and Utilization Index will be calculated in accordance with the Defense Depot Maintenance Council approved update to Department of Defense Instruction (DoDInst) 4151.15H, "Depot Maintenance Capacity/Utilization Index Measurement."

6. The Major Owner/Operator questions will be answered by the Major Claimant/Systems Commander.

7. Utilize the tables provided to answer each question. Answer the questions for all of the commodity groups that are applicable to your activity. In the Aircraft Airframes and Engines (Gas Turbine) commodity groups break out the information by aircraft type, model, series or by engine type as applicable when filling out the tables.

PART I: MAINTENANCE & INDUSTRIAL ACTIVITIES

1. Historic and Predicted Workload

1.1 Given the current configuration and operation of your activity, provide the depot/industrial level maintenance by commodity group (from the List above) that was executed in and is programmed for the Fiscal Years (FY) requested in units throughput (Tables 1.1.a and 1.1.b) and in Direct Labor Man Hours (DLMHs) (Tables 1.1.c and 1.1.d). Add additional rows as required to report all commodity types serviced at this activity.

1.1.a: **Historic and Predicted Depot/Industrial Workload**(1)

Commodity Type	Throughput (Units)							
	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
2 - Aviation Ordnance	10112	10500	10930	3144	12731	8863	12826	10427
10 - Munitions/ Ordnance	Not available	Not available	Not available	145	178	168	191	328
11 - Weapons Systems	Not available	Not available	Not available	4163	3808	3606	3076	(2)50522
Total:	10112	10500	10930	7452	16717	12637	16093	61277

Note:
(1) The facilities are used for both production and maintenance, there is a variance caused by this trade-off.
(2) Demilitarized numerous small units for nuclear trainers as part of the INF Treaty. This was a one time occurrence.

Table 1.1.b: **Historic and Predicted Depot/Industrial Workload**

Commodity Type	Throughput (Units)							
	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
2 - Aviation Ordnance	10359	11622	11442	11595	11425	11302	11271	10899
10 - Munitions/Ordnance	189	479	479	479	479	479	479	479
11 - Weapons Systems	654	607	597	189	168	190	190	190
Total:	11202	12708	12518	12263	12072	11971	11940	11568

Note: The facilities are used for both production and maintenance, there is a variance caused by this trade-off.

Table 1.1.c: **Historic and Predicted Depot/Industrial Workload**

Commodity Type	Throughput (DLMHs)							
	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
2 - Aviation Ordnance	Not available	Not available	Not available	Not available	Not available	63591	75368	55364
10 - Munitions/ Ordnance	Not available	Not available	Not available	8485	8519	37750	33032	27315
11 - Weapons Systems	Not available	Not available	Not available	105430	98559	101298	63389	72325
Total:	Not available	Not available	Not available	113915	107078	202639	171789	155004

Table 1.1.d: **Historic and Predicted Depot/Industrial Workload**

Commodity Type	Throughput (DLMHs)							
	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
2 - Aviation Ordnance	97790	98752	101202	105490	105578	105578	105578	105578
10 - Munitions/ Ordnance	7525	8925	8925	8925	8925	8925	8925	8925
11 - Weapons Systems	26058	19635	18742	19320	15365	16940	16940	16940
Total:	131373	127312	128869	133735	129868	131443	131443	131443

1.2 For each commodity type reported in Tables 1.1.a through 1.1.d, assume (a) the current projected total depot / industrial workload remains as assigned; (b) that sufficient production demand is available to justify maximum hiring, optimum (repeat order manufacturing lead times) procurement, and maximum equipment support; and (c) no major MILCON additional to that already programmed: what is the maximum extent to which depot / industrial maintenance operations could be expanded at this activity, based on the current and future planned workload mixes, for the requested period? Please provide your response in both the absolute maximum number of units and DLMHs that could be processed at this activity by applicable commodity group. Add additional rows as necessary to accommodate all commodity types serviced at this activity.

Table 1.2.a: **Maximum Potential Depot/Industrial Workload**

Commodity Type	Throughput (Units)						
	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
2 - Aviation Ordnance	21967	21967	34327	34327	34327	34327	34327
10 - Munitions/ Ordnance	479	479	479	479	479	479	479
11 - Weapons Systems	607	597	189	168	190	190	190
Total:	23053	23043	34995	34974	34996	34996	34996

Note: The facilities are used for both production and maintenance, there is a variance in the max potential caused by this trade-off.

Table 1.2.b: **Maximum Potential Depot/Industrial Workload**

Commodity Type	Throughput (DLMHs)							
	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
2 - Aviation Ordnance	168189	168189	262822	262822	285792	262822	262822	262822
10 - Munitions/ Ordnance	7525	8925	8925	8925	8925	8925	8925	8925
11 - Weapons Systems	26058	19635	18742	19320	15365	16940	16940	16940
Total:	201772	196749	290489	291067	310082	288687	288687	288687

1.3 Provide details of your calculations including assumptions on additional space utilized, major equipment required, production rates, and constraints that limit increased workload by commodity group at this activity.

DETAILED CALCULATIONS - **AVIATION ORDNANCE**

PRODUCT	BLDG LIMIT	AVG(1) WORKFORCE FY 91 - FY 93	% REWORK WORKFORCE	AVG UNITS REWORKED FY 91 - FY 93	AVG UNITS PER PERSON
CAD	20	10	100%	10013	1001
PAD	25	12	60%	692	96
TOTALS	45	22		10705	

MAXIMUM POTENTIAL WITH EXISTING FACILITY

PRODUCT	BLDG LIMIT	REQUIRED (2) WORKFORCE	UNITS PER PERSON	ANNUAL QUANTITY
CAD	20	20	1001	20026
PAD	25	20	96	1941
TOTALS	45	40		21967

MAXIMUM POTENTIAL WITH PROGRAMMED MILCON (3)

PRODUCT	BLDG (4) LIMIT	REQUIRED (2) WORKFORCE	UNITS PER PERSON	ANNUAL QUANTITY
CAD	31	31	1001	31040
PAD	39	34	96	3287
TOTALS	70	65		34327

THROUGHPUT (UNITS)

COMMODITY TYPE 2	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001
CAD	20026	20026	20026	31040	31040	31040	31040	31040
PAD	1941	1941	1941	3287	3287	3287	3287	3287
TOTAL	21967	21967	21967	34327	34327	34327	34327	34327

NOTES:
1. Limiting factor for rework of CADs and PADs is the number of operators in the disassembly and assembly area.
2. Approximately 5 operators in the PAD area work on new production, not rework.
3. CAD/PAD MILCON P-073 to be operational Feb 96 and increase capacity in FY 97.
4. MILCON will combine CAD/PAD in the same building. The 70 operator workforce split of 31 CAD and 39 PAD is proportional to the current workload.

1.4 Given an environment unconstrained by funds or manning, what Industrial Plant Equipment (IPE) would you change (add, delete, or modify) to increase your activity's capability to perform workload in each of the applicable commodity groups? Describe quantitatively how the changes above would increase your activity's depot/industrial level maintenance capabilities. What would the associated costs be? What would be the payback period and return on investment?

Beyond the programmed MILCON, we have not identified additional IPE which could improve capacity. The programmed CAD/PAD MILCON supporting aviation ordnance will consolidate all CAD/PAD manufacturing operations including propellant grain processing from the current nine buildings into two buildings. The main facility would incorporate all CAD and PAD assembly, disassembly, and rework operations into a single environmentally controlled building capable of supporting all current CAD/PAD designs including electrically-initiated systems. The propellant grain processing facility would likewise consolidate all grain processing operations (except for the actual cast/cure, which is accomplished in remote facilities) into a single, environmentally controlled building. This would provide the capability to handle all existing propellant formulations including high performance hygroscopic formulations.

Besides providing the capability for all current CAD/PAD designs, the consolidation would improve the quality and efficiency of operations by minimizing handling, transportation, and environmental exposure. The facilities would be co-located with major supporting facilities (cartridge production facility engineering and line offices) to further enhance efficiency. Coupled with the currently programmed equipment upgrades, the facility would be in compliance with all existing and foreseen environmental and OSH requirements.

Major equipment upgrade

* Paint Booth and Conveyer System - Would meet all environmental and OSH requirements for solventless paint and Ozone Depleting Substance (ODS) limits and would allow automation of operations.

* ODS - Free Degreasing System - would eliminate ODS from parts cleaning operations that preceed propellant casting for small rockets (rocket motors, ROCAT, catapult cartridges).

* Propellant - Removal Facility - Would reduce the effluent and create a "closed system" for propellant removal from case-bonded rocket motors. This would meet all future environmental requirements for depot rework, and would also reduce the labor for theme operations.

Payback is estimated at 4-5 years.

1.5 Are there any environmental, legal, or otherwise limiting factors that inhibit further the development of depot/industrial level workload and this activity (AICUZ encroachment, pollutant disharge, etc.)?

Indian Head is remotely located on a peninsula surrounded by protected wetland areas. There is no developable land adjacent to the Division, and the Code of Federal Regulations gives the Commander complete authority over the adjacent waterway. This location provides natural isolation. Consequently, there is no threat of encroachment caused by high density residential or industrial development.

IHDIV complies with Federal, State, and local environmental regulations. We have taken a proactive stance in protecting the natural environment. We have:

* Tested all National Pollutant Discharge Elimination System Outfalls for aquatic toxicity and remediated 12 of the original 15 outfalls that showed any levels of toxicity.

* Since 1990, removed or closed 84 underground storage tanks.

* Successfully developed the country's first carbon absorption system for removal of nitrate esters from wastewater.

* Successfully implemented numerous pollution prevention initiatives including installing ultrasonic cleaners to reduce Volatile Organic Compound (VOC) emissions, recycling of chlorofluorocarbons, distilling of waste trichloroethane, and converting all wet paint booth systems to dry filter systems. We are currently installing jet washers and have begun using high volume low pressure paint gun systems and paint gun washers to reduce VOC emissions, and have begun recycling machine coolant.

Upon start-up of MILCONs P106 and P963, IHDIV will have reduced nutrient loading to the lower Potomac region by 95%. IHDIV is developing new technologies to enhance DOD's environmental compliance and protect our air and water resources. Examples are ultraviolet treatment of nitrate ester contaminated wastewater and air streams; molten salt hazardous waste treatment and a confined burn facility (both open burning/open detonation alternatives); and a boiler to capture the energy released by explosive burning and convert it to useful energy.

IHDIV is in compliance with OP-5 Explosive Safety Quantity Distance criteria, and they are all met within the confines of the Division. There is no impact outside the Division. For both operating buildings and magazines, IHDIV has no CNO waivers or exemptions from OP-5 which restrict our capacity.

These achievements and initiatives ensure that IHDIV is not limited by the environment or geographic surroundings and has no threat of encroachment. Additionally it protects the environment from degradation and has helped strengthen an already supportive climate from the local community.

2. Workload Summary

2.1 Enter the information from the Predicted and Potential Workload sections of the previous question into the table below and calculate the variance between projected and potential workloads. Again, clearly identify each commodity and include all commodities serviced at this activity.

Table 2.1.a: **PREDICTED WORKLOAD VARIANCE FOR FY 1995**

FY 1995 Commodity Type	Product (units)			DLMHs		
	Predicted Workload	Potential Workload	Variance	Predicted Workload	Potential Workload	Variance
2 - Aviation Ordnance	11622	21967	10345	98752	168189	69437
10 - Munitions/ Ordnance	479	479	0	8925	8925	0
11 - Weapons Systems	607	607	0	19635	19635	0
Total	N/A	N/A	N/A	127312	196749	69437

[1] This workload is not duplicative of any previously reported workload. Detail all production categorized as "other".

Table 2.1.b: **PREDICTED WORKLOAD VARIANCE FOR FY 1996**

FY 1996 Commodity Type	Product (units)			DLMHs		
	Predicted Workload	Potential Workload	Variance	Predicted Workload	Potential Workload	Variance
2 - Aviation Ordnance	11442	21967	10525	101202	262822	161620
10 - Munitions/ Ordnance	479	479	0	8925	8925	0
11 - Weapons Systems	597	597	0	18742	18742	0
Total	N/A	N/A	N/A	128869	290489	161620

[1] This workload is not duplicative of any previously reported workload. Detail all production categorized as "other".

Table 2.1.c: **PREDICTED WORKLOAD VARIANCE FOR FY 1997**

FY 1997 Commodity Type	Product (units)			DLMHs		
	Predicted Workload	Potential Workload	Variance	Predicted Workload	Potential Workload	Variance
2 - Aviation Ordnance	11595	34327	22732	105490	262822	157332
10 - Munitions/ Ordnance	479	479	0	8925	8925	0
11 - Weapons Systems	189	189	0	19320	19320	0
Total	N/A	N/A	N/A	133735	291067	157332

[1] This workload is not duplicative of any previously reported workload. Detail all production categorized as "other".

Table 2.1.d: **PREDICTED WORKLOAD VARIANCE FOR FY 1998**

FY 1998 Commodity Type	Product (units)			DLMHs		
	Predicted Workload	Potential Workload	Variance	Predicted Workload	Potential Workload	Variance
2 - Aviation Ordnance	11425	34327	22902	105578	285792	180214
10 - Munitions/ Ordnance	479	479	0	8925	8925	0
11 - Weapons Systems	168	168	0	15365	15365	0
Total	N/A	N/A	N/A	129868	310082	180214

[1] This workload is not duplicative of any previously reported workload. Detail all production categorized as "other".

Table 2.1.e: **PREDICTED WORKLOAD VARIANCE FOR FY 1999**

FY 1999 Commodity Type	Product (units)			DLMHs		
	Predicted Workload	Potential Workload	Variance	Predicted Workload	Potential Workload	Variance
2 - Aviation Ordnance	11302	34327	23025	105578	262822	157244
10 - Munitions/ Ordnance	479	479	0	8925	8925	0
11 - Weapons Systems	190	190	0	16940	16940	0
Total	N/A	N/A	N/A	131443	288687	157244

[1] This workload is not duplicative of any previously reported workload. Detail all production categorized as "other".

Table 2.1.f: **PREDICTED WORKLOAD VARIANCE FOR FY 2000**

FY 2000 Commodity Type	Product (units)			DLMHs		
	Predicted Workload	Potential Workload	Variance	Predicted Workload	Potential Workload	Variance
2 - Aviation Ordnance	11271	34327	23056	105578	262822	157244
10 - Munitions/ Ordnance	479	479	0	8925	8925	0
11 - Weapons Systems	190	190	0	16940	16940	0
Total	N/A	N/A	N/A	131443	288687	157244

[1] This workload is not duplicative of any previously reported workload. Detail all production categorized as "other".

Table 2.1.g: **PREDICTED WORKLOAD VARIANCE FOR FY 2001**

FY 2001 Commodity Type	Product (units)			DLMHs		
	Predicted Workload	Potential Workload	Variance	Predicted Workload	Potential Workload	Variance
2 - Aviation Ordnance	10899	34327	23428	105578	262822	157244
10 - Munitions/ Ordnance	479	479	0	8925	8925	0
11 - Weapons Systems	190	190	0	16940	16940	0
Total	N/A	N/A	N/A	131443	288687	157244

1 This workload is not duplicative of any previously reported workload. Detail all production categorized as "other".

PART II: HEADQUARTERS (MAJOR OWNERS & OPERATORS)

1. Interservicing Candidates

1.1 Specify all depot and/or industrial workload programs, performed by any of your activities, that are possible candidates for interservicing, *both* in to and out from the activity. Provide detailed supporting data for your recommendations.

None - see narative at beginning of Tab C.

2. Core Requirements

2.1 Given the current programmed configuration and operation for these activities, provide the projected Core Workload, Directed workload, Core "Plus" Workload, and Workload required to be retained to meet the Secretary of the Navy's Title 10 responsibilities. Within each Fiscal Year (FY) requested, provide your response in Units of throughput (where applicable) and Direct Labor Man Hours (DLMHs) for the categories in the following Tables. Core workload includes all Core work performed for other Military Departments (please specify such work within each commodity category).

- Core workload calculations are to be performed in accordance with the Office of the Under Secretary of Defense (Logistics) (OUSD(L)) Memorandum dated 15 November 1993 (subject: "Policy for Maintaining Core Depot Maintenance Capability").

- Directed workload includes: Foreign Military Sales (FMS); Low Quantity Non-Core; Low Quantity Above Core; Best Value; Engineering Support; and Last Source of Repair. Directed workload is tabulated in Section 2.2, following.

- Core-Plus workload is the sum of Core workload and Directed workload.

- Title 10 workload is that portion of Core workload that must be retained within the Department of the Navy in order to meet the Secretary of the Navy's Title 10 responsibilities.

Table 2.1.a: **Workload Requirements FY 1993**

FY 1993 Commodity Type	Core Workload (DLMHs)			
	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
2 - Aviation Ordnance	55364	0	55364	55364
10 - Munitions/Ordnance/	27315	0	27315	27315
11 - Weapons Systems	72325	0	72325	72325
Total:	155004	0	155004	155004

Note: The hours shown reflect only work performed by the Naval Surface Warfare Center. Naval Surface Warfare Center does not have visibility into the total (i.e., public and private) depot maintenance requirement for surface warfare systems.

Table 2.1.b: **Workload Requirements FY 1994**

FY 1994 Commodity Type	Core Workload (DLMHs)			
	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
2 - Aviation Ordnance	97790	0	97790	97790
10 - Munitions Ordnance	7525	0	7525	7525
11 - Weapons Systems	26058	0	26058	26058
Total:	131373	0	131373	131373

Table 2.1.c: **Workload Requirements FY 1995**

FY 1995	Core Workload (DLMHs)			
Commodity Type	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
2 - Aviation Ordnance	98752	0	98752	98752
10 - Munitions/Ordnance	8925	0	8925	8925
11 - Weapons Systems	19635	0	19635	19635
Total:	127312	0	127312	127312

Table 2.1.d: **Workload Requirements FY 1996**

FY 1996 Commodity Type	Core Workload (DLMHs)			
	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
2 - Aviation Ordnance	101202	0	101202	101202
10 - Munitions/Ordnance	8925	0	8925	8925
11 - Weapons Systems	18742	0	18742	18742
Total:	128869	0	128869	128869

Table 2.1.e: **Workload Requirements FY 1997**

FY 1997 Commodity Type	Core Workload (DLMHs)			
	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
2 - Aviation Ordnance	105490	0	105490	105490
10 - Munitions/Ordnance	8925	0	8925	8925
11 - Weapons Systems	19320	0	19320	19320
Total:	133735	0	133735	133735

Table 2.1.f: **Workload Requirements FY 1998**

FY 1998 Commodity Type	Core Workload (DLMHs)			
	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
2 - Aviation Ordnance	105578	0	105578	105578
10 - Munitions/Ordnance	8925	0	8925	8925
11 - Weapons Systems	15365	0	15365	15365
Total:	129868	0	129868	129868

Table 2.1.g: **Workload Requirements FY 1999**

FY 1999 Commodity Type	Core Workload (DLMHs)			
	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
2 - Aviation Ordnance	105578	0	105578	105578
10 - Munitions/Ordnance	8925	0	8925	8925
11 - Weapons Systems	16940	0	16940	16940
Total:	131443	0	131443	131443

Table 2.1.h: **Workload Requirements FY 2000**

FY 2000 Commodity Type	Core Workload (DLMHs)			
	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
2 - Aviation Ordnance	105578	0	105578	105578
10 - Munitions/Ordnance	8925	0	8925	8925
11 - Weapons Systems	16940	0	16940	16940
Total:	131443	0	131443	131443

Table 2.1.i: **Workload Requirements FY 2001**

FY 2001 Commodity Type	Core Workload (DLMHs)			
	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
2 - Aviation Ordnance	105578	0	105578	105578
10 - Munitions/Ordnance	8925	0	8925	8925
11 - Weapons Systems	16940	0	16940	16940
Total:	131443	0	131443	131443

2.2 Given the current programmed configuration and operation of the NADEPs, provide the projected Directed Workload. Within each Fiscal Year (FY) requested, provide your response in units throughput (where available) and Direct Labor Man Hours (DLMHs) for the categories requested.

- Foreign Military Sales (FMS) include airframe, engine and component maintenance and manufacturing support.

- Modifications (Mods) include *only those modifications* performed concurrently with scheduled depot level work packages constituting Core workload.

- Low Quantity Non-Core (LQNC) is that Non-Core workload with insufficient programmed quantity for competition. This category also includes above threshold Core workload for weapons systems which have a total projected workload greater than the computed core quantity (above core workload).

- Best Value (BV) includes items that have been offered for maintenance under competitive rules and no offerer has provided a bid that is equal to or better than the value provided by a current organic source.

- Engineering Support (Engr) consists of Engineering Support to field, modify, operate, and maintain aviation weapon systems (i.e. RCM analysis, defining maintenance intervals, developing maintenance concepts, modification management, industrial support, investigations, bulletins and flight safety, and environmental issues).

- Last Source of Repair (LSOR) comprises Non-Core workload which has been offered for maintenance under competitive rules and no offerer has provided a bid, and for which a workload requirement exists and the organic depot is the only remaining source of repair.

NOTE: We do not have any directed workload, therefore the next section is not applicable.

Table 2.2.a: **Directed Workloads - FY 1993**

FY 1993 Commodity	Units Throughput						Total
	FMS	Mods	LQNC	BV	Engr	LSOR	
FY 1993 Total:							

Table 2.2.b: **Directed Workloads - FY 1994**

FY 1994 Commodity	Units Throughput						Total
	FMS	Mods	LQNC	BV	Engr	LSOR	
FY 1994 Total:							

Table 2.2.c: **Directed Workloads - FY 1995**

FY 1995 Commodity	Units Throughput						Total
	FMS	Mods	LQNC	BV	Engr	LSOR	
FY 1995 Total:							

Table 2.2.d: **Directed Workloads - FY 1996**

FY 1996 Commodity	Units Throughput						Total
	FMS	Mods	LQNC	BV	Engr	LSOR	
FY 1996 Total:							

Table 2.2.e: **Directed Workloads - FY 1997**

FY 1997 Commodity	Units Throughput						Total
	FMS	Mods	LQNC	BV	Engr	LSOR	
FY 1997 Total:							

Table 2.2.f: **Directed Workloads - FY 1998**

FY 1998 Commodity	Units Throughput						Total
	FMS	Mods	LQNC	BV	Engr	LSOR	
FY 1998 Total:							

Table 2.2.g: **Directed Workloads - FY 1999**

FY 1999 Commodity	Units Throughput						Total
	FMS	Mods	LQNC	BV	Engr	LSOR	
FY 1999 Total:							

Table 2.2.h: **Directed Workloads - FY 2000**

FY 2000 Commodity	Units Throughput						Total
	FMS	Mods	LQNC	BV	Engr	LSOR	
FY 2000 Total:							

Table 2.2.i: **Directed Workloads - FY 2001**

FY 2001 Commodity	Units Throughput						Total
	FMS	Mods	LQNC	BV	Engr	LSOR	
FY 2001 Total:							

3. Organization

3.1 Can the depot/industrial level workload be transferred to other sources such as other Navy activities, interservice to other DoD entities, or outsourced to commercial activities? Identify all applicable considerations to your recommendations.

No - see narrative at beginning of Tab C.

TAB D

ORDNANCE STORAGE CAPACITY

ORDNANCE STORAGE CAPACITY

The Indian Head Division of the Naval Surface Warfare Center does not store any weapons systems for direct issue to Fleet users. We store the bulk explosives, explosive components, and other energetic materials necessary for the full-spectrum/life-cycle capability we provide for Rocket/Missile/Gun propulsion systems, energetics and explosives manufacturing, and Cartridge Actuated Devices/Propellant Actuated Devices/Aircrew Escape Propulsion Systems (CAD/PAD/AEPS).

Our ordnance storage capacity is limited by factors other than the physical size of the magazines designated for ordnance storage. Prior to storage, each explosive item is assigned a Storage Compatability Group (SCG) by the Department of Defense Explosives Safety Board and the Department of the Navy. Each explosive item can only be stored with items of the same or approved alternate Storage Compatibility Groups.

All ordnance storage buildings must be separated from other buildings that contain explosives as well as other inert buildings. The separation distances are mandated by DoD 6055.9 and NAVSEA OP-5, Volume I. Because most of our production areas are inhabitated, we must adhere to strict QD criteria in order to reduce the projected ARCs and permit safe operation.

Characteristics of stored explosives and energetic materials used at Indian Head are not suitable for stacking. A large quantity of explosives and energetic materials are stored on a single level versus multiple levels because of the shape, size, and configuration of the containers.

ORDNANCE STORAGE CAPACITY

Please answer the following questions if your activity performs any stowage or maintenance on any of the following ordnance commodities types:

ORDNANCE COMMODITY TYPES		
Mines	Expendables	LOE: Rockets
Torpedoes	INERT	LOE: Bombs
Air Launched Threat	CADS/PADS	LOE: Gun Ammo (20mm-16")
Surface Launched Threat	Strategic Nuclear	LOE: Small Arms(up to 50 cal.)
	Tactical Nuclear	LOE: Pyro/Demo
		Grenades/Mortars/Projectiles

1. Ordnance Stowage and Support

1.1 Provide present and predicted inventories (coordinate with inventory control manager) and maximum rated capability of all stowage facilities at each weapons storage location controlled by this activity. In predicting the out year facility utilization, distribute overall ordnance compliment to the most likely configuration. The maximum rated capability is also an out year projection taking into account any known or programmed upgrades that may increase current stowage capacity. When listing stowage facilities, group by location (e.g. main base, outlying field, special area).

Table 1.1: **Total Facility Ordnance Stowage Summary**

Facility Number	PRESENT INVENTORY		PREDICTED INVENTORY FY 2001		MAXIMUM RATED CAPABILITY	
	*TONS	SQ FT	*TONS	SQ FT	*TONS	SQ FT
Main Base	3,137,485	42,070	2,218,514	43,372	15,361,477	213,372
TOTAL	3,137,485	42,070	2,218,514	43,372	15,361,477	213,372

*Inventory is by N.E.W which is in pounds not tons. Not for ALL UP Round Storage.

1.2 For each Stowage facility identified in question 1.1 above, identify the type of facility (specify if "igloo", "box", etc.). Identify the type of ordnance commodity (from the list above) which are currently stowed in that facility and all other ordnance types which, given existing restrictions, could be physically accommodated in that stowage facility. Specify below if such additional accommodation would require a modification of the facility (e.g. enhanced environmental controls, ESQD waiver).

• Identify the reason(s) for which this ordnance is stored at your facility from the following list: own activity use (training); own activity use (operational stock); Receipt/Segregation/ Stowage/Issue (RSSI); transhipment/awaiting issue; deep stow (war reserve); deep stow (awaiting Demil); other. Explain each "other" entry in the space provided, including ordnance stowed which is not a DON asset.

Table 1.2: **Total Facility Ordnance Stowage Summary**

Facility Number/Type	Currently Stowed Commodity Type(s)	Reason for Stowage at your Activity	Commodity Type(s) Which Can Be Stowed *note
Main Base/Box	Expendables	Other - R&D	
Main Base/Box	Expendables	Operational stock	
Main Base/above ground	CAD/PAD	RSS&I	
Main Base/above ground	CAD/PAD	Operational stock	
Main Base/above ground	Rocket Motors	Operational stock	
Main Base/above ground	Rocket Motors	Transhipment	
Main Base/above ground	Expendables	Other - R&D	
Main Base/IGLOO	Rocket Motors	Transhipment	
Main Base/IGLOO	Gun Ammo	Operational stock	
Main Base/IGLOO	Torpedoes	Operational Stock	
Main Base/IGLOO	Mines	Operational Stock	

Main Base/IGLOO	Air Launched Threat	Operational Stock	
Main Base/IGLOO	Surface Launched Threat	Operational Stock	
Main Base/IGLOO	Other Threat	Operational Stock	
Main Base/IGLOO	Expendables	Operational stock	
Main Base/above ground	CAD/PAD	AF Transhipment	
Main Base/above ground	Gun AMMO	Transhipment	
Main Base/above ground	Torpedoes	Transhipment	
Main Base/above ground	Mines	Transhipment	
Main Base/above ground	Air Launched Threat	Transhipment	
Main Base/above ground	Surface Launched Threat	Transhipment	
Main Base/above ground	Other Threat	Transhipment	
Main Base/above ground	Inert	Operational stock	
Main Base/above ground	Inert	Transhipment	
Main Base/above ground	Strategic Nuclear	Operational Stock	

Additional comments:
*Note: As long as we adhere to the ordnance configuration requirements for compatability storage and quantity distance we can store all classes of explosive materials. As we stated earlier we do not store any weapons systems for issue to the fleet.

1.3 Identify the rated category, rated NEW and status of ESQD arc for each stowage facility listed above.

Table 1.3: **Facility Rated Status**

Facility Number / Type	Hazard Rating (1.1-1.4)	Rated NEW	ESQD Arc		
			Established (Y / N)	Waiver (Y / N)	Waiver Expiration Date
106D/E	not avail	not avail	Y	Y	*
438	1.4	200	Y	Y	*
439	1.4	5,000	Y	Y	*
460	1.3	500,000	Y	Y	**
461	1.3	440,000	Y	Y	**
463	1.3	370,000	Y	Y	**
465	1.3	440,000	Y	Y	**
496	1.3	not avail	Y	Y	*
499	1.1	20,000	Y	Y	*
517	1.3	500,000	Y	Y	**
522	1.3	150,000	Y	Y	*
539	1.3	60,000	Y	Y	*
540	1.1	2,680	Y	Y	*
541	1.1	300	Y	Y	*
542	1.1	300	Y	Y	*
548	1.4	2,000	Y	Y	*
573	1.3	45,000	Y	Y	*
574	1.3	50,000	Y	Y	*
578	1.3	114,000	Y	Y	*
583	1.3	25,000	Y	Y	*

586	1.3	136,000	Y	Y	*
589	1.3	800	Y	Y	*
593	1.3	80,000	Y	Y	*
599	1.3	150,000	Y	Y	*
604	1.3	5,000	Y	Y	*
605	1.2	50,000	Y	Y	* **
606	1.3	500,000	Y	Y	* **
607	1.3	500,000	Y	Y	* **
608	1.3	500,000	Y	Y	* **
609	1.3	500,000	Y	Y	* **
677	1,3	5,000	Y	Y	*
681	1.3	10,000	Y	Y	*
683	1.3	5,000	Y	Y	*
684	1.4	16,000	Y	Y	*
697	1.3	6,000	Y	Y	*
701	1.1	1,500	Y	Y	*
709	1.1	7,000	Y	Y	*
733	1.1	250,000	Y	Y	*
734	1.3	500,000	Y	Y	*
736	1.3	500,000	Y	Y	*
737	1.3	500,000	Y	Y	*
738	1.3	500,000	Y	Y	*
746	1.3	1,000	Y	Y	*
747	1.3	1,000	Y	Y	*
908	1.1	1,000	Y	Y	*
1048	1.3	6,000	Y	Y	*
1052	1.3	6,000	Y	Y	*

1057	1.3	6,000	Y	Y	*
1058	1.3	1,000	Y	Y	*
1059	1.3	1,000	Y	Y	*
1060	1.3	1,000	Y	Y	*
1061	1.3	1,000	Y	Y	*
1062	1.1	100	Y	Y	*
1063	1.1	100	Y	Y	*
1064	1.1	100	Y	Y	*
1065	1.1	100	Y	Y	*
1066	1.1	100	Y	Y	*
1067	1.1	100	Y	Y	*
1068	1.1	100	Y	Y	*
1069	1.1	3,000	Y	Y	*
1070	1.1	100	Y	Y	*
1071	1.1	100	Y	Y	*
1072	1.1	100	Y	Y	*
1073	1.1	100	Y	Y	*
1074	1.1	100	Y	Y	*
1075	1.1	100	Y	Y	*
1076	1.1	100	Y	Y	*
1077	1.1	100	Y	Y	*
1078	1.1	100	Y	Y	*
1079	1.1	100	Y	Y	*
1080	1.1	100	Y	Y	*
1081	1.1	100	Y	Y	*
1082	1.1	100	Y	Y	*
1083	1.1	100	Y	Y	*

1084	1.3	250	Y	Y	*
1085	1.3	250	Y	Y	*
1086	1.3	250	Y	Y	*
1087	1.1	100	Y	Y	*
1088	1.1	100	Y	Y	*
1089	1.1	100	Y	Y	*
1090	1.1	500	Y	Y	*
1091	1.1	500	Y	Y	*
1092	1.1	500	Y	Y	*
1093	1.1	500	Y	Y	*
1094	1.1	500	Y	Y	*
1095	1.1	500	Y	Y	*
1096	1.1	500	Y	Y	*
1097	1.1	500	Y	Y	*
1098	1.1	1,000	Y	Y	*
1099	1.1	1,500	Y	Y	*
1100	1.3	5,000	Y	Y	*
1101	1.3	5,000	Y	Y	*
1131	1.4	500,000	Y	Y	*
1132	1.4	500,000	Y	Y	*
1224	1.3	540	Y	Y	*
1442	1.3	3,000	Y	Y	*
761	1.4	40,000	N	N	*
807	1.1	40,000	N	N	*
1508	1.4	50,000	N	N	*
1511	1.4	50,000	N	N	*
1512	1.1	5,000	N	N	*

1510	1.1	5,000	N	N	*
1509	1.1	5,000	N	N	*
106A	1.4	600	N	N	*
312	1.3	460,000	N	N	*
458	1.3	500,000	N	N	*
520	1.3	500,000	N	N	*
459	1.3	500,000	N	N	*
464	1.3	500,000	N	N	*
519	1.3	500,000	N	N	*
1102	1.3	50,000	N	N	*
1568	1.1	600	N	N	*
515	1.3	500,000	N	N	*
462	1.3	400,000	N	N	*
518	1.3	500,000	N	N	*
257	1.3	5,000	N	N	*
256	1.3	5,000	N	N	*
109	1.4	1,000	N	N	*
211	1.3	10,000	N	N	*
187	1.3	10,000	N	N	*
311	1.3	24,000	N	N	*
513	1.3	500,000	N	N	*
514	1.3	500,000	N	N	*
735	1.3	500,000	N	N	*
494	1.3	30,000	N	N	*
1201	1.1	30,900	N	N	*
241	1.4	25,000	N	N	*
906	1.1	600	N	N	*

466	1.2	480	N	N	*
475	1.3	20,000	N	N	*
477	1.4	65,000	N	N	*
478	1.3	90,000	N	N	*
479	1.3	50,000	N	N	*
680	1.3	800	N	N	*
505	1.3	65,000	N	N	*
507	1.4	194,500	N	N	*
509	1.4	125,000	N	N	*
502	1.1	17	N	N	*
745	1.4	1,000	N	N	*
754	1.4	600	N	N	*
1146	1.1	2,000	N	N	*
109A	1.3	1,000	N	N	*
103	1.1	10	N	N	*
160	1.4	400	N	N	*

*CNO Waiver NAVSURFWARCENDIVIH W1-93 is due to magazines not having appropriate earth cover and/or not complying with slope requirements. There are no limitations on the storage capabilities of these buildings as a result of this waiver. Waiver expires 30 Sep 95.

**CNO Waiver NAVSCOLEOD W1-92 permits the use of a practical training area by NAVSCOLEOD even though it is within Public Traffic Route Distance of ten Indian Head magazines. Magazine limits and contents have been adjusted to accommodate the training area and reduce the effects of any inadvertent incident. The Waiver expires 30 Sep 95.

1.4 Identify any restrictions which prevent maximum utilization of your facilities. If restrictions are based on facility conditions, specify reason, the cost to correct the deficiency, and identify any programmed projects that will correct the deficiency and/or increase your capability.

There are no restrictions which prevent maximum utilization of facilities for explosives storage and operations. Facilities are sited in accordance with NAVSEA OP 5 Explosives Safety Quantity Distance criteria, and as such, explosives limits are the maximum amount permissible for the current separation distances between facilities.

1.5 Identify if your activity performs any of the following functions on any of the ordnance commodities previously listed. Technical support includes planning, financial, administrative, process engineering and SOP support. Within each related function identify each ordnance commodity type for which you provide these services and the total Direct Labor Man Hours (DLMHs) expended (FY 1994); identify only those DLMHs expended by personnel under your command.

Table 1.5: **Related Ordnance Support**

Related Functions	Performed? (Y / N)	Type of Commodity	DLMHs
Maintenance (specify level)	Y	AirLaunched Threat	1180
Testing	Y	AirLaunched Threat	25419
Manufacturing	Y	AirLaunched Threat	632
Outload	N	AirLaunched Threat	N/A
Technical Support	Y	AirLaunched Threat	110236
Maintenance	Y	CADs/PADs	50053.91
Testing	Y	CADs/PADs	42495.44
Manufacturing	Y	CADs/PADs	132559.5
Outload	N	CADs/PADs	N/A
Technical Support	Y	CADs/PADs	277052.0
Maintenance	Y	Expendable	0
Testing	Y	Expendable	23095
Manufacturing	Y	Expendable	66710

Outload	N	Expendable	N/A
Technical Support	Y	Expendable	104542
Maintenance	Y	Inert	10708
Testing	Y	Inert	1922
Manufacturing	Y	Inert	37655
Outload	N	Inert	N/A
Technical Support	Y	Inert	207170
Maintenance	Y	LOE:Bombs	
Testing	Y	LOE:Bombs	
Manufacturing	Y	LOE:Bombs	
Outload	N	LOE:Bombs	N/A
Technical Support	Y	LOE:Bombs	499
Maintenance	Y	LOE:Gun Ammo	
Testing	Y	LOE:Gun Ammo	23163
Manufacturing	Y	LOE:Gun Ammo	107471
Outload	N	LOE:Gun Ammo	N/A
Technical Support	Y	LOE:Gun Ammo	72102
Maintenance	Y	LOE:Rockets	
Testing	Y	LOE:Rockets	16240
Manufacturing	Y	LOE:Rockets	58362
Outload	N	LOE:Rockets	N/A
Technical Support	Y	LOE:Rockets	64776
Maintenance	Y	Mines	
Testing	Y	Mines	15108
Manufacturing	Y	Mines	9188
Outload	N	Mines	N/A
Technical Support	Y	Mines	104963

Maintenance	Y	Other Threat	
Testing	Y	Other Threat	8108
Manufacturing	Y	Other Threat	23016
Outload	N	Other Threat	N/A
Technical Support	Y	Other Threat	55122
Maintenance	Y	Strategic Nuclear	
Testing	Y	Strategic Nuclear	4974
Manufacturing	Y	Strategic Nuclear	940
Outload	N	Strategic Nuclear	N/A
Technical Support	Y	Strategic Nuclear	14754
Maintenance	Y	Surface Launched Threat	
Testing	Y	Surface Launched Threat	11401
Manufacturing	Y	Surface Launched Threat	21887
Outload	N	Surface Launched Threat	N/A
Technical Support	Y	Surface Launched Threat	102377
Maintenance	Y	Torpedoes	
Testing	Y	Torpedoes	7588
Manufacturing	Y	Torpedoes	15967
Outload	N	Torpedoes	N/A
Technical Support	Y	Torpedoes	20025

NSWC INDIAN HEAD
DATA CALL #4

JL
SEA OOX
5/13/94

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. D. G. MAXWELL
NAME (Please type or print)

Signature

COMMANDER
Title

7 MAY 1994
Date

INDIAN HEAD DIVISION
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)

RADM(SEL) D.P.. SARGENT, JR.
NAME (Please type or print)

Signature

COMMANDER
Title

5/11/94
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

G. R. STERNER
NAME (Please type or print)

Signature

Commander
Title

5-13-94
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)

J.B. Greene, Jr
NAME (Please type or print)

Signature

Acting
Title

19 May 1994
Date

NSWC INDIAN HEAD
DATA CALL #4

JL
SEA 09X
5/13/94

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. D. G. MAXWELL
NAME (Please type or print)

Signature

COMMANDER
Title

7 MAY 1994
Date

INDIAN HEAD DIVISION
Activity

DATA CALL 1: GENERAL INSTALLATION INFORMATION

1. ACTIVITY: Follow example as provided in the table below (*delete the examples when providing your input*). If any of the questions have multiple responses, please provide all. If any of the information requested is subject to change between now and the end of Fiscal Year (FY) 1995 due to known redesignations, realignments/closures or other action, provide current and projected data and so annotate.

- Name

Official name	Indian Head Division, Naval Surface Warfare Center Indian Head, Maryland
Acronym(s) used in correspondence	IHDIV, NSWC
Commonly accepted short title(s)	Indian Head

- Complete Mailing Address
  Commander
  101 Strauss Avenue
  Indian Head, MD 20640-5035

- PLAD
  NAVSURFWARCENDIV INDIAN HEAD, MD

- PRIMARY UIC: N00174 (Plant Account UIC for Plant Account Holders)
  Enter this number as the Activity identifier at the top of each Data Call response page.

- ALL OTHER UIC(s): N47612 PURPOSE: Non-NIF Military

2. PLANT ACCOUNT HOLDER:

- Yes X No ______ (check one)

3. ACTIVITY TYPE: Choose most appropriate type that describes your activity and completely answer all questions.

• HOST COMMAND: A host command is an activity that provides facilities for its own functions and the functions of other (tenant) activities. A host has accountability for Class 1 (land), and/or Class 2 (buildings, structures, and utilities) property, regardless of occupancy. It can also be a tenant at other host activities.

- Yes __X__ No ____ (check one)

• TENANT COMMAND: A tenant command is an activity or unit that occupies facilities for which another activity (i.e., the host) has accountability. A tenant may have several hosts, although one is usually designated its primary host. If answer is "Yes," provide best known information for your primary host only.

- Yes ____ No __X__ (check one)
- Primary Host (current) UIC: ______
- Primary Host (as of 01 Oct 1995) UIC: ______
- Primary Host (as of 01 Oct 2001) UIC: ______

• INDEPENDENT ACTIVITY: For the purposes of this Data Call, this is the "catch-all" designator, and is defined as any activity not previously identified as a host or a tenant. The activity may occupy owned or leased space. Government Owned/Contractor Operated facilities should be included in this designation if not covered elsewhere.

- Yes ____ No __X__ (check one)

4. SPECIAL AREAS: List all Special Areas. Special Areas are defined as Class 1/Class 2 property for which your command has responsibility that is not located on or contiguous to main complex.

Name	Location	UIC
Stump Neck Annex	Indian Head, Maryland	N00174
La Plata (Housing)	La Plata, Maryland	N00174
Waldorf (Housing)	Waldorf, Maryland	N00174
White Plains Railroad	White Plains, Maryland	N00174
Bullets Neck	Indian Head, Maryland	N00174
Ely's Warehouse	Indian Head, Maryland	N00174
Thoroughfare Island	Indian Head, Maryland	N00174
Marsh Island	Indian Head, Maryland	N00174
Hog Island	Indian Head, Maryland	N00174
Rum Point	Indian Head, Maryland	N00174
Industrial Park (Tenant Storage)	Waldorf, Maryland	N68636

5. DETACHMENTS: If your activity has detachments at other locations, please list them in the table below.

Name	UIC	Location	Host name	Host UIC
Yorktown Detachment (47)	N47652	Yorktown, VA	Naval Weapons Station Yorktown	N00109
White Oak Detachment (15)	N48033	Silver Spring, MD	Dahlgren Division, NSWC	N60921
McAlester Detachment (54)	N42354 N45465	McAlester, OK	McAlester Army Ammunition Plant, McAlester, OK	W390AA
Albuquerque Detachment (2)	N32775	Albuquerque, NM	Field Command, Defense Nuclear Agency - Air Force	65460

Number in parentheses are on-board (civilian and military) as of 6 Jan 94.

6. BRAC IMPACT: Were you affected by previous Base Closure and Realignment decisions (BRAC-88, -91, and/or -93)? If so, please provide a brief narrative.

A. BRAC-88: No impact

B. 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.

C. BRAC-93: Disestablish the Dahlgren Division, White Oak Detachment. Administratively realign (in-place) the NSWC Dahlgren Division, White Oak Detachment personnel in the Explosives Research and Underwater Warheads groups to the Indian Head Division, NSWC on 3 April 1994. Physically relocate the associated 265 billets from White Oak to Indian Head from FY95 through FY97.

The Indian Head Division, White Oak Detachment is currently a tenant of the Dahlgren Division, White Oak Detachment. As a result of closing the Dahlgren Division, White Oak Detachment, relocate the Indian Head Division, White Oak Detachment to the Indian Head Division, NSWC, Indian Head, Maryland. Physically relocate the associated 20 billets from White Oak to Indian Head by FY95.

The Naval Sea Automated Data Systems Activity (SEAADSA) is a current tenant of the Indian Head Division, NSWC. Disestablish SEAADSA and relocate to IHDIV, NSWC by FY97.

7. MISSION: Do not simply report the standard mission statement. Instead, describe important functions in a bulletized format. Include anticipated mission changes and brief narrative explanation of change; also indicate if any current/projected mission changes are a result of previous BRAC-88, -91,-93 action(s).

Current Missions

- Provide Rocket/Missile/Gun Propulsion RDT&E, Engineering, Fleet Support, and Training expertise/capabilities to the Navy, Army, Air Force, Marine Corps, other government activities and FMS customers.

- Provide Energetics Manufacturing/Manufacturing Technology RDT&E, Engineering, Manufacturing, Manufacturing Technology, and Fleet Support expertise/capabilities to Navy, Army, private industry, and FMS customers.

- Provide Cartridge/Propellant Actuated Devices, and Aircrew Escape Propulsion Systems tri-Service RDT&E, Engineering, Acquisition, Manufacturing, and Fleet Support expertise/capabilities to the Navy, Air Force, Army (Tri-service charter), and FMS customers.

- Provide Explosives RDT&E, Engineering, Manufacturing, Manufacturing Technology, and Fleet Support expertise/capabilities to the Navy, and FMS customers.

- Provide Missile Simulators/Trainers/Test and Diagnostic Equipment RDT&E, Engineering, Manufacturing, and Fleet Support expertise/capabilities to the Navy, and FMS customers.

- Provide Ordnance Environmental Support expertise/capabilities to the Navy

- Provide Explosive Safety Engineering Support expertise/capabilities to the Navy

Projected Missions for FY 2001

- Provide information technology, communications, resource analysis, and implementation of information engineering and information resource management technology and methodologies in support of the NAVSEA mission - This change/addition to Indian Head's mission is a result of the BRAC-93 directed transfer of SEAADSA to Indian Head.

8. UNIQUE MISSIONS: Describe any missions which are unique or relatively unique to the activity. Include information on projected changes. Indicate if your command has any National Command Authority or classified mission responsibilities.

Current Unique Missions

• Full spectrum capability at one site (RDT&E, engineering, manufacturing, manufacturing technology, fleet support, and demil) for energetics.

• As an off-shoot to engineering responsibilities, only manufacturing source for some critical military chemicals and propellants (e.g. Pelletized Nitrocellulose {PNC}, High Bulk Nitroguanidine {HBNQ}, Otto Fuel II).

• Tri-service, full spectrum capability at one site (RDT&E, engineering, acquisition, manufacturing, and fleet support) for Cartridge/Propellant Actuated Devices (CAD/PAD), and Aircrew Escape Propulsion Systems (APES).

• The Naval Surface Warfare Center has unique responsibilities in the following 14 Leadership Areas:

Surface Warfare Modeling and Analysis
Surface Ship Combat Control Systems
Surface Ship Electronic Warfare
Surface Ship Electromagnetic and Electro-optic Reconnaissance, Search and Track systems
Surface Ship Weapons Systems (including Shipboard Missile Integration)
Ship Vulnerability and Survivability (includes Submarine HM&E)
Ship Active and Passive Signatures (includes Submarine HM&E)
Surface and Undersea Vehicle Hull, Machinery, Propulsors and Equipment
Platform Systems Integration
Strategic Targeting Support (including Fire Control, Targeting and Re-entry Systems)
Amphibious Warfare Systems
Special Warfare Systems
Warheads (Explosives and Energetic Materials)
Mines, Mine Countermeasures and Mine Clearing Systems

• Indian Head, NSWC has unique responsibilities in the following three Leadership Areas:

Warheads (Explosives and Energetic Materials)
Mines, Mine Countermeasures and Mine Clearing Systems
Surface Ship Weapons Systems (including Shipboard Missile Integration)

Projected Unique Missions for FY 2001

• Same as above, no changes projected.

9. IMMEDIATE SUPERIOR IN COMMAND (ISIC): Identify your ISIC. If your ISIC is not your funding source, please identify that source in addition to the operational ISIC.

• Operational name	UIC
Commander, NSWC	N68933
• Funding Source	**UIC**
DBOF	Multiple

10. PERSONNEL NUMBERS: Host activities are responsible for totalling the personnel numbers for all of their tenant commands, even if the tenant command has been asked to separately report the data. The tenant totals here should match the total tally for the tenant listing provided subsequently in this Data Call (see Tenant Activity list). (Civilian count shall include Appropriated Fund personnel only.)

On Board Count as of 01 January 1994

	Officers	Enlisted	Civilian (Appropriated)	
• Reporting Command	10	23	2142	R
• Tenants (total) *	100	344	540	

Authorized Positions as of 30 September 1994

	Officers	Enlisted	Civilian (Appropriated)	
• Reporting Command	10	30	2007	R
• Tenants (total) *	118	541	554	

* EOD School is cause of discrepancy in enlisted column due to class schedules.

9. IMMEDIATE SUPERIOR IN COMMAND (ISIC): Identify your ISIC. If your ISIC is not your funding source, please identify that source in addition to the operational ISIC.

• Operational name	UIC
Commander, NSWC	N68933
• Funding Source	UIC
DBOF	Multiple

10. PERSONNEL NUMBERS: Host activities are responsible for totalling the personnel numbers for all of their tenant commands, even if the tenant command has been asked to separately report the data. The tenant totals here should match the total tally for the tenant listing provided subsequently in this Data Call (see Tenant Activity list). (Civilian count shall include Appropriated Fund personnel only.)

On Board Count as of 01 January 1994

	Officers	Enlisted	Civilian (Appropriated)
• Reporting Command	10	23	2189
• Tenants (total) *	100	344	540

Authorized Positions as of 30 September 1994

	Officers	Enlisted	Civilian (Appropriated)
• Reporting Command	10	30	2051
• Tenants (total) *	118	541	554

* EOD School is cause of discrepancy in enlisted column due to class schedules.

11. KEY POINTS OF CONTACT (POC): Provide the work, FAX, and home telephone numbers for the Commanding Officer or OIC, and the Duty Officer. Include area code(s). You may provide other key POCs if so desired in addition to those above.

Title/Name	Office	Fax	Home
• CO/OIC Captain David G. Maxwell	DSN 354-4401 301-753-6387	DSN 354-6743 301-743-6743	301-743-3324
• Chief Staff Officer Commander John L. Bowles	DSN 354-4301 301-743-4301	DSN 354-6743 301-743-6743	301-743-5526
• Executive Director Roger M. Smith	DSN 354-6500 301-743-6500	DSN 354-6743 301-743-6743	301-565-0906
• BRAC Coordinator Mark A. Michienzi	DSN 354-4575 301-743-4575	DSN 354-6425 301-743-6425	301-870-5029

12. TENANT ACTIVITY LIST: This list must be all-inclusive. Tenant activities are to ensure that their host is aware of their existence and any "subleasing" of space. This list should include the name and UIC(s) of all organizations, shore commands and homeported units, active or reserve, DOD or non-DOD (include commercial entities). The tenant listing should be reported in the format provide below, listed in numerical order by UIC, separated into the categories listed below. Host activities are responsible for including authorized personnel numbers, on board as of **30 September 1994**, for all tenants, even if those tenants have also been asked to provide this information on a separate Data Call. (Civilian count shall include Appropriated Fund personnel only.)

• Tenants residing on main complex (shore commands)

Tenant Command Name	UIC	Officer	Enlisted	Civilian
Defense Finance and Accounting Service (DFAS) - Cleveland (XBJ)	HQ0103	0	0	12
Branch Medical Clinic	N33329	3	19	17
Branch Dental Clinic	N35753	1	3	0
Navy Explosive Ordnance Disposal School (EODS) - numbers include staff and students	N42136	11	64	5
	N30446	20	63	0
	N45226	0	6	1
	N62640	3	12	3
	Army	36	238	1
	Marine Corps	4	20	0
	Air Force	13	67	1
	TOTAL	87	470	11
Customer Service Desk (PSD)	N42560	0	0	3
Defense Printing Service	N43628	0	0	4
Resident Officer in Charge of Construction (ROICC)	N44200	2	0	18
NAVSEA Automated Data Systems Activity (SEAADSA)	N68636	0	0	162
Naval Investigative Service (NIS)	N68896	0	0	2
Naval Ordnance Center	N68963	17	2	90

• Tenants residing on main complex (homeported units.)

Tenant Command Name	UIC	Officer	Enlisted	Civilian
N/A	N/A	N/A	N/A	N/A

• 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
Naval Explosive Ordnance Disposal Technology Division (EODTD)	N0464A	Indian Head, Maryland	8	47	235

• Tenants (Other than those identified previously)

Tenant Command Name	UIC	Location	Officer	Enlisted	Civilian
N/A	N/A	N/A	N/A	N/A	N/A

13. REGIONAL SUPPORT: Identify your relationship with other activities, not reported as a host/tenant, for which you provide support. Again, this list should be all-inclusive. The intent of this question is capture the full breadth of the mission of your command and your customer/supplier relationships. Include in your answer any Government Owned/Contractor Operated facilities for which you provide administrative oversight and control.

Activity name	Location	Support function (include mechanism such as ISSA, MOU, etc.)
Charles County Volunteer Fire Department	Indian Head, Maryland	Mutual Aid Agreement: provide additional firefighting and emergency medical services (personnel and apparatus) to the local community.
Charles County Government	La Plata, Maryland	DoN Emergency Management Program: provide assistance with hazardous materials incidents/accidents or additional support as requested by local community.
Charles County Government	La Plata, Maryland	Corporate Member of Vision In Teamwork And Leadership (VITAL) group
Charles County Sheriff's Department	La Plata, Maryland	Memorandum of Agreement: provide support for law enforcement.
Charles County Youth Division	La Plata, Maryland	Memorandum of Understanding: provide support for battered spouse, child abuse, etc.
Maryland State Police	Waldorf, Maryland	Verbal agreement: provide back-up service for emergencies.
Potomac Electric Power Company	Washington, DC.	PEPCO purchases any extra power produced by Indian Head.
Tri-County Council Subcommittee on Navy Issues	Charlotte Hall, MD	Corporate Member - provide technical expertise to assess affect of BRAC decisions on So. MD
Economic Development Council	La Plata, MD	Corporate Member
Charles County Chamber of Commerce	La Plata, MD	Corporate Member
Western Charles County Business Association	Indian Head, MD	Corporate Member

So. MD Regional Technology Council	La Plata, MD	Corporate Member - promote new technologies in southern Maryland
Community Action Program	Indian Head, MD	Provide tutorial/guidance to local community from elementary school through college; participate in adult literacy program; provide support to county science fair program (expertise, judging, etc.)
Military Housing	Waldorf and La Plata, MD	Provide military housing to various NCR military personnel.

14. FACILITY MAPS: This is a primary responsibility of the plant account holders/host commands. Tenant activities are not required to comply with submission if it is known that your host activity has complied with the request. Maps and photos should not be dated earlier than 01 January 1991, unless annotated that no changes have taken place. Any recent changes should be annotated on the appropriate map or photo. Date and label all copies.

• Local Area Map. This map should encompass, at a minimum, a 50 mile radius of your activity. Indicate the name and location of all DoD activities within this area, whether or not you support that activity. Map should also provide the geographical relationship to the major civilian communities within this radius. (Provide 12 copies.)

• Installation Map / Activity Map / Base Map / General Development Map / Site Map. Provide the most current map of your activity, clearly showing all the land under ownership/control of your activity, whether owned or leased. Include all outlying areas, special areas, and housing. Indicate date of last update. Map should show all structures (numbered with a legend, if available) and all significant restrictive use areas/zones that encumber further development such as HERO, HERP, HERF, ESQD arcs, agricultural/forestry programs, environmental restrictions (e.g., endangered species). (Provide in two sizes: 36"x 42" (2 copies, if available); and 11"x 17" (12 copies).)

• Aerial photo(s). Aerial shots should show all base use areas (both land and water) as well as any local encroachment sites/issues. You should ensure that these photos provide a good look at the areas identified on your Base Map as areas of concern/interest - remember, a picture tells a thousand words. Again, date and label all copies. (Provide 12 copies of each, 8½"x 11".)

• Air Installations Compatible Use Zones (AICUZ) Map. (Provide 12 copies.) N/A

BRAC-95
DATA CALL #1
INDIAN HEAD DIV.
JL
SEA 09X
2/16/94

UIC 00174

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

NEXT ECHELON LEVEL (if applicable)

E.S. McGINLEY II

NAME (Please type or print)

Signature

COMMANDER

Title

2/9/94

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.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

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

MAJOR CLAIMANT LEVEL

K. C. Malley

NAME (Please type or print)

Signature

Commander

Title

2/17/94

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)

S. F. Loftus
Vice Admiral, U.S. Navy

NAME (Please type or print)

Signature

Deputy Chief of Naval Operations (Logistics)

23 FEB 1994

Title

Date

UIC 00174

JL
SEA 09X
2/16/94

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

D. G. MAXWELL, CAPT, USN
NAME (Please type or print)

Signature

Commander
Title

4 FEBRUARY 1994
Date

Indian Head Division, NSWC
Activity

CAPACITY ANALYSIS:
DATA CALL #4 WORK SHEET FOR
TECHNICAL CENTER or LABORATORY: Indian Head Division, NSWC (UIC: 00174)

Table of Contents

**********If any responses are classified, attach a separate classified annex. **********

7 April 1994

1. Historical and Projected Workload. Use Tables 1.1, 1.2, 1.3 & 1.4 below to provide historical and currently projected workload data for your activity in terms of funding and workyears. Assume previous BRAC closures and realignments are implemented on schedule. Dollar amounts should be in then-year dollars. Workyears should be separated for in-house government efforts and on-site contractor work.

a. Use Table 1.1 to provide data on your site.

b. Use Table 1.2 to provide data on your Detachments that did not receive this Data Call directly. Compile the information from all of these Detachments into one table. Attach a list of the titles & UIC's of the Detachments included in the table.

c. For FY's 1993 thru 1997 provide a breakout of the "Total Funds Budgeted" line showing the appropriation and amounts of funding budgeted from your major customers. Major resource Sponsors are defined as, but not limited to, all systems commands, ONR, SSPO, CNO, FLT CINCs, Other DON, Other DOD by Department, Other Federal Government, All other. Use Table 1.3 to report this breakout for your site. Use Table 1.4 to report this breakout for your compiled Detachments that did not receive this Data Call directly. Provide separate tables for FY's 1993 thru 1997.

Use the following definitions when providing data for the tables below:

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

In-House government efforts or In-House workyears: Includes both military and civil servant employees

On-Site Contractor workyears: Actual or estimated workyears performed by support contractors with workyears defined consistent with the definition used in the President's budget.

On-site Contractors: Those contractors that occupy space directly on the site on nearly a full time basis.

Total Funds Budgeted: The funds used as inputs to the President's Budget.

Civilian Personnel On-Board: Full Time Permanent employees (FTP).

Table 1.1 Historical and Projected Workload for NSWC, IHD (UIC N00174)

Fiscal Year	Total Funds Budgeted ($)	Total Funds Received w/o Direct Cite ($K)	Direct Cite Funds Received ($K)	Budgeted Wkyrs	Actual In-House Wkyrs	Actual Onsite Contract Wkyrs
86	165,734	184,414	n/a*	2250.8	2326.2	153.0
87	162,190	191,772	46,137	2237.5	2156.2	151.0
88	145,984	183,309	31,993	2263.0	2409.7	154.0
89	143,152	187,654	36,901	2126.6	2586.4	162.0
90	194,866	203,533	18,284	2290.1	2700.6	154.0
91	219,947	218,625	16,816	2637.7	2728.4	164.5
92	217,281	237,192	46,175	2560.3	2570	152.0
93	188,951	202,150	39,834	2341.2	2316.7	112.0
94	184,339			2185		
95	201,803			2082.3		
96	198,409			1980.9		
97	190,435			1895.2		

*Direct cite information for FY86 not available.

Table 1.2 Historical and Projected Workload for Detachments of NSWC, IHD

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033

Fiscal Year	Total Funds Budgeted ($K)	Total Funds Received w/o Direct Cite ($K)	Direct Cite Funds Received ($K)	Budgeted Wkyrs	Actual In-House Wkyrs	Actual Onsite Contract Wkyrs
86	6,661	6,223	n/a*	86.2	91.8	0.0
87	6,364	6,027	60	85.5	85.8	0.0
88	5,964	6,780	27	88.0	87.4	0.0
89	6,965	6,432	48	88.4	94.8	10.0
90	7,019	11,056	334	117.8	111.9	10.0
91	7,326	9,199	0	117.8	111.8	10.0
92	7,784	8,229	0	113.6	98.7	9.0
93	5,665	6,553	0	69.1	78.2	8.0
94	6,916			78.1		
95	6,605			61.0		
96	6,440			58.1		
97	6,367			56.8		

*Direct cite information for FY86 not available.

TABLE 1.3 FY 1993 BREAKOUT OF FUNDS ($K) BUDGETED for NSWC, IHD (UIC N00174)

SPONSOR	RDT&E(N)							Other RDT &E	Other Appropriation						
	6.1	6.2	6.3a	6.3b	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA			2,607	7,237	38	185		310	25,800		9,285	12,329	8,632	1,893	
NAVAIR				33	224		457	652	13,166	936	17,376	9,466	113	10,140	
NAVSUP									(1,557)		(5)	1,889		544	
SSPO									1,003		(2)				
OTHER NAVY				44	24	27	3,360	923	7,452		1,491	1	77	12,553	
MARINE CORPS		748	17	2,699	123				20					78	
ARMY															23,649
AIR FORCE															10,140
DOD															874
OG															15,094
NFP															1,548

TABLE 1.3 FY 1994 BREAKOUT OF FUNDS ($K) BUDGETED for NSWC, IHD
(UIC N00174)

SPONSOR	RDT&E(N)						Other RDT &E	Other Appropriation						
	6.1	6.2	6.3	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA		8,836		9,820	185	133	620	9,321		7,758	15,735	3,798	4,174	
NAVAIR				2,243			719	12,331	2,543	16,855	9,490	505	7,479	
NAVSUP											107		394	
SSPO				33				1,300						
OTHER NAVY	335	3,354		650	27	3,529	2,578	14,269		1,100		468	10,881	
MARINE CORPS							2,010	20						
ARMY							237							7,825
AIR FORCE							279							17,749
DOD							1,248							147
OG														1,306
NPF														981
OTHER														987

TABLE 1.3 FY 1995 BREAKOUT OF FUNDS ($K) BUDGETED for NSWC, IHD (UIC N00174)

SPONSOR	RDT&E(N)						Other RDT &E	Other Appropriation						
	6.1	6.2	6.3	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA		16,031		16,084	185		750	9,696		5,901	12,361	2,210	6,643	
NAVAIR				2,342			2,090	12,083	1,882	15,742	8,419	505	7,155	
NAVSUP											107		282	
SSPO				100				1,066						
OTHER NAVY	583	5,688			38	3,300	3,950	15,737		1,100	250	468	13,134	
MARINE CORPS							1,251							
ARMY							305							11,720
AIR FORCE							375							16,871
DOD							1,799							
OG														1,290
NPF														1,004
OTHER														1,306

TABLE 1.3 FY 1996 BREAKOUT OF FUNDS ($K) BUDGETED for NSWC, IHD (UIC N00174)

SPONSOR	RDT&E(N)						Other RDT &E	Other Appropriation						
	6.1	6.2	6.3	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA		15,425		15,908	185		680	5,720		5,551	13,380	2,210	7,061	
NAVAIR				2,112			3,554	12,004	1,845	16,841	5,324	505	7,309	
NAVSUP											107		284	
SSPO				50				66						
OTHER NAVY	665	6,500			10	5,658	3,206	17,531		1,100	250	351	13,118	
MARINE CORPS														
ARMY							300							11,806
AIR FORCE							370							16,313
DOD							1,749							
OG														1,240
NPF														1,009
OTHER														1,112

TABLE 1.3 FY 1997 BREAKOUT OF FUNDS ($K) BUDGETED for NSWC, IHD (UIC N00174)

SPONSOR	RDT&E(N)						Other RDT &E	Other Appropriation						
	6.1	6.2	6.3	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA		13,312		15,280	185		290	7,971		4,871	12,959	2,220	3,591	
NAVAIR				2,478			3,188	12,004	1,786	16,915	5,013	513	7,315	
NAVSUP											107		284	
SSPO				50				66						
OTHER NAVY	665	6,403			10	4,911	3,093	18,793		1,100		351	12,760	
MARINE CORPS														
ARMY							260							10,294
AIR FORCE							120							16,394
DOD							1,749							
OG														1,240
NPF														1,013
OTHER														891

TABLE 1.4 FY 1993 BREAKOUT OF FUNDS ($K) BUDGETED for DETACHMENTS of NSWC, IHD

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033

SPONSOR	RDT&E(N)							Other RDT&E	Other Appropriation						
	6.1	6.2	6.3a	6.3b	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA				60	419				2,109		399	211	1,022	73	
NAVAIR									1,217		255	8			
SSPO									120						
OTHER NAVY							188	(1)	160			(37)		105	
ARMY															245

TABLE 1.4 FY 1994 BREAKOUT OF FUNDS ($K) BUDGETED for DETACHMENTS of NSWC, IHD

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033

SPONSOR	RDT&E(N)						Other RDT&E	Other Appropriation						
	6.1	6.2	6.3	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA				128						586		1,360		
NAVAIR								1,492		299	510			
SSPO								200						
OTHER NAVY						200		2,000					28	
ARMY														113

TABLE 1.4 FY 1995 BREAKOUT OF FUNDS ($K) BUDGETED for DETACHMENTS of NSWC, IHD

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033

SPONSOR	RDT&E(N)						Other RDT&E	Other Appropriation						
	6.1	6.2	6.3	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA				140						686		1,364		
NAVAIR								1,332		194	300			
SSPO								261						
OTHER NAVY						250		2,000					28	
ARMY														50

TABLE 1.4 FY 1996 BREAKOUT OF FUNDS ($K) BUDGETED for DETACHMENTS of NSWC, IHD

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033

SPONSOR	RDT&E(N)						Other RDT&E	Other Appropriation						
	6.1	6.2	6.3	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA				135						636		1,355		
NAVAIR								1,230		194	300			
SSPO								262						
OTHER NAVY						240		2,000					36	
ARMY														52

TABLE 1.4 FY 1997 BREAKOUT OF FUNDS ($K) BUDGETED for DETACHMENTS of NSWC, IHD

Indian Head Division Detachment McAlester, OK; UIC: 42354, 45465
Indian Head Division Detachment White Oak, MD; UIC: 48033

SPONSOR	RDT&E(N)						Other RDT&E	Other Appropriation						
	6.1	6.2	6.3	6.4	6.5	6.6		OMN	APN	OPN	WPN	SCN	Other Navy	All Other
NAVSEA				135						657		1,373		
NAVAIR								1,095		180	311			
SSPO								264						
OTHER NAVY						250		2,000					37	
ARMY														65

DATA CALL 66
INSTALLATION RESOURCES

Activity Information:

Activity Name:	**Indian Head Division, NSWC**
UIC:	**00174**
Host Activity Name (if response is for a tenant activity):	**N/A**
Host Activity UIC:	**N/A**

General Instructions/Background. A separate response to this data call must be completed for each Department of the Navy (DON) host, independent and tenant activity which separately budgets BOS costs (regardless of appropriation), and, is located in the United States, its territories or possessions.

1. Base Operating Support (BOS) Cost Data. Data is required which captures the total annual cost of operating and maintaining Department of the Navy (DON) shore installations. Information must reflect FY 1996 budget data supporting the FY 1996 NAVCOMPT Budget Submit. Two tables are provided. Table 1A identifies "Other than DBOF Overhead" BOS costs and Table 1B identifies "DBOF Overhead" BOS costs. These tables must be completed, as appropriate, for all DON host, independent or tenant activities which separately budget BOS costs (regardless of appropriation), and, are located in the United States, its territories or possessions. Responses for DBOF activities may need to include both Table 1A and 1B to ensure that all BOS costs, including those incurred by the activity in support of tenants, are identified. If both table 1A and 1B are submitted for a single DON activity, please ensure that no data is double counted (that is, included on both Table 1A and 1B). The following tables are designed to collect all BOS costs currently budgeted, regardless of appropriation, e.g., Operations and Maintenance, Research and Development, Military Personnel, etc. Data must reflect FY 1996 and should be reported in thousands of dollars.

a. Table 1A - Base Operating Support Costs (Other Than DBOF Overhead). This Table should be completed to identify "Other Than DBOF Overhead" Costs. Display, in the format shown on the table, the O&M, R&D and MPN resources currently budgeted for BOS services. O&M cost data must be consistent with data provided on the BS-1 exhibit. Report only direct funding for the activity. Host activities should not include reimbursable support provided to tenants, since tenants will be separately reporting these costs. Military personnel costs should be included on the appropriate lines of the table. Please ensure that individual lines of the table do not include duplicate costs. Add additional lines to the table (following line 2j., as necessary, to identify any additional cost elements not currently shown). **Leave shaded areas of table blank.**

DATA CALL 66
INSTALLATION RESOURCES

Table 1A - Base Operating Support Costs (Other Than DBOF Overhead)			
Activity Name: Indian Head Division, NSWC	**UIC: 00174**		
Category	**FY 1996 BOS Costs ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:			
1a. Maintenance and Repair	884	511	1,395
1b. Minor Construction	10	40	50
1c. Sub-total 1a. and 1b.	894	551	1,445
2. Other Base Operating Support Costs:			
2a. Utilities	58	378	436
2b. Transportation	14	0	14
2c. Environmental	0	0	0
2d. Facility Leases	108	0	108
2e. Morale, Welfare & Recreation	102	428	530
2f. Bachelor Quarters	376	0	376
2g. Child Care Centers	56	430	486
2h. Family Service Centers	0	0	0
2i. Administration	0	0	0
2j. Other (Specify)	777	1,682	2,459
2k. Sub-total 2a. through 2j:	1,491	2,918	4,409
3. Grand Total (sum of 1c. and 2k.):	2,385	3,469	5,854

Footnotes:

1. Maintenance costs of $401K (M&R: Non-Labor $265K, Labor $86K; Minor Construction: Non-Labor $10K, Labor $40K) for Bachelor Housing are included on lines 1a and 1b versus 2f.

2. Line 2j. includes costs for Security, Fire Protection, Galley Operations, and General Engineering Support Services.

b. Funding Source. If data shown on Table 1A reflects more than one appropriation, then please provide a break out of the total shown for the "3. Grand-Total" line, by appropriation:

Appropriation Amount ($000)

All funding shown in Table 1A is O&M.

c. Table 1B - Base Operating Support Costs (DBOF Overhead). This Table should be submitted for all current DBOF activities. Costs reported should reflect BOS costs supporting the DBOF activity itself (usually included in the G&A cost of the activity). For DBOF activities which are tenants on another installation, total cost of BOS incurred by the tenant activity for itself should be shown on this table. It is recognized that differences exist among DBOF activity groups regarding the costing of base operating support: some groups reflect all such costs only in general and administrative (G&A), while others spread them between G&A and production overhead. Regardless of the costing process, all such costs should be included on Table 1B. The Minor Construction portion of the FY 1996 capital budget should be included on the appropriate line. Military personnel costs (at civilian equivalency rates) should also be included on the appropriate lines of the table. Please ensure that individual lines of the table do not include duplicate costs. Also ensure that there is no duplication between data provided on Table 1A. and 1B. These two tables must be mutually exclusive, since in those cases where both tables are submitted for an activity, the two tables will be added together to estimate total BOS costs at the activity. Add additional lines to the table (following line 21., as necessary, to identify any additional cost elements not currently shown). **Leave shaded areas of table blank.**

Other Notes: All costs of operating the five Major Range Test Facility Bases at DBOF activities (even if direct RDT&E funded) should be included on Table 1B. Weapon Stations should include underutilized plant capacity costs as a DBOF overhead "BOS expense" on Table 1B.

Table 1B - Base Operating Support Costs (DBOF Overhead)

Activity Name: Indian Head Division, NSWC	UIC: 00174		
Category	**FY 1996 Net Cost From UC/FUND-4 ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:			
1a. Real Property Maintenance (>$15K)	2,841	0	2,841
1b. Real Property Maintenance (<$15K)	767	2,450	3,217

DATA CALL 66
INSTALLATION RESOURCES

1c. Minor Construction (Expensed)	53	21	74
1d. Minor Construction (Capital Budget)	500	0	500
1c. Sub-total 1a. through 1d.	4,161	2,471	6,632
2. Other Base Operating Support Costs:			
2a. Command Office	424	1,159	1,583
2b. ADP Support	759	1,239	1,998
2c. Equipment Maintenance	1,175	217	1,392
2d. Civilian Personnel Services	360	1,563	1,923
2e. Accounting/Finance	103	1,343	1,446
2f. Utilities	956	287	1,243
2g. Environmental Compliance	299	505	804
2h. Police and Fire	265	2,256	2,521
2i. Safety	129	1,292	1,421
2j. Supply and Storage Operations	665	2,861	3,526
2k. Major Range Test Facility Base Costs	N/A	N/A	N/A
2l. Other (Specify)Corporate Operations, Program Management, Station Awards Program, Technology Investment Program, Host Tenant Agreements, Miscellaneous Accounting Adjustments, Mandated taxes and assessments	5,904	3,066	8,970
2m. Military Labor	690	0	690
2n. Other Engineering Support	1,162	2,402	3,564
2o. Base Communications	809	31	840
2p. FECA	1,789	0	1,789
2q. Sub-total 2a. through 2p:	15,489	18,221	33,710
3. Depreciation	1,490	0	1,490
4. Grand Total (sum of 1c., 2q., and 3.) :	21,140	20,692	41,832

DATA CALL 66
INSTALLATION RESOURCES

2. Services/Supplies Cost Data. The purpose of Table 2 is to provide information about projected **FY 1996** costs for the purchase of services and supplies by the activity. **(Note: Unlike Question 1 and Tables 1A and 1B, above, this question is not limited to overhead costs.)** The source for this information, where possible, should be either the NAVCOMPT OP-32 Budget Exhibit for O&M activities or the NAVCOMPT UC/FUND-1/IF-4 exhibit for DBOF activities. Information must reflect FY 1996 budget data supporting the FY 1996 NAVCOMPT Budget Submit. Break out cost data by the major sub-headings identified on the OP-32 or UC/FUND-1/IF-4 exhibit, disregarding the sub-headings on the exhibit which apply to civilian and military salary costs and depreciation. Please note that while the OP-32 exhibit aggregates information by budget activity, this data call requests OP-32 data for the activity responding to the data call. Refer to NAVCOMPTINST 7102.2B of 23 April 1990, Subj: Guidance for the Preparation, Submission and Review of the Department of the Navy (DON) Budget Estimates (DON Budget Guidance Manual) with Changes 1 and 2 for more information on categories of costs identified. Any rows that do not apply to your activity may be left blank. However, totals reported should reflect all costs, exclusive of salary and depreciation.

Table 2 - Services/Supplies Cost Data

Activity Name: Indian Head Division, NSWC	**UIC: 00174**
Cost Category	**FY 1996 Projected Costs ($000)**
Travel:	**6,017**
Material and Supplies (including equipment):	**32,791**
Industrial Fund Purchases (other DBOF purchases):	**1,085**
Transportation:	**95**
Other Purchases (Contract support, etc.):	**48,714**
Total:	**88,702**

DATA CALL 66
INSTALLATION RESOURCES

3. Contractor Workyears.

a. On-Base Contract Workyear Table. Provide a projected estimate of the number of contract workyears expected to be **performed "on base"** in support of the installation during FY 1996. Information should represent an annual estimate on a full-time equivalency basis. Several categories of contract support have been identified in the table below. While some of the categories are self-explanatory, please note that the category "mission support" entails management support, labor service and other mission support contracting efforts, e.g., aircraft maintenance, RDT&E support, technical services in support of aircraft and ships, etc.

Table 3 - Contract Workyears	
Activity Name: Indian Head Division, NSWC	**UIC: 00174**
Contract Type	**FY 1996 Estimated Number of Workyears On-Base**
Construction:	**146**
Facilities Support:	**135**
Mission Support:	**22**
Procurement:	**18**
Other:*	**33**
Total Workyears:	**354**

*** Note:** Provide a brief narrative description of the type(s) of contracts, if any, included under the "Other" category.

Other includes BOQ, Galley, Pool Services, CEAP, and Chaplain.

b. Potential Disposition of On-Base Contract Workyears. If the mission/functions of your activity were relocated to another site, what would be the anticipated disposition of the **on-base contract workyears** identified in Table 3.?

1) Estimated number of contract workyears which would be transferred to the receiving site (This number should reflect the number of jobs which would in the future be contracted for at the receiving site, not an estimate of the number of people who would move or an indication that work would necessarily be done by the same contractor(s)):

234

2) Estimated number of workyears which would be eliminated:

88

3) Estimated number of contract workyears which would remain in place (i.e., contract would remain in place in current location even if activity were relocated outside of the local area):

32

c. **"Off-Base" Contract Workyear Data.** Are there any contract workyears located in the local community, but not on-base, which would either be eliminated or relocated if your activity were to be closed or relocated? If so, then provide the following information (**ensure that numbers reported below do not double count numbers included in 3.a. and 3.b., above**):

No. of Additional Contract Workyears Which Would Be Eliminated	General Type of Work Performed on Contract (e.g., engineering support, technical services, etc.)
0	**N/A**

No. of Additional Contract Workyears Which Would Be Relocated	General Type of Work Performed on Contract (e.g., engineering support, technical services, etc.)
219	**Engineering Support, Management Services, etc. (Omnibus Contract); Metal Parts Fabrication**

DC #66

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. D. G. MAXWELL
NAME (Please type or print)

Signature

COMMANDER
Title

8 July 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)

RADM(SEL) D. P. SARGENT, JR.
NAME (Please type or print)

Signature

COMMANDER
Title

18 Jul 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 [illegible] Sea Systems Command

8-4-94
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)

J. B. GREENE, JR.
NAME (Please type or print)

Signature

ACTING
Title

15 AUG 1994
Date

DC #66

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. D. G. MAXWELL
NAME (Please type or print)

Signature

COMMANDER
Title

8 July 1994
Date

INDIAN HEAD DIVISION, NSWC
Activity

Revision
Data Call #1
Indian Head Div.

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. D. G. MAXWELL
NAME (Please type or print)

Signature

COMMANDER
Title

23 Jul 94
Date

INDIAN HEAD DIVISION, NSWC
Activity

Revision to the Indian Head Division, NSWC BRAC 95 Data Call #1.
Revised personnel numbers to question 10, page 7. Additional details of changes described on attached sheet.

Revision
Data Call #1
Indian Head Div.

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. D. G. MAXWELL
NAME (Please type or print)

Signature

COMMANDER
Title

23 Jun 94
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)

RADM(SEL) D. P. SARGENT, JR.
NAME (Please type or print)

Signature

COMMANDER
Title

1 July 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

G. R. STERNER
NAME (Please type or print)

Signature

Title

7-1-94
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)

J. B. GREENE, JR.
NAME (Please type or print)

Signature

ACTING
Title

08 JUL 1994
Date

205

AAA
HEARD
CNET
N-4432
7/27/94

DATA CALL 66
INSTALLATION RESOURCES

Activity Information:

Activity Name:	NAVAL SCHOOL EXPLOSIVE ORDNANCE DISPOSAL, INDIAN HEAD MD.
UIC:	46207
Host Activity Name (if response is for a tenant activity):	NAVAL SURFACE WARFARE CENTER, INDIAN HEAD
Host Activity UIC:	00174

1. **Base Operating Support (BOS) Cost Data**. Data is required which captures the total annual cost of operating and maintaining Department of the Navy (DON) shore installations. Information must reflect FY 1996 budget data supporting the FY 1996 NAVCOMPT Budget Submit. Two tables are provided. Table 1A identifies "Other than DBOF Overhead" BOS costs and Table 1B identifies "DBOF Overhead" BOS costs. These tables must be completed, as appropriate, for all DON host, independent or tenant activities which separately budget BOS costs (regardless of appropriation), and, are located in the United States, its territories or possessions. Responses for DBOF activities may need to include both Table 1A and 1B to ensure that all BOS costs, including those incurred by the activity in support of tenants, are identified. If both table 1A and 1B are submitted for a single DON activity, please ensure that no data is double counted (that is, included on both Table 1A and 1B). The following tables are designed to collect all BOS costs currently budgeted, regardless of appropriation, e.g., Operations and Maintenance, Research and Development, Military Personnel, etc. Data must reflect FY 1996 and should be reported in thousands of dollars.

a. **Table 1A - Base Operating Support Costs (Other Than DBOF Overhead).** This Table should be completed to identify "Other Than DBOF Overhead" Costs. Display, in the format shown on the table, the O&M, R&D and MPN resources currently budgeted for BOS services. O&M cost data must be consistent with data provided on the BS-1 exhibit. Report only direct funding for the activity. Host activities should not include reimbursable support provided to tenants, since tenants will be separately reporting these costs. Military personnel costs should be included on the appropriate lines of the table. Please ensure that individual lines of the table do not include duplicate costs. Add additional lines to the table (following line 2j., as necessary, to identify any additional cost elements not currently shown). **Leave shaded areas of table blank.**

SEE PAGE 2A.

A-14
HEARD
CNET N-44
7/27/94

DATA CALL 66
INSTALLATION RESOURCES

Table 1A - Base Operating Support Costs (Other Than DBOF Overhead)

Activity Name:	UIC:

Category	FY 1996 BOS Costs ($000)		
	Non-Labor	Labor	Total
1. Real Property Maintenance Costs:			
1a. Maintenance and Repair			
1b. Minor Construction			
1c. Sub-total 1a. and 1b.			
2. Other Base Operating Support Costs:			
2a. Utilities			
2b. Transportation			
2c. Environmental			
2d. Facility Leases			
2e. Morale, Welfare & Recreation			
2f. Bachelor Quarters			
2g. Child Care Centers			
2h. Family Service Centers			
2i. Administration			
2j. Other (Specify)			
2k. Sub-total 2a. through 2j:			
3. Grand Total (sum of 1c. and 2k.):			

MCO
DONALDSON
N812
CNET
7-26-94

Table 1A - Base Operating Support Costs (Other Than DBOF Overhead)
Claimant :CNET

Activity Name: NAVSCOLEOD INDIAN HEAD MD UIC: ~~[illegible]~~ 46207

Category	Non-Labor	Labor	Total
	FY 1996 BOS Costs ($000)		
1. REAL PROPERTY MAINTENANCE COSTS:			
1a. Maintenance and Repair	310	0	310
1b. Minor Construction	28	0	28
1c. Sub-total 1a. and 1b.	338	0	338
2. OTHER BASE OPERATING COSTS:			
2a. Utilities	267	0	267
2b. Transportation	138	0	138
2c. Environmental	23	0	23
2d. Facility Leases	0	0	0
2e. Morale, Welfare & Recreation	0	0	0
2f. Bachelor Quarters	136	374	510
2g. Child Care Centers	0	0	0
2h. Family Service Centers	0	0	0
2i. Administration	33	734	767
2j. Other	923	1053	1976
2k. Sub-total 2a. through 2j.	1520	2161	3681
3. GRAND TOTAL (sum of 1c. and 2k.)	1858	2161	4019

b. Funding Source

Appropriation:

O&M,N	2290
MPN	1729

Ag A HEARD CNET N-4432 1/27/94

b. Funding Source. If data shown on Table 1A reflects more than one appropriation, then please provide a break out of the total shown for the "3. Grand-Total" line, by appropriation:

Appropriation	Amount ($000)

SEE PAGE 2A

c. Table 1B - **Base Operating Support Costs (DBOF Overhead).** This Table should be submitted for all current DBOF activities. Costs reported should reflect BOS costs supporting the DBOF activity itself (usually included in the G&A cost of the activity). For DBOF activities which are tenants on another installation, total cost of BOS incurred by the tenant activity for itself should be shown on this table. It is recognized that differences exist among DBOF activity groups regarding the costing of base operating support: some groups reflect all such costs only in general and administrative (G&A), while others spread them between G&A and production overhead. Regardless of the costing process, all such costs should be included on Table 1B. The Minor Construction portion of the FY 1996 capital budget should be included on the appropriate line. Military personnel costs (at civilian equivalency rates) should also be included on the appropriate lines of the table. Please ensure that individual lines of the table do not include duplicate costs. Also ensure that there is no duplication between data provided on Table 1A. and 1B. These two tables must be mutually exclusive, since in those cases where both tables are submitted for an activity, the two tables will be added together to estimate total BOS costs at the activity. Add additional lines to the table (following line 21., as necessary, to identify any additional cost elements not currently shown). **Leave shaded areas of table blank.**

Other Notes: All costs of operating the five Major Range Test Facility Bases at DBOF activities (even if direct RDT&E funded) should be included on Table 1B. Weapon Stations should include underutilized plant capacity costs as a DBOF overhead "BOS expense" on Table 1B.

NOT APPLICABLE - NOT A DBOF ACTIVITY

Activity Name: NAVSCOLEOD
Activity UIC: 46207
Host Activity Name: Eglin AFB

Table 2 - Services/Supplies Cost Data

Activity Name: NAVSCOLEOD UIC: 46207

Cost Category	FY 1996 Projected Costs ($000)
Travel:	190
Material and Supplies (including equipment):	830
Industrial Fund Purchases (other DBOF purchases):	35
Transportation:	110
Other Purchases (contract support, etc.):	1,993
Total:	3,158

NOTE: Figures include our Detachment at Indian Head, MD.

Table 3 - Contract Workyears

Activity Name: NAVSCOLEOD UIC: 46207

Contract Type	FY 1996 Estimated Number of Workyears On-Base
Construction:	0
Facilities Support:	8.0
Mission Support:	26.5
Procurement:	0
Other:*	4.0
Total Workyears:	38.5

See next page for notes. Encl (1)

*Note 1: NAVSCOLEOD Eglin pays utility bills through the Inter-Service Support Agreement (ISSA). Utility bills average about $160K per year.

Note 2: Workyears are figured in acordance with N-4431, 1 Jul 94 Memo, paragraph b.

Note 3: Most of NAVSCOLEOD Eglin's OM&N funds are spent through the ISSA with Eglin AFB. Additionally, NAVSCOLEOD contracts through Eglin AFB for the Range 51 Galley.

Potential Disposition of On-Base Contract Workyears.

- Estimated number of contract workyears which would be transferred to the receiving site: 38.5

- Estimated number of workyears which would be eliminated: 0

- Estimated number of contract workyears which would remain in place: 0, because we are a tenant on an AF base.

"Off-Base" Contract Workyear Data: N/A

- Number of additional contract workyears which would be eliminated: N/A

- Number of additional contract workyears which would be relocated: N/A

Command: NAVSCOLEOD

Data Call Number Sixty-Six

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

MAJOR CLAIMANT LEVEL

T. J. BARRY
NAME

Acting
Title

CNET
Activity

T J Barry
Signature

28 July 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)

J. B. GREENE, JR.
NAME

ACTING
Title

JB Greene Jr.
Signature

15 AUG 1994
Date

Encl (20)

BRAC-95 CERTIFICATION

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

ACTIVITY COMMANDER

R. W. FOWLER, LCDR
NAME (Please type or print)

R. W. Fowler
Signature

COMMANDING OFFICER, ACTING
Title

7/19/94
Date

NAVSCOLEOD
Activity

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

MAJOR CLAIMANT LEVEL

NAME (Please type or print)

Signature

Title

Date

Activity

205

Indian Head Division, NSWC

BRAC 95 Data Call #33: Environmental

ENVIRONMENTAL DATA CALL:
DATA CALL TO BE SUBMITTED TO
ALL NAVY/MARINE CORPS HOST ACTIVITIES

20 APRIL 1994

BRAC 1995 ENVIRONMENTAL DATA CALL:
All Navy/Marine Corps Host Activities

INDEX

ATTACHMENTS

ENVIRONMENTAL DATA CALL

Responses to the following questions provide data that will allow an assessment of the potential environmental impact associated with the closure or realignment of a Navy shore activity. This criterion consists of:

- Endangered/Threatened Species and Biological Habitat
- Wetlands
- Cultural Resources
- Environmental Facilities
- Air Pollution
- Environmental Compliance
- Installation Restoration
- Land/Air/Water Use

As part of the answers to these questions, a *source citation* (e.g., 1993 base loading, 1993 base-wide Endangered Species Survey, 1993 letter from USFWS, 1993 Base Master Plan, 1993 Permit Application, 1993 PA/SI, etc.) must be included. It is probable that, at some point in the future, you will be asked to provide additional information detailing specifics of individual characteristics. In anticipation of this request, supporting documentation (e.g., maps, reports, letters, etc.) regarding answers to these questions should be retained. Information needed to answer these questions is available from the cognizant EFD Planning and Real Estate Divisions, and Environment, Safety, and Health Divisions; and from the activity Public Works Department, and activity Health Monitoring and Safety Offices.

For purposes of the questions associated with land use at your base is *defined* as *land* (acreage owned, withdrawn, leased, and controlled through easements); *air* (space controlled through agreements with the FAA, e.g., MOAs); *and water* (navigation channels and waters along a base shoreline) *under the control of the Navy.*

Provide a list of the tenant activities with UICs that are covered in this response.

LIST OF INDIAN HEAD'S TENANTS

UIC	TENANT
N0464A	Naval Explosive Ordnance Disposal Technology Division
N68636	Naval Sea Systems Command Automated Data Systems Activity
N68963	Naval Ordnance Center
N46207	Naval School, Explosive Ordnance Disposal Detachment
N68896	Naval Investigative Service
N43628	Defense Printing Service Detachment Branch Office
HQ0103	Defense Finance and Accounting
N62477	Resident Officer in Charge of Construction
N00171	Customer Service Desk (old PSD)
N00168	National Naval Medical Command

1. ENDANGERED/THREATENED SPECIES AND BIOLOGICAL HABITAT

1a. For federal or state listed endangered, threatened, or category 1 plant and/or animal species on your base, complete the following table. Critical/sensitive habitats for these species are designated by the U. S. Fish and Wildlife Service (USFWS). A species is present on your base if some part of its life-cycle occurs on Navy controlled property (e.g., nesting, feeding, loafing). Important Habitat refers to that number of acres of habitat that is important to some life cycle stage of the threatened/endangered species that is not formally designated.

SPECIES (plant or animal)	Designation (Threatened/ Endangered)	Federal/ State	Critical / Designated Habitat (Acres)	Important Habitat (acres)
example: Haliaeetus leucocephalus - bald eagle	*threatened*	*Federal*	*25*	*0*
Bidens Coronata - Tickseed Sunflower	endangered	State		158
Bidens Discoidea - Swamp Beggars - Ticks	endangered	State		94
Fraxinus Profunda - Pumpkin Ash	endangered	State		150
Melica Mutica - Narrow Melicgrass	threatened	State		57
Molothria Pendula - Creeping Cucumber	endangered	State		600 sq ft
Myosotis Mocrosperma - Large Seeded Forget-Me-Not	threatened	State		22
Smilex Walteri - Red-Berried Greenbrier	endangered	State		158
Incisalia Irus - Frosted Elfin	endangered	State		4.5
Haliaeetus Leucocephalus - Bald Eagle	endangered	Federal State		163
Ixobrychus Exilis - Least Bittern	State in need of conservation	State		150
Lynx Rufus - Bobcat	State in need of conservation	State		57
Sorex Longirostris - Southeastern Shrew	State in need of conservation	State		57

Source Citation: **Maryland Natural Heritage Program 1991-1992**

The endangered/threatened species on this list have not impacted our operations.

1b.

Have your base operations or development plans been constrained due to: - USFWS or National Marine Fisheries Service (NMFS)? - State required modifications or constraints? If so, identify below the impact of the constraints including any restrictions on land use. **Section 7 consultation for construction impacts with Bald Eagle and demolition range on the Stump Neck Annex. Construction was confined to the time frame of 15 July until 15 November to avoid disturbance to nesting eagles. This is only a requirement when the eagles are nesting and has little impact to operations.**	**YES**
Are there any requirements resulting from species not residing on base, but which migrate or are present nearby? If so, summarize the impact of such constraints. **Eagle roosting along shoreline of the Stump Neck Annex require shoreline roost trees. These trees are preserved as part of our erosion prevention program, regardless of roosting eagles. This does not affect operations.**	**YES**

1c. If the area of the habitat and the associated species have not been identified on base maps provided in Data Call 1, submit this information on an updated version of Data Call 1 map.

Map is provided as Attachment A (IHDIV and Stump Neck Annex).

1d.

Have any efforts been made to relocate any species and/or conduct any mitigation with regards to critical habitats or endangered/threatened species? Explain what has been done and why.	**YES**

An effort has been initiated to remove trees in order to restore an area to a field, reestablishing a critical habitat for E/T species. This effort did/does not impact operations.

1e.

Will any state or local laws and/or regulations applying to endangered/threatened species which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.	**NO**

2. WETLANDS

Note: Jurisdictional wetlands are those areas that meet the wetland definitional criteria detailed in the Corps of Engineers (COE) Wetland Delineation Manual, 1987, Technical Report Y-87-1, U.S. Army Engineer Waterway Experiment Station, Vicksburg, Mississippi, or officially adapted state definitions.

2a.

Does your base possess federal jurisdictional wetlands?	**YES**
Has a wetlands survey in accordance with established standards been conducted for your base?	**YES**
When was the survey conducted or when will it be conducted?	**5/17/91**
What percent of the base has been surveyed?	**90%**
What is the total acreage of jurisdictional wetlands present on your base?	**approx 276.5**

Source Citation: **National Wetlands Inventory**

2b. If the area of the wetlands has not been identified on base maps provided in Data Call 1, submit this on an updated version of Data Call 1 map.

Map is provided as Attachment A (IHDIV and Stump Neck Annex).

2c. Has the EPA, COE or a state wetland regulatory agency required you to modify or constrain base operations or development plans in any way in order to accommodate a jurisdictional wetland? **Yes - MD Dept of Natural Resources** If YES, summarize the results of such modifications or constraints.

Chemical Laboratory Military Construction (Milcon) Project: We relocated the construction site to avoid disturbance to non-tidal wetland by increasing the distance beyond the 25 foot buffer around non-tidal wetlands in accordance with the Maryland Department of Natural Resources. This move did not impact the functionality of the Milcon project.

3. CULTURAL RESOURCES

3a.

Has a survey been conducted to determine historic sites, structures, districts or archaeological resources which are listed, or determined eligible for listing, on the National Register of Historic Places? If so, list the sites below.	**YES**

Yes. Six sites are determined eligible by State Historic Preservation Office.

1 Middle Archaic to Late Woodland on Bullet's Neck
1 Archaic (?), Early to Late Woodland on Bullet's Neck
1 Early Archaic to Late Woodland on Main Site
1 Early Woodland on Main Site
1 Middle to Late Woodland on Main Site
1 Early 17th Century Contact Period on Main Site

These sites do not and will not impact our operations.

Source Citation: **1985 Archaeological Reconnaissance Survey for IHDIV.**

3b.

	YES/NO
Has the President's Advisory Council on Historic Preservation or the cognizant State Historic Preservation Officer required you to mitigate or constrain base operations or development plans in any way in order to accommodate a National Register cultural resource? If YES, list the results of such modifications or constraints below.	**NO**

3c.

Are there any on base areas identified as sacred areas or burial sites by Native Americans or others? List below.	**NO**

4. ENVIRONMENTAL FACILITIES

Notes: If your facility is permitted for less than maximum capacity, state the maximum capacity and explain below the associated table why it is not permitted for maximum capacity. Under "Permit Status" state when the permit expires, and whether the facility is operating under a waiver. For permit violations, limit the list to the last 5 years.

4a.

Does your base have an operating landfill?					**NO**
ID/Location of Landfill	**Permitted Capacity (CYD)**		**Maximum Capacity (CYD)**	**Contents**[1]	**Permit Status**
	TOTAL	**Remaining**			

[1] Contents (e.g. building demolition, asbestos, sanitary debris, etc)

Are there any current or programmed projects to correct deficiencies or improve the facility?

N/A

4b. If there are any non-Navy users of the landfill, describe the user and conditions/agreements?

N/A

4c.

Does your base have any disposal, recycling, or incineration facilities for solid waste?					**YES**
Facility/Type of Operation	**Permitted Capacity**	**Ave Daily Throughput**	**Maximum Capacity**	**Permit Status**	**Comments**
Solid Waste Recycler	1,000 tons/yr	5,200 lbs/day	1,000 tons/yr	No expiration date	Explosive limitation is 10 lbs of class 1.3 or 2 lbs of class 1.1

List any permit violations and projects to correct deficiencies or improve the facility.

There have been no permit violations or deficiencies at this facility.

Currently, only explosive contaminated metals that are being recycled are permitted for decontamination in the Solid Waste Recycler. Milcon P-113 will expand our capability to allow for permitted decontamination of explosive contaminated combustibles.

4d.

Does your base own/operate a Domestic Wastewater Treatment Plant (WWTP) ?					YES
ID/Location of WWTP	**Permitted Capacity**	**Ave Daily Discharge Rate**	**Maximum Capacity**	**Permit Status**	**Level of Treatment/Year Built**
Indian Head Plant (SS01)	0.5 MGD	0.3 MGD	0.5 MGD	Expires* 03/99	Secondary, Activated Sludge/1985
Stump Neck plant (SS31)	0.0035 MGD	0.0012 MGD	0.0034 MGD	Expires* 03/99	Sand Filter, Ultra Violet Disinfection/1969

*** Permits expire after five years. Renewals are routine, we anticipate no problems in renewing these permits.**

List permit violations and discuss any projects to correct deficiencies.

EFFLUENT VIOLATIONS FOR SS01 (IHDIV)

Date and Type of NPDES Violation	Action to Correct Violation
9/27/89 High Fecal Coliform	Increased chlorine levels and detention time
1/16/91 - 1/18/91 High Suspended solids	Repaired sewer lines to prevent infiltration/inflow problems
16 Violations in 1991 Low pH	Raised pH by installing sodium hydroxide metering pump.
9/16/91 Sewage overflow from pump station	Installed levels alarms in the pump station.
11/21/91, 2/28/92 High chlorine residual	Repaired sulfur dioxide dechlorination system.
3 Violations in 1992 2 Violations in 1993 Discharge of untreated sewage from broken or leaking sewer line.	Repaired broken lines or removed obstructions. The facility has recently completed a $1.1 million, multi-phase construction project to upgrade sewer lines throughout the base.
5/31/92 Low pH	New in-line pH meter was installed to compliment the caustic neutralization system.

EFFLUENT VIOLATIONS FOR SS31 (STUMP NECK ANNEX)

Date and Type of NPDES Violation	Action to Correct Violation
16 Violations in 1989 13 Violations in 1990 pH, BOD, fecal coliform, chlorine residual, total suspended solids, and dissolved oxygen violations	A new ultra-violet disinfection and sand filter treatment system was built, correcting the deficiencies.
10/24/90, 11/21/90, 12/1/90-12/11/90 Dissolved Oxygen was below permitted levels	Air compressor was added to the UV-sand filter treatment system
2 Violations in 1990 10 Violations in 1991 low pH violations	Soda ash briquettes were utilized to raise pH to acceptable discharge levels.
6/5/92 Unpermitted discharge	Block in mound system due to solids overflow from septic tank. Solids were pumped out of septic tank upstream from the mound system
8/17/93 Low dissolved oxygen	Power Failure caused aeration system to fail. Power was restored and problem was resolved.
2 Violations in 1993 High coliform	Ultraviolet disinfection lamps were not transmitting sufficient UV light. Lamps were cleaned. Procedures were established to ensure lamps are cleaned regularly.
3/22/94 Failure to sample	Samples were inadvertently omitted by operators. Cross-checking system implemented which corrected the problem.

4e. If you do not have a domestic WWTP, describe the average discharge rate of your base to the local sanitary sewer authority, discharge limits set by the sanitary sewer authority (flow and pollutants) and whether the base is in compliance with their permit. Discuss recurring discharge violations. **N/A**

4f.

Does your base operate an Industrial Waste Treatment Plant (IWTP)?					YES
ID/Location of IWTP	**Type of Treatment**	**Permitted Capacity**	**Ave Daily Discharge Rate**	**Maximum Capacity**	**Permit Status****
Biazzi Nitration Plant	Carbon Adsorption	No Limits	14,350 GPD	115,200 GPD	Expires ** May 1995
Extrusion Plant	Carbon Adsorption	No Limits	135 gal/day	1775 gal/day	Expires ** May 1995
Biazzi Nitration Plant *	Evaporator/Dryer	No Limits	Not fully operational yet	4,100/day	Expires ** May 1995

*** Treatment Plant is still in the Start Up Phase.**
**** Permits expire after five years. Renewals are routine, we anticipate no problems in renewing these permits.**

List any permit violations and projects to correct deficiencies or improve the facility.

Location	Date	Violation	Corrective Action
Biazzi Nitration Plant	3/08/94	Nitrate Esters Levels exceeded permit limits	Cause still under investigation
Biazzi Nitration Plant	6/10/93	Nitrate Esters Levels exceeded permit limits	Plant operator given additional training and was also recertified to run the treatment operation
Biazzi Nitration (Evaporator/Dryer Treatment Plant)	4/01/93 5/02/93	pH levels exceeded per mil limits	Increased monitoring of contractor who was "debugging" the new plant

4g. Are there other waste treatment flows not accounted for in the previous tables? Estimate capacity and describe the system.

(1) <u>Spent Carbon Treatment (Building 768)</u>: Spent carbon from the treatment of wastewater generated by the Extrusion Plant, Nitration Plants, Nitramine Fine Grind Area, and Pink Water treatment operations at the Naval Explosive Ordnance Disposal Technology Division (NAVEODTECHDIV), is used as a supplementary fuel for the Goddard Power Plant on base. Our Part B permit, State of Maryland number A-223, outlines these restrictions: 1) Spent carbon does not exhibit any characteristics of hazardous waste; 2) Notify the Director, Hazardous and Solid Waste Management

Administration (HSWMA) of any change in generating a spent carbon and demonstrate to the Director's satisfaction that the change has not affected the characteristics of the spent carbon; and 3) Spent carbon has not been used to treat any wastes listed as hazardous in COMAR 26.13.02.16-.19 other than pink water from TNT operations. Typically no more than 85 55-gallon drums of spent carbon will be treated monthly.

(2) <u>Strauss Avenue Thermal Treatment Point (SATTP)</u>: Explosives and explosive-contaminated waste are thermally treated at the SATTP. The SATTP is split into two sections, the Main Thermal Treatment Point and the Auxiliary Thermal Treatment Point. As stated in our Subpart X Permit application (EPA number MD 417 002 4109), which is in interim status, the maximum quantity of waste that can be treated is 9,000 pounds per event at each location. Standard Operating Procedure (SOP) 198-098 outlines that operations shall not be done during adverse weather conditions (such as thunder, lightning, high wind, heavy rain, or fog). Operations may only take place when wind speeds are less than or equal to 30 miles per hour. It also provides time limitations when employees can return to the Thermal Treatment Point after an event.

(3) <u>Caffee Road Thermal Treatment Point (CRTTP)</u>: Only wood and metals contaminated with explosives are thermally treated at the CRTTP, as stated in our Subpart X permit application, which is in interim status. As stated in our procedures, a maximum of one pound of explosive can be treated per event.

(4) <u>Pink Water Treatment Facility (PWTF)</u>: The PWTF is located at our Stump Neck Annex and is operated by NAVEODTECHDIV. Part B permit, State of Maryland number A-223a. Treatment capacity is 20 pounds per hour.

(5) <u>Range 3 Thermal Treatment Facility</u>: Explosive ordnance is thermally treated at the Range 3 Thermal Treatment Facility located at our Stump Neck Annex. This point does not operate when wind speeds exceed 15 miles per hour, or during inclement weather conditions (such as thunder and lightning). These restrictions are in the Subpart X permit application (EPA number MD 417 009 0001). As stated in our procedures, a maximum of 70 pounds of explosive can be treated per event.

4h.

Does your base operate drinking Water Treatment Plants (WTP)?					YES
ID/Location of WTP	**Operating (GPD)**		**Method of Treatment**	**Maximum Capacity (GPD)**	**Permit Status (Expires)***
	Permitted Capacity	**Daily Rate**			
11 wells at IHDIV	1,440,000	1,184,750	Chlorination	2,141,000	Nov 2003*
2 Wells at Stump Neck Annex	25,000	15,500	Chlorination	222,800	Nov 2003*

*** Permit renewals are routine, we anticipate no problems in renewing these permits.**

List permit violations and projects/actions to correct deficiencies or improve the facility.

None

4i. If you do not operate a WTP, what is the source of the base potable water supply.

N/A

4j.

Does the presence of contaminants or lack of supply of water constraint base operations. Explain.	**NO**

None of the three water systems have any problems with contaminants. We have ample water supply to perform our current and expanded operations.

4k.

Other than those described above does your base hold any NPDES or stormwater permits? If YES, describe permit conditions.	**YES**
If NO, why not and provide explanation of plan to achieve permitted status.	

Permit conditions require completion and implementation of a stormwater pollution prevention plan. The plan was completed in September 1993 and recommendations have been adopted and are being implemented.

Industrial wastewater discharges to surface waters are permitted under NPDES permit. The permit specifies effluent limitations and monitoring requirements for each industrial outfall. Typical permit conditions include sampling method and frequency, authorized discharge limits and reporting frequencies. These permit conditions are typical of requirements placed on industrial wastewater discharging facilities in the State of MD.

4l.

	YES/NO
Does your base have bilge water discharge problem?	**NO**
Do you have a bilge water treatment facility?	**NO**

Explain: **N/A: No requirement.**

4m.

Will any state or local laws and/or regulations applying to Environmental Facilities, which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.	**NO**

4n. What expansion capacity is possible with these Environmental Facilities? Will any expansions/upgrades as a result of BRACON or projects programmed through the Presidents budget through FY97 result in additional capacity? Explain.

The Activity presently operates a facility to decontaminate explosive contaminated metals. MILCON P-113 has been approved which is an upgrade to the existing facility. This upgrade would allow treatment of combustible, explosive-contaminated materials such as wood and paper.

4o. Do capacity limitations on any of the facilities discussed in question 4 pose a present or future limitation on base operations? Explain.

No. Capacities allow us to operate at levels commensurate with and above our outyear workload projections.

5. AIR POLLUTION

5a.

What is the name of the Air Quality Control Areas (AQCAs) in which the base is located? **Washington, DC, Metropolitan non-attainment area.**
Is the installation or any of its OLFs or non-contiguous base properties located in different AQCAs? **NO.** List site, location and name of AQCA. **N/A**

5b. For each parcel in a separate AQCA fill in the following table. Identify with and "X" whether the status of each regulated pollutant is: attainment/non-attainment/maintenance. For those areas which are in non-attainment, state whether they are: Marginal, Moderate, Serious, Severe, or Extreme. State target attainment year.

Site: **IHDIV** AQCA: **Washington, DC, MNAA**

Pollutant	Attainment	Non-Attainment	Maint-enance	Target Attainment Year[1]	Comments[2]
CO	X				
Ozone		Serious		1999	*
PM-10	X				
SO_2	X				
NO_2	X				
Pb	X				

1 Based on national standard for Non-Attainment areas or SIP for Maintenance areas.
2 Indicate if attainment is dependent upon BRACON, MILCON or Special Projects. Also indicate if the project is currently programmed within the Presidents FY1997 budget.

*** The Washington, D.C. metropolitan AQCA is "serious non-attainment" for ozone. As a result of our location in this non-attainment area, we are mandated to reduce NOx emissions from our powerhouse. Military construction project P-114 will install low NOx burners to reduce NOx emissions. The project has been approved by the Armed Services Subcommittee and the House Appropriations Committee and is awaiting Senate confirmation for insertion into the FY95 Milcon program. The Washington D.C. area's ability to achieve ozone attainment is dependent upon its ability to implement an area-wide plan which addresses both stationary and mobile sources of air pollution. Stationary sources of NOx (such as our powerhouse) contribute only a small percentage to the area's non-attainment.**

5c. For your base, identify the baseline level of emissions, established in accordance with the Clean Air Act. Baseline information is assumed to be 1990 data or other year as specified. Determine the total level of emissions (tons/yr) for CO, NOx, VOC, PM10 for the general sources listed. For all data provide a list of the sources and show your calculations. Use known emissions data, or emissions derived from use of state methodologies, or identify other sources used. "Other Mobile" sources include such items as ground support equipment.

See Attachment B for 1990 source listing and calculations.

	Emission Sources (Tons/Year)				
Pollutant	Permitted Stationary	Personal Automobiles	Aircraft Emissions *	Other Mobile	Total
CO	31	No Data Available	N/A	No Data Available	31
NOx	453	No Data Available	N/A	No Data Available	453
VOC	108	No Data Available	N/A	No Data Available	108
PM10	49	No Data Available	N/A	No Data Available	49

* **We do not have an airfield or conduct flight operations.**

Source Document: **1990 Air Emissions Inventory**

5d. For your base, determine the total FY1993 level of emissions (tons/yr) for CO, NOx, VOC, PM10 for the general sources listed. For all data provide a list of the sources and show your calculations. Use known emissions data, or emissions derived from use of state methodologies, or identify other sources used. "Other Mobile" sources include such items as ground support equipment.

See Attachment C for 1993 source listing and calculations.

	Emissions Sources (Tons/Year)				
Pollutant	Permitted Stationary	Personal Automobiles	Aircraft Emissions *	Other Mobile	Total
CO	28	No Data Available	N/A	No Data Available	28
NOx	468	No Data Available	N/A	No Data Available	468
VOC	103	No Data Available	N/A	No Data Available	103
PM10	53	No Data Available	N/A	No Data Available	53

* **We do not have an airfield or conduct flight operations.**

Source Document: **1993 Emissions Certification Report**

5e. Provide estimated increases/decreases in air emissions (Tons/Year of CO, NOx, VOC, PM10) expected within the next six years (1995-2001). Either from previous BRAC realignments and/or previously planned downsizing shown in the Presidents FY1997 budget. Explain.

Production curtailment and conversion to low VOC paints and solvents is expected to cause a 90% decrease in VOC emissions. The installation of low NOx burners in our power plant will reduce NOx emissions by 33% and increase CO emissions by nearly 100%. No significant PM10 emission changes are expected.

The merger of White Oak and IHDIV (Per BRAC 93) will cause an insignificant increase in VOC, PM10, NOx, and CO emissions.

5f. Are there any critical air quality regions (i.e. non-attainment areas, national parks, etc.) within 100 miles of the base?
Washington, D.C.; Baltimore, MD; Kent and Queene Anne County; York, PA; Sussex County, DE; Richmond-Petersburg, VA; Shenandoah National Park, VA

5g. Have any base operations/mission/functions (i.e.,: training, R&D, ship movement, aircraft movement, military operations, support functions, vehicle trips per day, etc.) been restricted or delayed due to air quality considerations. Explain the reason for the restriction and the "fix" implemented or planned to correct.

Yes. Computer Ambient Impact Analysis (CAIA) shows that IHDIV's potential nitroglycerin (NG) emissions cause the concentration of NG in the air to exceed the screening level established by the Maryland Department of the Environment (MDE). As a result, until compliance can be demonstrated, the MDE will no longer approve any permits to construct or registration updates that include nitroglycerin emissions. IHDIV does not believe that the CAIA is reflective of actual NG air emissions at our fence line and plans to have a contractor actually measure the concentration of NG in the air to disprove the concentration estimated by the CAIA. We are also conducting basic research on three different control technologies for NG emissions; ultraviolet destruction, biofiltration, and caustic scrubbing.

5h. Does your base have Emission Reduction Credits (ERCs) or is it subject to any emission offset requirements? If yes, provide details of the sources affected and conditions of the ERCs and offsets. Is there any potential for getting ERCs?

<u>ERC</u>: **We have no ERCs and have no potential for getting any.**

<u>Offset Requirements</u>: **Yes. Emissions offset regulations (COMAR 26.11.17, Requirements for Major New Sources and Modifications) apply to the Activity only in the event that construction of a major new stationary source or a major modification to a major stationary source of VOC or NOx air emissions is planned. Currently, the Activity does not plan the construction or modification of a major stationary source of NOx or VOCs. In the event that construction or modification of a major stationary source is planned, the regulation requires that the Activity attain emission reductions (offsets) of the same pollutant from existing sources in the area of the proposed source, whether or not under the same ownership, in accordance with a ratio of 1.2 to 1 for sources of VOC or NOx in Charles County. In other words, for every ton of VOC or NOx emitted by the new or modified source, emissions from existing sources of the same pollutant must be reduced by 1.2 tons.**

6. ENVIRONMENTAL COMPLIANCE

6a. Identify compliance costs, currently known or estimated that are required for permits or other actions required to bring existing practices into compliance with appropriate regulations. Do not include Installation Restoration costs that are covered in Section 7 or recurring costs included in question 6c. For the last two columns provide the combined total for those two FY's.

Program	Survey Completed?	Costs in $K to correct deficiencies					
		FY94	FY95	FY96	FY97	FY98-99	FY00-01
Air	No	145	384	1,800	300	2,000	0
Hazardous Waste	No	0	0	0	0	0	0
Safe Drinking Water Act	Yes	200	100	0	100	200	200
PCBs	Yes	0	0	0	0	0	0
Other (non-PCB) Toxic Substance Control Act	N/A *	0	0	0	0	0	0
Lead Based Paint	Yes **	*	*	*	*	*	*
Radon	Yes	0	0	0	0	0	0
Clean Water Act	Yes	277	100	100	0	0	0
Solid Waste	N/A *	0	0	0	0	0	0
Oil Pollution Act	Yes	0	0	0	0	0	0
USTs	Yes	150	175	225	0	0	0
Other	N/A *	65	0	0	0	0	0
Total		837	759	2,125	400	2,200	200

Provide a separate list of compliance projects in progress or required, with associated cost and estimated start/completion date. **See Attachment D.**

*** No survey required**

**** PWC Norfolk performed survey of family housing in 1QFY94, abatement cost estimate is not yet available, however, we do not anticipate significant abatement cost in this area.**

6b. Does your base have structures containing asbestos? **YES** What % of your base has been surveyed for asbestos? **No formal asbestos survey for the entire Activity has been completed. However, during facility upgrades, asbestos abatement has been accomplished during the last 10 years.** Are additional surveys planned? **YES. As facility repair/renovation contracts are accomplished. However, no formal asbestos survey is planned.** What is the estimated cost to remediate asbestos ($K). **991 Buildings, 2.6 million square feet, $26 million*** Are asbestos survey costs based on encapsulation, removal or a combination of both? **Removal**

*** NOTE: Estimate is based on $10 per square foot for remediation. As base-wide surveys have not been performed for asbestos, an estimate was obtained assuming: 1) All buildings built between 1935 and 1970 have asbestos, and 2) The entire square footage of the building is used to obtain removal costs at $10 per square foot.**

6c. Provide detailed cost of recurring operational (environmental) compliance costs, with funding source.

Funding Source	**FY92**	**FY93**	**FY94**	**FY95**	**FY96**	**FY97**	**FY98-99**	**FY00-01**
O&MN (Direct and BOS)	450	450	425	386	363	355	700	700
HA	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0
Other (specify)	0	0	0	0	0	0	0	0
Other (NIF/DBOF) (specify)	3,100	3,100	2,840	3,040	2,825	3,124	5,600	5,600
TOTAL	3,550	3,550	3,265	3,426	3,188	3,469	6,300	6,300

6d. Are there any compliance issues/requirements that have impacted operations and/or development plans at your base?

Moser Nitration Plant: wastewater exceeds NPDES permit limits for nitrate esters. We have an agreement with MDE to keep this plant shutdown until carbon adsorption treatment systems are operational at the end of 1994. This agreement has not affected our operations.

7. INSTALLATION RESTORATION

7a.

Does your base have any sites that are contaminated with hazardous substances or petroleum products?	**YES**
Is your base an NPL site or proposed NPL site?	**NO**

These sites are being addressed under the Defense Environmental Restoration Program. See the following table.

7b. Provide the following information about your Installation Restoration (IR) program. Project list may be provided in separate table format. Note: List only projects eligible for funding under the Defense Environmental Restoration Account (DERA). Do not include UST compliance projects properly listed in section VI.

Site # or name	Type site [1]	Groundwater Contaminated?	Extends off base?	Drinking Water Source?	Cost to Complete ($M)/Est. Compl. Date	Status[2]/Comments
1	RCRA	UNKNOWN	UNKNOWN	NO	?/UNKNOWN	VI
4	RCRA	UNKNOWN	UNKNOWN	NO	?/UNKNOWN	VI
6	RCRA	UNKNOWN	UNKNOWN	NO	?/UNKNOWN	VI
2	RCRA	UNKNOWN	UNKNOWN	NO	?/UNKNOWN	RFI
3	RCRA	UNKNOWN	UNKNOWN	NO	?/UNKNOWN	RFI
5	RCRA	UNKNOWN	UNKNOWN	NO	?/UNKNOWN	RFI
5	CERCLA	NO	NO	NO	0.5/2000	IRA*
8	CERCLA	NO	NO	NO	0.5/2001	IRA*
12	CERCLA	NO	NO	NO	?/2001	SI
39	CERCLA	NO	NO	NO	?/2001	SI
40	CERCLA	NO	NO	NO	?/2001	SI
41	CERCLA	YES	YES**	NO	?/2001	SI
42	CERCLA	YES	UNKNOWN	NO	?/2001	SI
43	CERCLA	YES	UNKNOWN	NO	?/2001	SI
44	CERCLA	YES	UNKNOWN	NO	?/2001	SI

45	CERCLA	NO	NO	NO	?/2001	SI
46	CERCLA	NO	NO	NO	?/2001	SI
47	CERCLA	NO	NO	NO	?/2001	SI
48	CERCLA	NO	NO	NO	?/2001	SI
49	CERCLA	NO	NO	NO	?/2001	SI
50	CERCLA	NO	NO	NO	?/2001	SI
53	CERCLA	NO	NO	NO	?/2001	SI
54	CERCLA	NO	NO	NO	?/2001	SI
55	CERCLA	NO	NO	NO	?/2001	SI
56	CERCLA	UNKNOWN	UNKNOWN	UNKNOWN	0.5/UNKNOWN	IRA*

[1] Type site: CERCLA, 'RCRA corrective action (CA), UST or other (explain)

[2] Status = PA, SI, RI, RD, RA, long term monitoring, etc.

*** - IRA-Interim Removal Action**

**** - Low levels of contamination were found in the sediments of Mattawoman Creek directly adjacent to IR Site 41**

7c. Have any contamination sites been identified for which there is no recognized/accepted remediation process available? List. **No**

7d.

Is there a groundwater treatment system in place?	**NO**
Is there a groundwater treatment system planned?	**NO**

State scope and expected length of pump and treat operation. **N/A**

7e.

Has a RCRA Facilities Assessment been performed for your base?	**YES**

7f. Does your base operate any conforming storage facilities for handling **hazardous materials**? If YES, describe facility, capacity, restrictions, and permit conditions.

Yes, however there are no permits or restrictions placed on any of these facilities. The following table lists the facilities and their capacities.

BLDG	BUILDING TITLE	EXT. MEAS. (SF)
117	General Warehouse	2,500
120	General Warehouse	1,901
181	Powder Dryhouse #9 Side Room	1,894
183	Powder Dryhouse #11 side Room	1,890
201	General Storehouse	10,553
263	General Storehouse	13,705
288	Storage Building	1,577
304	Storehouse	2,275
410A	General Storehouse	315
454	Flammable Storage	7,978
469	Chemical Storage	2,511
524	Chemical Storage	5,363
809	Solvent Storehouse	540
877	Gas Cylinder Storehouse Temp Outside Storage	1,159
938	Condenser House	477
939	Condenser House	477

Source of Information: **Supply Facilities Management Report (SFMR) prepared in August 1990.**

7g. Does your base operate any conforming storage facilities for handling **hazardous waste**? If YES, describe facility, capacity, restrictions, and permit conditions.

Yes. This question is interpreted to mean any permitted storage facilities for hazardous waste. Following is a summary of those sites:

a. <u>Hazardous Waste Storage Facility (Building 455)</u>: Building 455 is separated into eight bays. Each bay is permitted to hold 70 drums (3,850 gallons) of waste, except Bays 4 and 6. Bay 4 is used as a receiving bay and is permitted to hold a total of 100 drums (55,000 gallons) of waste, 10 drums in each of its 10 separate diked areas. Bay 6 is not currently permitted to hold any Controlled Hazardous Substances (CHS). These restrictions are in our Part B permit, State of Maryland number A-223.

b. <u>Polychlorinated Biphenyl (PCB) Storage Facility (Building 1440)</u>: Building 1440 contains three storage areas. Our storage requirements for Areas 1, 2, and 3 are 6,396 gallons, 1,660 gallons, and 1,660 gallons, respectively. The maximum amount we store in this building is 9,716 gallons. Our Part B permit, State of Maryland number A-223, allows a total of 12,000 gallons.

7h. Is your base responsible for any non-appropriated fund facilities (exchange, gas station) that require cleanup? If so, describe facility/location and cleanup required/status. **No**

7i.

Do the results of any radiological surveys conducted indicate limitations on future land use? Explain below.	**N/A**

Radiological surveys are not required.

7j. Have any base operations or development plans been restricted due to Installation Restoration considerations? **No**

7k. List any other hazardous waste treatment or disposal facilities not included in question 7b. above. Include capacity, restrictions and permit conditions.

None

8. LAND / AIR / WATER USE

8a. List the acreage of each real estate component controlled or managed by your base (e.g., Main Base - 1,200 acres, Outlying Field - 200 acres, Remote Range - 1,000 acres, remote antenna site - 5 acres, Off-Base Housing Area - 25 acres).

Parcel Descriptor	Acres	Location
Main Site	2009	Indian Head Division, NSWC
Bullets Neck Area	47	Indian Head Division, NSWC
Stump Neck Annex	1171	Indian Head Division, NSWC
Remote Sites:		
La Plata	14	Indian Head Division, NSWC
Waldorf	4	Indian Head Division, NSWC
Railroad (Indian Head, MD to White Plains, MD)	161	Indian Head Division, NSWC

8b. Provide the acreage of the land use categories listed in the table below:

LAND USE CATEGORY		ACRES
Total Developed: (administration, operational, housing, recreational, training, etc.)		**2,013**
Total Undeveloped (areas that are left in their natural state but are under specific environmental development constraints, i.e.: wetlands, endangered species, etc.)		Wetlands: **329**
		All Others: **317**
Total Undeveloped land considered to be without development constraints, but which may have operational/man caused constraints (i.e.: HERO, HERF, HERP, ESQD, AICUZ, etc.) TOTAL		**440**
Total Undeveloped land considered to be without development constraints		**307**
Total Off-base lands held for easements/lease for specific purposes		**0**
Breakout of undeveloped, restricted areas. Some restricted areas may overlap:	ESQD	**407***
	HERF	**0**
	HERP	**0**
	HERO	**293**
	AICUZ	**N/A ****
	Airfield Safety Criteria	**N/A ****
	Other	**0**

*** ESQD area does not include ESQD within Wetlands and other environmentally constrained undeveloped areas.**
**** We do not have an airfield or conduct flight operations.**

8c. How many acres on your base (includes off base sites) are dedicated for training purposes (e.g., vehicular, earth moving, mobilization)? This does not include buildings or interior small arms ranges used for training purposes. **196**

8d. What is the date of your last AICUZ update? _____/_____/_____ **N/A. We do not have an airfield or conduct flight operations.** Are any waivers of airfield safety criteria in effect on your base? Y/N **N/A** Summarize the conditions of the waivers below. **N/A**

8e. List the off-base land use *types* (e.g, residential, industrial, agricultural) and *acreage* within Noise Zones 2 & 3 generated by your flight operations and whether it is compatible/incompatible with AICUZ guidelines on land use. **N/A. We do not conduct flight operations.**

Acreage/Location/ID	**Zones 2 or 3**	**Land Use**	**Compatible/ Incompatible**

8f. List the navigational channels and berthing areas controlled by your base which require maintenance dredging? Include the frequency, volume, current project depth, and costs of the maintenance requirement.

Navigational Channels/ Berthing Areas	**Location / Description**	**Maintenance Dredging Requirement**			
		Frequency	Volume (MCY)	Current Project Depth (FT)	Cost ($M)
Pier 85N	Stump Neck Annex	Every 5 Years	.003	16	.117
Wharf 321	Main Site	Every 5 Years	.013	20	.507

8g. Summarize planned projects through FY 1997 requiring **new channel or berthing area** dredged depths, include location, volume and depth.

None

8h.

Are there available **designated dredge disposal areas** for maintenance dredging material? List location, remaining capacity, and future limitations.	**No** *
Are there available **designated dredge disposal areas** for new dredge material? List location, remaining capacity, and future limitations.	**No** *
Are the dredged materials considered contaminated? List known contaminants.	**No**

* **All dredge materials are taken off base.**

8i. List any requirements or constraints resulting from consistency with **State Coastal Zone Management Plans**.

Requirements:

1) **Prohibition of most construction within 100 feet of the mean high water line.**
2) **Prohibition of most construction on wetlands and within a minimum 25 foot buffer around the wetlands.**
3) **Limitations on impervious surface construction and clearing of land. Encouragement of reforestation.**

These requirements have insignificant impact on current operations and minimal impact on new construction and development.

8j. Describe any **non-point source pollution problems affecting water quality** ,e.g.: coastal erosion.

1) **Shoreline erosion - High bluffs eroded by wind and waves mainly on the Potomac River affecting approximately five miles of river frontage.**

2) **Streamside erosion from stormwater is causing suspended sediments to enter the Potomac River and the Mattawoman Creek.**

3) **Erosion is taking away area from our Strauss Avenue Thermal Treatment Point where open burning/open detonation operations are performed. A short term project to build up the treatment point has been programmed for FY 95. Our long term plans are to build a confined burn facility.**

8k.

If the base has a cooperative agreement with the US Fish and Wildlife Service and/or the State Fish and Game Department for conducting a hunting and fishing program, does the agreement or these resources constrain either current or future operations or activities? Explain the nature and extent of restrictions.	**NO**

8l. List any other areas on your base which are indicated as protected or preserved habitat other than threatened/endangered species that have been listed in Section 1. List the species, whether or not treated, and the acres protected/preserved.

None

9. WRAP-UP

9a. Are there **existing or potential environmental showstoppers** that have affected or will affect the accomplishment of the installation mission that have not been covered in the previous 8 questions? **NO**

9b. Are there any <u>**other**</u> **environmental permits** required for base operations, include any relating to industrial operations. **YES**

1) Open burning permits from Charles County are issued for thermal treatment operations.

2) Controlled Hazardous Substances Facility Permit for IHDIV - Permit Number A-223: This permit allows for the storage of hazardous waste for an extended amount of time and treatment of various hazardous waste streams.

3) Oil Operations Permit - Permit Number 94-OP-0666: This permit allows the delivery of oil by truck tank and the operation of numerous aboveground oil storage systems.

9c. Describe any **other environmental or encroachment restrictions** on base property not covered in the previous 8 sections.

None

9d. List **any future/proposed laws/regulations or any proposed laws/regulations** which will constrain base operations or development plans in any way. Explain.

None

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990

PROCESS EQUIPMENT

NSWC Log Number	Installation Registration Number	Building Number(s)	Material Used/ Emitted	Actual Material Used (tons/year)	Actual Material Used (lbs/day)	Actual Emissions* (tons/year)	Actual Emissions* (lbs/day)	Operating Schedule (Actual) hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
3	6-0016-80	Process	double base propellant	1434.00	11247.0			8	07:30	16:00	5	51	255
	(52 bldgs.,	Bldgs.	acetone			4.15E+00	3.25E+01	16	07:30	12:30	5	51	255
	see	and	nitroglycerin			1.16E+00	6.88E+00	24	07:30	07:29	7	51	357
	appendix)	Ovens	butyl acetate			1.53E+01	1.04E+02						
			ethyl lactate			7.57E+00	4.92E+01						
4	6-0017-80	588	VOC			1.58E-01	1.25E+00	8	07:30	16:00	5	51	255
			particulate matter			1.50E-03	1.18E-02						
5	9-0003-80	329, 466	acetone	0.01	0.1	7.00E-03	5.49E-02	8	07:30	16:00	5	51	255
6	6-0018-80	(66 bldgs.,	VOC			1.89E+00	3.25E+02	8	07:30	16:00	5	51	255
		see	particulate matter			7.46E-03	3.40E+00						
		appendix)	nitroglycerin			0.00E+00	0.00E+00						
			isopropyl alcohol			1.57E-02	1.10E+01						
7	6-0033-90	744	ammonium perchlorate	NO PRODUCTION OCCURED IN 1990; FACILITY DID NOT GENERATE AIR EMISSIONS IN 1990									
9	6-0019-80	858	propellant ingredients (PM)	91.35	3096.6	0.00E+00	0.00E+00	2	04:30	06:30	5	12	59
			cellulose acetate butyrate	10.02	182.2	0.00E+00	0.00E+00	2	04:30	06:30	5	41.4	207
10	6-0020-80	704, 705,	ethyl alcohol	7.35	249.0	7.35E+00	2.49E+02	10	04:30	15:00	5	12	59
		706, 707,	diethyl ether	25.40	860.0	2.54E+01	8.60E+02						
		326, 327,	acetone	0.26	9.0	2.60E-01	9.00E+00						
		328	nitroglycerin (NG)	5.10	173.0	1.75E-02	5.90E-01						
11	6-0021-80	10-24,-26,	ethyl alcohol	5.10	92.7	5.10E+00	9.27E+01	12	02:30	15:00	5	9.8	49
		-28,-29,-31,	ethyl acetate	21.54	391.7	2.15E+01	3.92E+02	15	22:30	15:00	5	12	60
		-33,-35; 218,	diethyl ether	0.21	3.7	2.06E-01	3.70E+00	To calculation daily emission rates, assume:					
		219, 220	acetone	3.40	61.8	1.70E-01	3.10E+00	13.5					110
12	6-0022-80	1430	isopropyl alcohol	2.58	304.0	6.21E-01	7.30E+01	14	06:30	21:30	5	3.4	17
13	6-0023-80	708, 1007	LOVA propellant	106.40	1952.0			4	12:00	16:00	5	21.8	109
		313, 1009	graphite	0.04	0.8	0.00E+00	0.00E+00						
14	6-0024-85	2112	VOC	0.01	0.1	1.20E-02	1.33E-01	1	09:00	10:00	5	36	180

Attachment B

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990
PROCESS EQUIPMENT

NSWC Log Number	Installation Registration Number	Building Number(s)	Material Used/ Emitted	Actual Material Used		Actual Emissions*		Operating Schedule (Actual)					
				(tons/year)	(lbs/day)	(tons/year)	(lbs/day)	hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
16	6-0025-80	160	enamel paint	0.12	0.9	2.10E-02	1.68E-01	8	07:30	16:00	5	52	260
			VOC	0.14	1.1	2.20E-02	1.80E-01						
		491	aliphatic hydrocarbons	0.09	0.7	2.40E-02	1.88E-01						
17	6-0026-80	286 (mixing)	ethanol	0.04	0.9	3.50E-02	8.80E-01	8	06:30	06:29	2	40	80
		286	acetone	0.28	2.2	2.80E-01	1.90E+00	8	07:00	14:30	5	52	260
		(part clean)	ethanol	0.36	2.8	3.60E-01	2.50E+00						
18	6-0027-80	844	VOC	0.09	0.9	2.24E-02	2.17E-01	10	06:30	17:00	4	52	208
		(painting)	paint solids	0.05	0.5	0.00E+00	0.00E+00						
			isopropanol	0.01	0.1	1.70E-03	1.60E-02						
		580 (pt. cl.)	acetone	4.21	40.5	4.21E+00	4.05E+01						
19	6-0028-80	521	VOC	0.47	5.2	4.71E-01	5.20E+00	8	07:00	16:30	5	36	180
20	6-0030-82	521	1,1,1-trichloroethane	2.91	32.3	2.91E-02	3.23E-01	8	07:00	16:30	5	36	180
21	6-0029-80	855	(see NSWC log number 51, reg. no. 6-0049-81)										
23	6-0031-80	379	mineral spirits	0.74	6.2	7.39E-01	6.20E+00	6	08:00	14:30	5	52	240
24	6-0032-80	870	VOC	0.03	0.6	2.70E-02	6.00E-01	5	09:00	14:30	2	48	96
			isopropyl alcohol	0.001	0.02	1.00E-03	2.10E-02						
25	9-0005-80	781	sulfuric acid	513.00	25672.0	2.97E-03	1.49E-01	1	10:00	11:00	1	40	40
			nitric acid	355.00	17764.0	3.77E-04	1.89E-02						
			SOx			3.49E-03	1.75E-01						
			NOx			4.43E-04	2.21E-02						

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990
PROCESS EQUIPMENT

NSWC Log Number	Installation Registration Number	Building Number(s)	Material Used/ Emitted	Actual Material Used		Actual Emissions*		Operating Schedule (Actual)					
				(tons/year)	(lbs/day)	(tons/year)	(lbs/day)	hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
26	7-0009-80	786	nitroglycerin	32.00	3555.0	4.07E-06	4.57E-04	5	17:00	22:00	3	6	18
						8.83E-07	9.83E-05	4	17:00	21:00	3	6	18
			propylene glycol dinitrate	184.00	12693.0	1.09E-02	7.51E-01	8	17:00	01:00	4	7.25	29
						2.88E-03	1.99E-01	7	17:00	00:00	4	7.25	29
		787	nitroglycerin			5.15E-06	5.72E-04	5	17:00	22:00	3	6	18
			propylene glycol dinitrate			2.34E-05	1.60E-03	8	17:00	01:00	4	7.25	29
		1463	propylene glycol dinitrate	184.00	12693.0	2.49E-03	1.72E-01	7	18:00	01:00	4	7.25	29
		1464	nitroglycerin	32.00	3555.0	1.25E-06	1.40E-04	4	19:00	23:00	3	6	18
		1465	nitroglycerin			1.17E-04	6.41E-04	24			7	52	365
27	9-0004-80	790	propylene glycol dinitrate			5.47E-04	3.77E-02	3	03:00	06:00	4	7.25	29
			NOx			1.62E-02	6.90E-01	3	03:00	06:00	4	11.75	47
			SOx			1.34E-03	5.70E-02						

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AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990
PROCESS EQUIPMENT

NSWC Log Number	Installation Registration Number	Building Number(s)	Material Used/ Emitted	Actual Material Used (tons/year)	Actual Material Used (lbs/day)	Actual Emissions* (tons/year)	Actual Emissions* (lbs/day)	Operating Schedule (Actual) hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
28	7-0008-80	672	NOx			4.31E-05	2.90E-03	1	10:00	11:00	1	30	30
			SOx			1.64E-03	1.09E-01						
			nitric acid	219.00	14640.0	2.82E-04	1.89E-02						
			sulfuric acid	432.00	28800.0	2.26E-03	1.51E-01						
		676A	trimethylolethanetrinitrate			4.49E-06	9.30E-05	16	00:00	16:00	4	24.25	97
		676B	trimethylolethanetrinitrate			6.55E-06	1.40E-04						
		676	trimethylolethanetrinitrate	182.10	3754.0	3.87E-06	8.00E-05						
		676A	triethylene glycol dinitrate			1.53E-05	1.91E-03	13	18:00	07:00	4	4	16
		676B	triethylene glycol dinitrate			1.88E-05	2.34E-03	13	21:00	10:00	4	4	16
		676	triethylene glycol dinitrate	13.90	1735.0	1.24E-05	1.54E-03						
		1543	triethylene glycol dinitrate	13.90	1735.0	5.20E-06	6.50E-04	13	17:00	06:00	4	4	16
			trimethylolethanetrinitrate	182.10	3754.0	1.50E-06	3.10E-05	6	17:00	23:00	4	24.25	97
			NOx			1.57E-02	3.24E-01						
			SOx			1.61E-02	3.32E-01						
			nitric acid	216.00	4454.0	6.35E-06	1.30E-04	0.226	17:00	23:00	4	24.25	97
			sulfuric acid	324.00	6680.0	3.02E-05	6.20E-04						
		674	NOx			5.36E-05	1.10E-03	8.71	18:00	03:00	4	24.25	97
			SOx			2.45E-04	5.10E-03						
29	(to be determined)	1607	paper	6.26	1252.5			4	09:00	13:00	1	15	15
			propane										
			particulate matter			2.25E-02	4.35E+00						
			SOx			7.50E-03	1.50E+00						
			carbon monoxide			3.15E-02	6.30E+00						
			VOC			9.00E-03	1.95E+00						
			NOx			9.00E-03	1.95E+00						
30	6-0035-80	497, 498	nitroguanidine	27.60	151.0	8.00E-01	4.30E+00	8	08:00	16:00	4	13	52

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990
PROCESS EQUIPMENT

NSWC Log Number	Installation Registration Number	Building Number(s)	Material Used/ Emitted	Actual Material Used		Actual Emissions*		Operating Schedule (Actual)					
				(tons/year)	(lbs/day)	(tons/year)	(lbs/day)	hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
31	7-0010-82	1053	methylene chloride	9.68	2420.0	7.60E-02	1.52E+01	16	16:00	08:00	4	2.5	10
			acetone	1.75	466.0	8.00E-03	2.00E+00						
		1006	methylene chloride	9.68	1210.0	7.50E-02	9.38E+00	0.75	01:00	05:00	4	4	16
			nitroglycerin	32.00	3555.0	7.20E-10	8.00E-08	0.75	01:00	05:00	4	4.5	18
			trimethylolethanetrinitrate	4.20	2100.0	4.44E-03	7.39E-01	24			3	4	12
			triethylene glycol dinitrate	0.54	266.0	5.47E-04	9.12E-02						
		801	ether	0.40	0.0	3.99E-01	3.47E+01	4	08:00	12:00	2	11.5	23
		1056	ether	5.55	100.0	5.18E-01	2.83E+00	24			7	52	365
32	9-0014-81	579, 530	hexane	4.50	24.9	8.00E-01	4.66E+00	8	08:00	16:00	3	10	30
		1352	acetone	1.80	9.9	3.00E-01	1.46E+00						
33		1463	Otto Fuel (76% propylene-	242.00	16690.0	8.55E-01	5.90E+00	7	10:00	18:00	4	7.25	29
		1513	glycol dinitrate)	242.00	16690.0	1.03E-03	7.06E-02	2	15:00	17:00	4	7.25	29
34	7-0012-82	856	ethylene diamine	NO PRODUCTION OCCURED IN 1990; PROCESS DID NOT GENERATE AIR EMISSIONS IN 1990									
			nitric acid										
			methanol										
			ethylenediaminedinitrate										
35	9-0024-88	665	acetone	0.006	1.0	6.00E-03	1.00E+00	8	07:30	16:00	5	2.4	12
36		859	heptane	26.39	2030.0	2.70E-01	2.10E+01	18			1	26	26
			nitromethane (recycled)			3.89E+00	7.00E+01	18			3	37	111
37 through 50	4-0130-87 through 4-0143-87	(see database for fuel burning equipment)											
51	6-0049-81	(17 bldgs., see appendix)	VOC			9.90E-01	3.22E+02	8	07:00	15:30	5	49	245
			particulate matter			3.84E-03	7.04E-01						
			nitroglycerin			4.36E-02	3.88E+00						
52	6-0060-81	1134	paints and paint thinners	2.55	21.2			8	07:00	15:30	5	48	240
			VOC			1.83E+00	1.53E+01						

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990
PROCESS EQUIPMENT

NSWC Log Number	Installation Registration Number	Building Number(s)	Material Used/ Emitted	Actual Material Used		Actual Emissions*		Operating Schedule (Actual)					
				(tons/year)	(lbs/day)	(tons/year)	(lbs/day)	hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
54	9-0005-81	164	ethyl alcohol	5.02		3.05E-02	1.67E-01	24	06:30	06:29	7	52	365
55		496	ethyl acetate	20.04		1.09E-01	5.99E-01						
56		1012	diethyl ether	(tank not in use)									
58		1044	ethyl lactate	12.79		1.01E-02	5.54E-02						
58		1044	butyl acetate	25.96		2.05E-02	1.13E-01						
64		873	sulfuric acid			neg.	neg.						
64		873	sodium hydroxide			neg.	neg.						
57	9-0015-81	658	gasoline	158.60	1321.6	7.19E-01	3.94E+00	24	06:30	06:29	7	52	365
59	6-0051-81	268E	paints and paint thinners	0.03	0.2			4	06:30	10:30	5	49	245
			VOC			1.85E-02	1.51E-01						
60	7-0013-87	502	EPOX-502	0.10	3.1			8	08:00	16:30	5	12.6	63
			epichlorhydrin	0.14	4.3	5.04E-04	1.60E-02						
			dioxane	0.54	17.1	2.02E-02	6.40E-01						
61	9-0023-81	163	ordnance hardware	2.57	571.8			24	6:30	6:30	5	1.8	9
			particulate matter			1.85E-02	2.84E+00						
			non-VOC			6.92E-03	1.15E+00						
62	9-0016-87	1134	plastic resin and paint residue particulate matter	0.47	6.0	4.68E-05	6.00E-04	4	06:30	10:30	3	52	156
63	6-0054-81	1134	petroleum naphtha	0.24	4.7	3.25E-03	6.25E-02	2	6:30	8:30	2	52	104
65	9-0020-81	544	propellant	0.26	272.2			Rum Point:					
			NOx			2.23E-03	1.49E+00	8	7:30	17:00	5	0.6	3
			particulate matter			neg.	neg.	Bldg. 544:					
			carbon monoxide			1.25E-01	8.34E+01	8	7:30	17:00	5	7.2	36
			VOC			7.89E-05	5.26E-02	(emissions are based upon Rum Point					
			non-VOC			6.15E-03	4.10E+00	only; emissions from Bldg 544 are negligible)					
66	9-0019-81	544		NO TESTING OCCURED IN 1990; NO AIR EMISSIONS GENERATED IN 1990									

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AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990

PROCESS EQUIPMENT

NSWC Log Number	Installation Registration Number	Building Number(s)	Material Used/ Emitted	Actual Material Used		Actual Emissions*		Operating Schedule (Actual)					
				(tons/year)	(lbs/day)	(tons/year)	(lbs/day)	hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
67	9-0018-81	890, 558	propellant	0.35	2.8			8	7:30	14:00	5	52	245
		547, 1441	carbon monoxide			1.50E-01	1.20E+00						
			non-VOC			4.09E-02	3.27E-01						
			particulate matter			2.65E-02	2.13E-01						
68	9-0017-81	889, 15-17,	propellant	0.50	4.0			8	7:30	14:00	5	52	250
		-18, -19, -20,	carbon monoxide			3.45E-02	2.80E-01						
		-21, -22, -23,	particulate matter			1.58E-02	1.29E-01						
		-24, -25, -27,	non-VOC			3.32E-03	3.42E-03						
		-28, 1642	NOx			neg.	neg.						
			SOx			3.27E-03	2.40E-02						
69	9-0021-81	544		NO TESTING OCCURED IN 1990; NO AIR EMISSIONS GENERATED IN 1990									
70	9-0029-80	750, 751	double base propellant	8.97	85.0			8	7:30	16:00	4.5	47	211
			composite propellant	17.19	162.9								
			dbase /comp propellant	10.85	102.8								
			carbon monoxide			1.20E+01	1.14E+02						
			non-VOC			4.52E+00	4.28E+01						
			particulate matter			3.76E+00	3.57E+01						
71	9-0022-81	558	double base propellant	0.88	11.9			8	7:30	16:00	3	49	147
			composite propellant	1.34	18.3								
			carbon monoxide			5.52E-01	7.52E+00						
			non-VOC			3.45E-01	4.70E+00						
			particulate matter			1.06E-01	1.47E+00						

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990
PROCESS EQUIPMENT

NSWC Log Number	Installation Registration Number	Building Number(s)	Material Used/ Emitted	Actual Material Used		Actual Emissions*		Operating Schedule (Actual)					
				(tons/year)	(lbs/day)	(tons/year)	(lbs/day)	hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
72	9-0006-91	1690's	(FACILITY NOT OPERATIONAL PRIOR TO 1991; PTC NUMBER 8-9-0006N)										
73	4-0106-82	712	(see database for fuel burning equipment)										
74	(to be determined)	856	methanol	NO PRODUCTION OCCURED IN 1990; PROCESS DID NOT GENERATE AIR EMISSIONS IN 1990									
			acetic acid										
			acetone										
			methyl acetate										
(PTC)	9-0026-92	1781, 1782	(FACILITY NOT OPERATIONAL PRIOR TO 1992; PTC NUMBERS 8-9-0026N AND 8-9-0027N)										
(PTC)	7-0008-91	1543	(SEE REGISTRATION NUMBER 7-0008-80; PTC NUMBER 08-7-0008M)										
(PTC)	6-0053-93	717	(FACILITY NOT OPERATIONAL; PTC NUMBER 08-6-0053N)										
(PTC)	(TBD)	1770	(FACILITY NOT OPERATIONAL; PTC NUMBER 08-6-0013N)										
(PTC)	9-0012-92	1440	(FACILITY NOT OPERATIONAL; PTC NUMBER 08-9-0012N)										
(PTC)	9-0011-92	1513	(FACILITY NOT OPERATIONAL; PTC NUMBER 08-9-0011N)										
(PTC)	(TBD)	wastewater plant	(FACILITY NOT OPERATIONAL; PTC NUMBER 08-9-0006M)										

* Supporting calculations are shown in the appendices.

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990

FUEL BURNING EQUIPMENT

NSWC Boiler/ Log No.	Installation Registration Number	Building No(s).	Fuel Type	Actual Fuel Used		Emis-sion**	Actual Emissions***		Operating Schedule (Actual)					
				Gal/yr. Tons/yr.*	Gal/day lbs/day*		(tons/yr)	(lbs/day)	hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
B. No. 1	08-0040-00063	873	(See combined fuel use and emissions estimates for all three utility boilers shown below)						24	06:30	06:29	7	5.1	36
B. No. 2	08-0040-00064								24	06:30	06:29	7	0.7	5
B. No. 3	08-0040-00065								24	06:30	06:29	7	48.4	339
Boilers No. 1,2, &3	08-0040-000-63,64,65	873	Bituminous Coal	41695	228466	CO	11.38	62.4						
						NOx	374.00	2049.3						
						SOx	1396.82	7653.8						
						PM	44.99	246.5						
Boilers No. 1,2, &3	08-0040-000-63,64,65	873	No. 6 Fuel Oil	2.25E+06	6172	CO	5.63	30.9						
						NOx	75.47	413.5						
						SOx	151.16	828.3						
						PM	0.15	0.8						
Boilers No. 1,2, &3	08-0040-000-63,64,65	873	(Total for both coal and fuel oil)			CO	17.01	93.2						
						NOx	449.47	2462.9						
						SOx	1547.98	8482.1						
						PM	45.14	247.4						
73	4-0106-82 ("Steam B")	712	No. 2 Fuel Oil	235604	3000	CO	0.59	15.0	24	06:30	06:29	7	11.2	79
						NOx	2.36	60.0						
						SOx	3.72	94.8						
						PM	0.24	6.0						
37	4-0130-87	966	No. 2 Fuel Oil	17700	100.6	CO	0.04	0.5	24	06:30	06:29	7	25.1	176
						NOx	0.18	2.0						
						SOx	0.28	3.2						
						PM	0.02	0.2						

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990

FUEL BURNING EQUIPMENT

NSWC Boiler/ Log No.	Installation Registration Number	Building No(s).	Fuel Type	Actual Fuel Used		Emis-sion**	Actual Emissions***		Operating Schedule (Actual)					
				Gal/yr. Tons/yr.*	Gal/day lbs/day*		(tons/yr)	(lbs/day)	hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
38	4-0131-87	973	No. 2 Fuel Oil	8500	48.3	CO	0.02	0.2	24	06:30	06:29	7	25.1	176
						NOx	0.09	1.0						
						SOx	0.13	1.5						
						PM	0.01	0.1						
39	4-0132-87	974	No. 2 Fuel Oil	8750	49.7	CO	0.02	0.2	24	06:30	06:29	7	25.1	176
						NOx	0.09	1.0						
						SOx	0.14	1.6						
						PM	0.01	0.1						
40	4-0133-87	977	No. 2 Fuel Oil	16750	95.2	CO	0.04	0.5	24	06:30	06:29	7	25.1	176
						NOx	0.17	1.9						
						SOx	0.26	3.0						
						PM	0.02	0.2						
41	4-0134-87	983	No. 2 Fuel Oil	9200	52.3	CO	0.02	0.3	24	06:30	06:29	7	25.1	176
						NOx	0.09	1.0						
						SOx	0.15	1.7						
						PM	0.01	0.1						
42	4-0135-87	986	No. 2 Fuel Oil	12250	69.6	CO	0.03	0.3	24	06:30	06:29	7	25.1	176
						NOx	0.12	1.4						
						SOx	0.19	2.2						
						PM	0.01	0.1						

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990

FUEL BURNING EQUIPMENT

NSWC Boiler/ Log No.	Installation Registration Number	Building No(s).	Fuel Type	Actual Fuel Used		Emis-sion**	Actual Emissions***		Operating Schedule (Actual)					
				Gal/yr. Tons/yr.*	Gal/day lbs/day*		(tons/yr)	(lbs/day)	hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
43	4-0136-87	989	No. 2 Fuel Oil	11850	67.3	CO	0.03	0.3	24	06:30	06:29	7	25.1	176
						NOx	0.12	1.3						
						SOx	0.19	2.1						
						PM	0.01	0.1						
44	4-0137-87	998	No. 2 Fuel Oil	15100	85.8	CO	0.04	0.4	24	06:30	06:29	7	25.1	176
						NOx	0.15	1.7						
						SOx	0.24	2.7						
						PM	0.02	0.2						
45	4-0138-87	993	No. 2 Fuel Oil	11000	62.5	CO	0.03	0.3	24	06:30	06:29	7	25.1	176
						NOx	0.11	1.3						
						SOx	0.17	2.0						
						PM	0.01	0.1						
46	4-0139-87	992	No. 2 Fuel Oil	10700	60.8	CO	0.03	0.3	24	06:30	06:29	7	25.1	176
						NOx	0.11	1.2						
						SOx	0.17	1.9						
						PM	0.01	0.1						
47	4-0140-87	31 SN	No. 2 Fuel Oil	5579	31.7	CO	0.01	0.2	24	06:30	06:29	7	25.1	176
						NOx	0.06	0.6						
						SOx	0.09	1.0						
						PM	0.01	0.1						

AIR EMISSIONS INVENTORY FOR CALENDAR YEAR 1990

FUEL BURNING EQUIPMENT

NSWC Boiler/ Log No.	Installation Registration Number	Building No(s).	Fuel Type	Actual Fuel Used Gal/yr. Tons/yr.*	Actual Fuel Used Gal/day lbs/day*	Emission**	Actual Emissions*** (tons/yr)	Actual Emissions*** (lbs/day)	Operating Schedule (Actual) hours/ day	Time Start	Time End	days/ week	week/ year	days/ year
48	4-0141-87	2008 SN	No. 2 Fuel Oil	3065	17.4	CO	0.01	0.1	24	06:30	06:29	7	25.1	176
						NOx	0.03	0.3						
						SOx	0.05	0.6						
						PM	0.00	0.0						
49	4-0142-87	2015 SN	No. 2 Fuel Oil	4424	25.1	CO	0.01	0.1	24	06:30	06:29	7	25.1	176
						NOx	0.04	0.5						
						SOx	0.07	0.8						
						PM	0.00	0.1						
50	4-0143-87	2076 SN	No. 2 Fuel Oil	2656	15.1	CO	0.01	0.1	24	06:30	06:29	7	25.1	176
						NOx	0.03	0.3						
						SOx	0.04	0.5						
						PM	0.00	0.0						
				Total CO emissions =			17.95	112.14						
				Total NOx emissions =			453.20	2538.48						
				Total SOx emissions =			1553.88	8601.58						
				Total PM emissions =			45.52	254.92						

* Tons/yr. and lb/day refer only to coal use.

** CO=Carbon Monoxide; NOx=Oxides of Nitrogen as NO2; SOx=Oxides of Sulfur as SO2; PM=Particulate Matter.

*** Supporting calculations are attached.

Company: IHDIVNAVSURFWARCEN Pollutant: VOC Calendar Year: 1993

Registration No./ Equip. Description	SCC Number	*	Actual Emissions Tons/yr	lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
6-0016-80 extrusion plant	4-90-999-99	s f	7.258	61.6	10	06:30	17:00	4	52	208	N/A	N/A	N/A	N/A	C2
6-0017-80 paint booth	4-02-001-01	s f	0.135	10.7	10	06:30	17:00	1	32	32					C2
9-0003-80 degreaser	4-01-003-99	s f	0.208	3.5	10	06:30	17:00	4	48	192					C2
6-0018-80 cast plant	4-90-999-99	s f	1.931	18.6	10	06:30	17:00	4	52	208					C2
6-0021-80 LOVA plant	4-90-999-99	s f	78.605	1034.4	24	04:30	04:29	4	38	152					C2
6-0022-80 FEM grinder	4-90-999-99	s f	4.900	86.7	12	06:30	28:30	4	28	113					C2
6-0024-85 paint booth	4-02-001-1	s f	0.002	0.0	8	07:00	15:30	5	52	227					C2
6-0025-80 paint booth	4-02-001-1	s f	0.106	1.6	10	06:30	17:00	4	41	165					C2
6-0026-80 degreaser	4-01-003-99	s f	0.104	1.7	10	06:30	17:00	4	48	192					C2
6-0027-80 degreaser	4-01-003-99	s f	0.797	7.7	10	06:30	17:00	4	52	197					C2
6-0028-80 paint booth	4-02-001-01	s f	0.074	0.8	9	07:00	16:30	5	36	180					C2
6-0030-82 degreaser	4-01-003-99	s f	0.459	5.1	9	07:00	16:30	5	36	180					C2
6-0029-80 paint booth	4-02-001-01	s f	0.004	0.6	9.3	07:00	16:30	1	13	13					C2
Totals															

s – Stack Emissions f – Fugitive Emissions Daily emissions (lbs/dy) are lbs/operating day of the source

* Emissions are both stack and fugitive when "s" and "f" are circled.

TOSD – Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April – September). This section needs to be completed only for VOC and NOx sources

Emission Estimation Method
A1 – U.S. EPA Reference Method
A2 – Other Particulate Sampling Train
A3 – Liquid Absorption Technique
A4 – Solid Absorption Technique
A5 – Freezing - Out Technique
A9 – Other, Specif

C1 – User calculated based on source test or other measurements
C2 – User calculated based on material balance using engineering knowledge of the process
C3 – User calculated based on AP - 42
C4 – User calculated by best guess/engineering judgement

C5 – User calculated based on a State or local agency emission factor
C6 – New construction, not operational
C7 – Source closed, operation ceased
C8 – Computer calculated based on standard

Attachment C

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above

Company: IHDIVNAVSURFWARCEN   Pollutant: VOC   Calendar Year: 1993

Page 2 of 4

Registration No./ Equip. Description	SCC Number		Actual Emissions Tons/yr	Actual Emissions lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
6-0031-80 paint booth	4-02-001-01	s	0.094	12.5	2	08:00	10:00	2	8	15	N/A	N/A	N/A	N/A	C2
6-0032-80 paint booth	4-02-001-01	s	0.026	0.5	2	08:00	10:00	2	50	100					C2
7-0009-80 chemical reac.	4-90-999-99	s	0.731	217.0	7	22:00	05:00	3	33	100					C2
9-0004-80 pro. tanks	4-90-999-99	s	0.000	0.0	1	21:00	22:00	2	34	67					C2
(TBD) incinerator	5-02-001-01	s	0.007	1.6	4	09:00	13:00	1	8	8					C3
7-0010-82 mixer	4-90-999-99	f	0.608	40.5	4	07:30	11:30	1	30	30					C2
9-0014-81 mixer	4-90-999-99	f	0.564	222.9	8	17:00	24:00	1	4	4					C2
7-0011-81 mixer	4-90-999-99	s	0.003	0.8	8	08:00	15:00	1	3	3					C2
9-0024-88 distillation	4-90-999-99	f	0.015	1.0	8	07:30	16:00	5	6	30					C2
(TBD) PNC plant	4-90-999-99	f	0.129	65.6	2	14:00	16:00	1	5	5					C2
4-0130-87 boiler	1-05-002-05	s	0.003	0.0	24	06:30	06:29	7	25.1	176					C3
4-0131-87 boiler	1-05-002-05	s	0.002	0.0	24	06:30	06:29	7	25.1	176					C3
4-0132-87 boiler	1-05-002-05	s	0.002	0.0	24	06:30	06:29	7	25.1	176					C3
Totals															

s – Stack Emissions f – Fugitive Emissions Daily emissions (lbs/dy) are lbs/operating day of the source

TOSD – Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April – September). This section needs to be completed only for VOC and NOx sources.

Emission Estimation Method
A1 – U.S. EPA Reference Method
A2 – Other Particulate Sampling Train
A3 – Liquid Absorption Technique
A4 – Solid Absorption Technique
A5 – Freezing-Out Technique
A9 – Other, Specify

C1 – User calculated based on source test or other measurements
C2 – User calculated based on material balance using engineering knowledge of the process
C3 – User calculated based on AP-42
C4 – User calculated by best guess/engineering judgement

C5 – User calculated based on a State or local agency emission factor
C6 – New construction, not operational
C7 – Source closed, operation ceased
C8 – Computer calculated based on standard

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above

EMISSIONS CERTIFICATION REPORT

Company: IHDIVNAVSURFWARCEN Pollutant: VOC Calendar Year: 1993

Page 3 of 4

Registration No./ Equip. Description	SCC Number	*	Actual Emissions Tons/yr	Actual Emissions lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
4-0133-87 boiler	1-05-002-05	s f	0.002	0.0	24	06:30	06:29	7	25.1	176	N/A	N/A	N/A	N/A	C3
4-0134-87 boiler	1-05-002-05	s f	0.002	0.0	24	06:30	06:29	7	25.1	176					C3
4-0135-87 boiler	1-05-002-05	s f	0.002	0.0	24	06:30	06:29	7	25.1	176					C3
4-0136-87 boiler	1-05-002-05	s f	0.002	0.0	24	06:30	06:29	7	25.1	176					C3
4-0137-87 boiler	1-05-002-05	s f	0.003	0.0	24	06:30	06:29	7	25.1	176					C3
4--138-87 boiler	1-05-002-05	s f	0.002	0.0	24	06:30	06:29	7	25.1	176					C3
4-0139-87 boiler	1-05-002-05	s f	0.002	0.0	24	06:30	06:29	7	25.1	176					C3
4-0140-87 boiler	1-05-002-05	s f	0.001	0.0	24	06:30	06:29	7	25.1	176					C3
4-0141-87 boiler	1-05-002-05	s f	0.001	0.0	24	06:30	06:29	7	25.1	176					C3
4-0142-87 boiler	1-05-002-05	s f	0.001	0.0	24	06:30	06:29	7	25.1	176					C3
4-0143-87 boiler	1-05-002-05	s f	0.001	0.0	24	06:30	06:29	7	25.1	176					C3
6-0049-81 pilot plant	4-90-999-99	s f	2.341	19.1	8	07:00	15:30	5	49	245					C2
6-0060-81 paint booth	4-02-001-01	s f	0.476	3.2	8	07:30	16:00	5	52	240					C2
Totals															

s – Stack Emissions f – Fugitive Emissions Daily emissions (lbs/dy) are lbs/operating day of the source

* Emissions are both stack and fugitive when "s" and "f" are circled.

TOSD – Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April - September). This section needs to be completed only for VOC and NOx sources

Emission Estimation Method
A1 – U.S. EPA Reference Method
A2 – Other Particulate Sampling Train
A3 – Liquid Absorption Technique
A4 – Solid Absorption Technique
A5 – Freezing-Out Technique
A9 – Other, Specif

C1 – User calculated based on source test or other measurements
C2 – User calculated based on material balance using engineering knowledge of the process
C3 – User calculated based on AP-42
C4 – User calculated by best guess/engineering judgement

C5 – User calculated based on a State or local agency emission factor
C6 – New construction, not operational
C7 – Source closed, operation ceased
C8 – Computer calculated based on standard

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above

EMISSIONS C[illegible]ICATION REPORT

Company: IHDIVNAVSURFWARCEN   Poll[illegible]ant: VOC   Calendar Year: 1993

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Registration No./ Equip. Description	SCC Number		Actual Emissions Tons/yr	Actual Emissions lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
9-0005-81 tanks	4-90-999-99	s	0.236	1.3	24	06:30	06:29	7	52	365	N/A	N/A	N/A	N/A	C3
		f													
9-0015-81 tank	4-03-010-08	s	0.699	3.8	24	06:30	06:29	7	52	365					C3
		f													
9-0018-81		s													
test facility	3-99-999-98	f	0.001	0.1	8	07:00	15:30	5	32	160					C2
9-0006-91		s													
wastewater	4-90-999-99	f	0.035	1.0	24	06:00	05:59	7	5	35					C2
4-0106-82 boiler	1-02-005-01	s	0.062	2.4	24	06:30	06:29	7	7.5	52					C3
		f													
(TBD)		s													
reactor	4-90-999-99	f	0.001	0.0	8	08:00	16:00	5	2	10					C2
9-0026-92		s													
wastewater	4-90-999-99	f	0.000	0.0	8	07:30	17:00	1	34	33.5					C2
08-0040-63 power plant	1-01-002-02 1-01-004-01	s	2.430	13.3	24	06:30	06:29	7	3.3	23					C1, C3
		f													
08-0040-64 power plant	1-01-002-02 1-01-004-01	s			24	06:30	06:29	7	21	147					C1,C3
		f													
08-0040-65 power plant	1-01-002-01 1-01-004-01	s			24	06:30	06:29	7	30	210					C1,C3
		f													
		s													
		f													
		s													
		f													
		s													
		f													
Totals			103.068	1839.7											

s – Stack Emissions   f – Fugitive Emissions   Daily emissions (lbs/dy) are lbs/operating day of the source

TOSD – Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April – September). This section needs to be completed only for VOC and NOx sources

Emission Estimation Method
A1 – U.S. EPA Reference Method
A2 – Other Particulate Sampling Train
A3 – Liquid Absorption Technique
A4 – Solid Absorption Technique
A5 – Freezing-Out Technique
A9 – Other, Specify

C1 – User calculated based on source test or other measurements
C2 – User calculated based on material balance using engineering knowledge of the process
C3 – User calculated based on AP-42
C4 – User calculated by best guess/engineering judgement

C5 – User calculated based on a State or local agency emission factor
C6 – New construction, not operational
C7 – Source closed, operation ceased
C8 – Computer calculated based on standard

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above

Company: IHDIVNAVSURFWARCEN

Pollutant: Oxides of Nitrogen Calendar Year: 1993

Page 1 of 2

Registration No./ Equip. Description	SCC Number		Actual Emissions Tons/yr	Actual Emissions lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
9-0004-80 pro.tank	4-90-999-99	s f	0.015	0.6	1.5	21:00	22:30	2	38	75	N/A	N/A	N/A	N/A	C2
(TBD) incinerator	5-02-001-01	s f	0.013	3.3	4	09:00	13:00	1	8	8					C3
4-0130-87 boiler	1-05-002-05	s f	0.168	1.9	24	06:30	06:29	7	25.1	176					C3
4-0131-87 boiler	1-05-002-05	s f	0.117	1.3	24	06:30	06:29	7	25.1	176					C3
4-0132-87 boiler	1-05-002-05	s f	0.126	1.4	24	06:30	06:29	7	25.1	176					C3
4-0133-87 boiler	1-05-002-05	s f	0.117	1.3	24	06:30	06:29	7	25.1	176					C3
4-0134-87 boiler	1-05-002-05	s f	0.145	1.6	24	06:30	06:29	7	25.1	176					C3
4-0135-87 boiler	1-05-002-05	s f	0.131	1.5	24	06:30	06:29	7	25.1	176					C3
4-0136-87 boiler	1-05-002-05	s f	0.140	1.6	24	06:30	06:29	7	25.1	176					C3
4-0137-87 boiler	1-05-002-05	s f	0.159	1.8	24	06:30	06:29	7	25.1	176					C3
4-0138-87 boiler	1-05-002-05	s f	0.106	1.2	24	06:30	06:29	7	25.1	176					C3
4-0139-87 boiler	1-05-002-05	s f	0.127	1.4	24	06:30	06:29	7	25.1	176					C3
4-0140-87 boiler	1-05-002-05	s f	0.073	0.8	24	06:30	06:29	7	25.1	176					C3
Totals															

s – Stack Emissions f – Fugitive Emissions Daily emissions (lbs/dy) are lbs/operating day of the source

TOSD – Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April - September). This section needs to be completed only for VOC and NOx sources

Emission Estimation Method
A1 – U.S. EPA Reference Method
A2 – Other Particulate Sampling Train
A3 – Liquid Absorption Technique
A4 – Solid Absorption Technique
A5 – Freezing-Out Technique
A9 – Other, Specify

C1 – User calculated based on source test or other measurements
C2 – User calculated based on material balance using engineering knowledge of the process
C3 – User calculated based on AP-42
C4 – User calculated by best guess/engineering judgement

C5 – User calculated based on a State or local agency emission factor
C6 – New construction, not operational
C7 – Source closed, operation ceased
C8 – Computer calculated based on standard

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above

EMISSIONS CERTIFICATION REPORT

Company: IHDIVNAVSURFWARCEN

Pollutant: Oxides of Nitrogen Calendar Year: 1993

Registration No./ Equip. Description	SCC Number		Actual Emissions Tons/yr	Actual Emissions lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
4-0141-87 boiler	1-05-002-05	s	0.032	0.4	24	06:30	06:29	7	25.1	176	N/A	N/A	N/A	N/A	C3
		f													
4-0142-87 boiler	1-05-002-05	s	0.038	0.4	24	06:30	06:29	7	25.1	176					C3
		f													
4-0143-87 boiler	1-05-002-05	s	0.044	0.5	24	06:30	06:29	7	25.1	176					C3
		f													
9-0006-91		s													
wastewater	4-90-999-99	f	0.013	0.2	24	06:00	05:59	7	24	168					C2
4-0106-82 boiler	1-02-005-01	s	3.664	140.0	24	06:30	06:29	7	7.5	52					C3
		f													
(PTC) furnace	5-03-001-01	s	0.012	2.4	5	07:30	12:30	1.25	8	10					C1,C3
		f													
08-0040-63 power plant	1-01-002-02	s	463.221	2538.2	24	06:30	06:29	7	3.3	23					C1,C3
	1-01-004-01	f													
08-0040-64 power plant	1-01-002-02	s			24	06:30	06:29	7	21	147					C1,C3
	1-01-004-01	f													
08-0040-65 power plant	1-01-002-02	s			24	06:30	06:29	7	30	210					C1,C3
	1-01-004-01	f													
		s													
		f													
		s													
		f													
		s													
		f													
		s													
		f													
Totals			468.461	2701.8											

s – Stack Emissions f – Fugitive Emissions Daily emissions (lbs/dy) are lbs/operating day of the source

TOSD – Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April – September). This section needs to be completed only for VOC and NOx sources

Emission Estimation Method
A1 – U.S. EPA Reference Method
A2 – Other Particulate Sampling Train
A3 – Liquid Absorption Technique
A4 – Solid Absorption Technique
A5 – Freezing - Out Technique
A9 – Other, Speci

C1 – User calculated based on source test or other measurements
C2 – User calculated based on material balance using engineering knowledge of the process
C3 – User calculated based on AP - 42
C4 – User calculated by best guess/engineering judgement

C5 – User calculated based on a State or local agency emission factor
C6 – New construction, not operational
C7 – Source closed, operation ceased
C8 – Computer calculated based on standard

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above.

Company: IHDIVNAVSURFWARCEN

Pollutant: Particulate Matter Calendar Year: 1993

Page 1 of 2

Registration No./ Equip. Description	SCC Number	*	Actual Emissions Tons/yr	Actual Emissions lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
6-0018-80 cast plant	4-90-999-99	s f	0.076	0.7	10	06:30	17:00	4	52	208	N/A	N/A	N/A	N/A	C2
(TBD) incinerator	5-02-001-01	s f	0.015	3.7	4	09:00	13:00	1	8	8					C3
6-0035-80 crystallizer	3-99-999-99	s f	0.474	27.9	4	07:30	11:30	2	17	34					C2
4-0130-87 boiler	1-05-002-05	s f	0.017	0.2	24	06:30	06:29	7	25.1	176					C3
4-0131087 boiler	1-05-002-05	s f	0.012	0.1	24	06:30	06:29	7	25.1	176					C3
4-0132-87 boiler	1-05-002-05	s f	0.013	0.1	24	06:30	06:29	7	25.1	176					C3
4-0133-87 boiler	1-05-002-05	s f	0.012	0.1	24	06:30	06:29	7	25.1	176					C3
4-0134-87 boiler	1-05-002-05	s f	0.015	0.2	24	06:30	06:29	7	25.1	176					C3
4-0135-87 boiler	1-05-002-05	s f	0.013	0.1	24	06:30	06:29	7	25.1	176					C3
4-0136-87 boiler	1-05-002-05	s f	0.014	0.2	24	06:30	06:29	7	25.1	176					C3
4-0137-87 boiler	1-05-002-05	s f	0.016	0.2	24	06:30	06:29	7	25.1	176					C3
4-0138-87 boiler	1-05-002-05	s f	0.011	0.1	24	06:30	06:29	7	25.1	176					C3
4-0139-87 boiler	1-05-002-05	s f	0.013	0.1	24	06:30	06:29	7	25.1	176					C3
Totals															

s -- Stack Emissions   f -- Fugitive Emissions   Daily emissions (lbs/dy) are lbs/operating day of the source

* Emissions are both stack and fugitive when "s" and "f" are circled.

TOSD -- Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April - September). This section needs to be completed only for VOC and NOx sources

Emission Estimation Method
A1 -- U.S. EPA Reference Method
A2 -- Other Particulate Sampling Train
A3 -- Liquid Absorption Technique
A4 -- Solid Absorption Technique
A5 -- Freezing-Out Technique
A9 -- Other, Specify

C1 -- User calculated based on source test or other measurements
C2 -- User calculated based on material balance using engineering knowledge of the process
C3 -- User calculated based on AP - 42
C4 -- User calculated by best guess/engineering judgement

C5 -- User calculated based on a State or local agency emission factor
C6 -- New construction, not operational
C7 -- Source closed, operation ceased
C8 -- Computer calculated based on standard

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above

Company: IHDIVNAVSURFWARCEN

Pollutant: Particulate Matter Calendar Year: 1993

Page 2 of 2

Registration No./ Equip. Description	SCC Number		Actual Emissions Tons/yr	Actual Emissions lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
4-0140-87	1-05-002-05	s	0.007	0.1	24	06:30	06:29	7	25.1	176	N/A	N/A	N/A	N/A	C3
boiler		f													
4-0141-87	1-05-002-05	s	0.003	0.0	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0142-87	1-05-002-05	s	0.004	0.0	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0143-87	1-05-002-05	s	0.004	0.1	24	06:30	06:29	7	25.1	176					C3
boiler		f													
9-0018-81		s													
test facility	3-99-999-98	f	0.011	2.1	8	07:00	15:30	5	32	160					C2
9-0017-81		s													
test facility	3-99-999-98	f	0.016	0.1	9	06:30	16:00	4.5	52	234					C2
9-0029-80		s													
test facility	3-99-999-98	f	6.212	110.9	8	07:30	16:00	2.5	45	112					C2
9-0022-81		s													
test facility	3-99-999-98	f	0.088	2.1	8	07:30	16:00	2	42	83					C2
4-0106-82	1-02-005-01	s	0.366	14.0	24	06:30	06:29	7	7.5	52					C3
boiler		f													
(TBD)	5-03-001-01	s	0.005	0.9	5	07:30	12:30	1.25	8	10					C1,C3
furnace		f													
08-0040-63	1-01-002-02	s	45.824	251.1	24	06:30	06:29	7	3.3	23					C1,C3
power plant	1-01-004-01	f													
08-0040-64	1-01-002-02	s			24	06:30	06:29	7	21	147					C1,C3
power plant	1-01-004-01	f													
08-0040-65	1-01-002-02	s			24	06:30	06:29	7	30	210					C1,C3
power plant	1-01-004-01	f													
Totals			53.241	415.1											

s – Stack Emissions f – Fugitive Emissions Daily emissions (lbs/dy) are lbs/operating day of the source

TOSD – Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April - September). This section needs to be completed only for VOC and NOx sources

Emission Estimation Method
A1 – U.S. EPA Reference Method
A2 – Other Particulate Sampling Train
A3 – Liquid Absorption Technique
A4 – Solid Absorption Technique
A5 – Freezing-Out Technique
A9 – Other, Spec

C1 – User calculated based on source test or other measurements
C2 – User calculated based on material balance using engineering knowledge of the process
C3 – User calculated based on AP-42
C4 – User calculated by best guess/engineering judgement

C5 – User calculated based on a State or local agency emission factor
C6 – New construction, not operational
C7 – Source closed, operation ceased
C8 – Computer calculated based on standard

[illegible] details and calculations necessary to support the emissions figures shown above

Company: IHDIVNAVSURFWARCEN

Pollutant: Carbon Monoxide Calendar Year: 1993

Page 1 of 2

Registration No./ Equip. Description	SCC Number		Actual Emissions Tons/yr	Actual Emissions lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
(TBD)	5-02-001-02	s	0.022	5.5	4	09:00	13:00	1	8	8	N/A	N/A	N/A	N/A	C3
incinerator		f													
4-0130-87	1-05-002-05	s	0.042	0.5	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0131-87	1-05-002-05	s	0.029	0.3	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0132-87	1-05-002-05	s	0.031	0.4	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0133-87	1-05-002-05	s	0.029	0.3	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0134-87	1-05-002-05	s	0.036	0.4	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0135-87	1-05-002-05	s	0.033	0.4	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0136-87	1-05-002-05	s	0.035	0.4	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0137-87	1-05-002-05	s	0.040	0.5	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0138-87	1-05-002-05	s	0.027	0.3	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0139-87	1-05-002-05	s	0.032	0.4	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0140-87	1-05-002-05	s	0.018	0.2	24	06:30	06:29	7	25.1	176					C3
boiler		f													
4-0141-87	1-05-002-05	s	0.008	0.1	24	06:30	06:29	7	25.1	176					C3
boiler		f													
Totals															

s – Stack Emissions f – Fugitive Emissions Daily emissions (lbs/dy) are lbs/operating day of the source

TOSD – Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April – September). This section needs to be completed only for VOC and NOx sources

Emission Estimation Method
A1 – U.S. EPA Reference Method
A2 – Other Particulate Sampling Train
A3 – Liquid Absorption Technique
A4 – Solid Absorption Technique
A5 – Freezing-Out Technique
A9 – Other, Specify

C1 – User calculated based on source test or other measurements
C2 – User calculated based on material balance using engineering knowledge of the process
C3 – User calculated based on AP-42
C4 – User calculated by best guess/engineering judgement

C5 – User calculated based on a State or local agency emission factor
C6 – New construction, not operational
C7 – Source closed, operation ceased
C8 – Computer calculated based on standard

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above

EMISSION CERTIFICATION REPORT

Company: IHDIVNAVSURFWARCEN

Pollutant: Carbon Monoxide

Page 2 of 2

Calendar Year: 1993

Registration No./ Equip. Description	SCC Number		Actual Emissions Tons/yr	Actual Emissions lbs/dy	Operating Schedule (Actual) Hrs/dy	Start	End	Dys/wk	Wk/yr	Dys/yr	TOSD lbs/dy	Operating Schedule Hrs/dy	Start	End	Estimation Method
4-0142-87	1-05-002-05	s	0.010	0.1	24	06:30	06:29	7	25.1	176	N/A	N/A	N/A	N/A	C3
boiler		f													
4-0143-87	1-05-002-05	s	0.011	0.1	24	06:30	06:29	7	25.1	176					C3
boiler		f													
9-0018-81		s													
test facility	3-99-999-98	f	0.065	4.6	8	07:00	15:30	5	32	160					C2
9-0017-81		s													
test facility	3-99-999-98	f	0.035	0.3	9	06:30	16:00	4.5	52	234					C2
9-0029-80		s													
test facility	3-99-999-98	f	8.566	153.0	8	07:30	16:00	2.5	45	112					C2
9-0022-81		s													
test facility	3-99-999-98	f	0.532	12.8	8	07:30	16:00	2	42	83					C2
4-0106-82	1-02-005-01	s	0.916	35.0	24	06:30	06:29	7	7.5	52					C3
boiler		f													
(TBD)	5-03-001-01	s	0.019	3.9	5	07:30	12:30	1.25	8	10					C1, C3
furnace		f													
08-0040-63	1-01-002-02	s	17.797	97.5	24	06:30	06:29	7	3.3	23					C1, C3
power plant	1-01-004-01	f													
08-0040-64	1-01-002-02	s			24	06:30	06:29	7	21	147					C1, C3
power plant	1-01-004-01	f													
08-0040-65	1-01-002-02	s			24	06:30	06:29	7	30	210					C1, C3
power plant	1-01-004-01	f													
		s													
		f													
		s													
		f													
Totals			28.333	317.0											

s -- Stack Emissions f -- Fugitive Emissions , Daily emissions (lbs/dy) are lbs/operating day of the source

TOSD -- Typical Ozone Season Day means a typical day of that period of the year during which conditions for photochemical conditions are most favorable, which is generally during sustained periods of direct sunlight and warm temperatures (April - September) This section needs to be completed only for VOC and NOx sources

Emission Estimation Method
- A1 -- U.S. EPA Reference Method
- A2 -- Other Particulate Sampling Train
- A3 -- Liquid Absorption Technique
- A4 -- Solid Absorption Technique
- A5 -- Freezing - Out Technique
- A9 -- Other, Specif
- C1 -- User calculated based on source test or other measurements
- C2 User calculated based on material balance using engineering knowledge of the process
- C3 User calculated based on AP - 42
- C4 User calculated by best guess/engineering judgement
- C5 User calculated based on a State or local agency emission factor
- C6 New construction, not operational
- C7 Source closed, operation ceased
- C8 Computer calculated based on standard

PLEASE NOTE: Be sure to attach all data and calculations necessary to support the emissions figures shown above

	A	B	C	D	E
1		Data Call 33: Environmental Compliance Costs			
2					
3	Env. Program	Compliance Projects Required	Cost ($K)	Est. Start	Est. Comp
4	Air	NG Emissions Control	2580	FY94	FY01
5	Air	CEM Purchase (NOx Power House)	184	FY95	FY95
6	Air	Install Low NOx Burners (Power House)	1800	FY96	FY99
7	Air	Tank VOC Controls	65	FY94	FY94
8	Drinking Water	Backflow Prevention	800	FY94	FY01
9	Other (oil)	Cleanup Trolley Ways	65	FY94	FY94
10	UST	UST Upgrades/Removal	550	on going	FY96
11	Clean Water Act	Soil Bioengineering: TSS violations	300	FY94	FY96
12	Clean Water Act	Septic System Upgrade	177	FY94	FY94
13		Totals	6521		

Attachment D

DATA CALL #33
INDIAN HEAD SITE

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. D. G. MAXWELL
NAME (Please type or print)

Signature

COMMANDER
Title

31 May 94
Date

INDIAN HEAD DIVISION
Activity

DATA CALL #33
INDIAN HEAD SITE

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

NEXT ECHELON LEVEL (if applicable)

CAPT. D. G. MAXWELL
NAME (Please type or print)

Signature

COMMANDER
Title

31 May 94
Date

INDIAN HEAD DIVISION
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)

RADM(SEL) D. P. SARGENT, JR.
NAME (Please type or print)

Signature

COMMANDER
Title

6/3/94
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

G. R. STERNER
NAME (Please type or print)

Signature

Title Commander
Naval Sea Systems Command

6/1/94
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)

P.W. DRENNON
NAME (Please type or print)

Signature

ACTING
Title

6/24/94
Date

Department of Defense

1995 Base Realignment and Closure T&E Joint Cross-Service Group Data Guidance

March 31, 1994

SUBMITTED BY:
INDIAN HEAD DIVISION
NAVAL SURFACE WARFARE CENTER
101 STRAUSS AVENUE
INDIAN HEAD, MD 20640

ACTIVITY UIC: 00174

T&E JOINT CROSS-SERVICE GROUP DATA GUIDANCE

T&E JOINT CROSS-SERVICE GROUP

SECTION 1: GUIDANCE, STANDARDS, AND ASSUMPTIONS

The Military Departments will use the following information for data collection on each facility that has performed T&E and is still capable of performing T&E within the three functional areas of air vehicles, electronic combat, and armaments/weapons for any component (hardware or software), subsystem, system, or platform. Guidance is provided on conducting a cross-service analysis.

1.1 GUIDANCE

1.1.A Guidance for Identification of Test and Evaluation (T&E) Facilities / Capabilities

1.1.A.1 Scope

All DoD installations will be examined to identify facilities that have and are still capable of performing T&E within the three functional areas of air vehicles, electronic combat, and armaments/weapons.

All facilities (tenant and host on the installation) owned by DoD are within scope of this examination.

The Military Departments and Defense Agencies are responsible for submitting the data.

The scope of this examination will include T&E facilities that are funded from any funding source and appropriation (RDT&E, procurement, O&M, training, etc.).

1.1.A.2 T&E Facilities / Capabilities

The definition of a T&E facility/capability to be used for purposes of data collection will be a set of DoD-owned or controlled property (air/land/sea space) or any collection of equipment, platforms, ADPE or instrumentation that can conduct a T&E operation and provide a deliverable T&E product.

The T&E facility can support T&E of components through systems platforms or missions in the following functional areas: air, land, sea, space, C4I, armaments/weapons, electronic combat, nuclear effects, chem/bio, propulsion, environmental effects, guidance, and materials.

The T&E facilities will be grouped under one of the following test facility categories: modeling and simulation, measurement, integration laboratory, hardware-in-the-loop, installed systems, or open air (See Appendix A for definitions). It will typically consist of all of the

following components:
data collection sensors and instrumentation, data reception and storage, data processing, and data display and reporting.

The scope will include T&E operations from all funding sources (RDT&E, procurement, O&M, training, etc.).

1.1.B Guidance for Military Department Data Collection

The Military Departments will use the T&E facility/capability definitions included within this data call package. In your descriptions of facility technical capabilities include programmed investments/upgrades in Military Department or Defense Agency 1995 Future Years Defense Plan (FY95 FYDP) in support of the President's Budget (PB95). When calculating capacity data, use the guidelines/definitions included in this package.

Data will be collected on all facilities/capabilities that are within the scope defined in section 1.1.A. Data will be collected using Appendix A, Data Forms and Instructions

1.1.C Guidance for Military Department Data Analysis

The Military Departments will use the 95 FYDP as the baseline to calculate costs and savings. Address closure/realignment opportunities at the functional T&E and facility levels. Retain essential technical capabilities for core competencies and technologies. Consider consolidation of subfunctions such as centralized maintenance of common platforms, instrumentation, data processing. Consider retention of difficult-to-replace essential geographic assets (e.g. airspace, ground/terrain, climates, seaports) without regard to "ownership". Recognize adaptability to future technologies. Do not consider environmental cleanup costs/difficulties for closure or downsizing a facility/capability.

1.2 ASSUMPTIONS

Cross-service analyses will use the following assumptions:

1.2.A T&E workload is not a direct function of force structure, but is related to the RDT&E budget and acquisition funding.

1.2.B The FYDP is considered certified data. Information from non-DoD activities will not be used as a basis for analyses.

1.2.C At least one test facility/capability will be required to address any technology in use or nearing maturation. Geographic assets (airspace, ground space, sea space, terrain, climate, physical security) must be adequate. Closure or realignments of laboratories, maintenance depots, and training activities could necessitate consolidation with T&E facilities/capabilities.

1.2.D Evaluation of developing technologies and systems will follow a process that involves a progression of test facilities/capabilities ranging from modeling and simulation, measurements, through hardware-in-the-loop, system integration laboratories, installed-systems, to open air/range testing.

1.2.E Potential for internetting facilities/capabilities can be considered in workload projections if investments to provide internetting capability are programmed.

1.2.F With regard to outsourcing, it will be assumed that work currently performed in-house will remain in-house and that work currently outsourced will remain outsourced.

1.2.G With regard to foreign military sales (FMS), it will be assumed that the FMS workload will continue at FY93 levels into the future (straight-lined).

1.3 FUNCTIONAL AREAS

Three functional areas of T&E facilities/capabilities were selected for specific emphasis during cross-service analyses following analysis of the T&E Reliance study areas. These three areas -- air vehicles, electronic combat, and armament/weapons -- show the greatest potential for cross-service consolidation opportunities; others are predominately or nearly Military Department unique.

Over-arching measures of merit have been developed that are applicable to many T&E facilities/capabilities across the three functional areas. These measures generally relate to the overall demographics of the facility/capability at an installation and are important to evaluating a facility/capability for: overall condition; potential to support current or future contingency, mobilization and future missions; additional workload; and overall Mission Essentially. Additional data specific to the three functional areas will also be collected. For the purpose of this data collection, the three functional areas are defined as follows:

1.3.A Air Vehicles

This functional area includes facilities involved in the testing of all air vehicles/subsystems/components whether fixed wing or rotary wing and test of major sub-systems (e.g., avionics, engines, and sensors). This includes flight testing and the testing involving pre- and post-flight preparation and processing of the air vehicle. Unmanned air vehicles and cruise missiles are included.

1.3.B Electronic Combat (EC) Systems

This functional area includes facilities involved in the testing of stand-alone electronic combat systems and electronic combat subsystems that are normally integrated into other weapon systems. It includes the testing of systems or subsystems that have as their primary mission threat warning, testing of systems that provide countermeasures in the RF (radio frequency) spectrum against radars and other RF sensors, systems that provide countermeasures that are used against sensors in the electro-optical or infrared spectrum as well as testing of electronic and C3 countermeasures.

1.3.C Armaments / Weapons

This functional area includes facilities involved in the testing of the weapons portion of a weapon system. In those cases where the weapon system is composed almost exclusively of the weapon, it may include system-level and platform integration testing. In other cases, it addresses just the weapon subsystem (e.g., guidance and control, propulsion, warheads, and airframe), while the testing of the weapon system's vehicle is in another functional area.

SECTION 2: CAPACITY & TECHNICAL RESOURCES

Use the forms and accompanying instructions in appendix A to provide answers for this section.

2.1 WORKLOAD

Annual workload will be reported in units as follows: for open air ranges involving flight testing, report test hours and missions. For all other T&E facilities direct labor hours and test hours must be reported; if available, missions must be reported. If an estimation of test hours based on direct labor hours is necessary, refer to the instructions for Determination of Unconstrained Capacity on page 28.

2.1.A Historical Workload

-2.1.A.1 What amount of workload have you performed each year from FY86-93? Use the Historical Workload Form provided in Appendix A of this package.

See historical workload tables at Appendix A

2.1.B Forecasted Workload

-2.1.B.1 Identify all appropriations (by program element) that generated a requirement for testing or test support, or are expected to generate a requirement for testing/test support in your Military Department (by functional areas of air vehicles, electronic combat (EC), armament/ weapons, and other test) for FY92, FY93, and each year in the FY95 FYDP. The Military Departments will provide total funding amounts appropriated for all PEs identified in each functional area shown above.

FUNCTIONAL AREA - WEAPONS/ARMAMENT FY92

APPROP	BUDGET ACTIVITY	PROGRAM ELEMENT CODE/NAME*
O&MN	1-Strategic Forces	1T
	2-General Purpose Forces	2T, 2K
	8-Training and Other General Personnel Activities	8T
APN	1-Combat Aircraft	AV,CA,CC,A6,AN
	3-Trainer Aircraft	GH
OPN	1-Ships Support Equipment	HZ
	3-Aviation Support Equip	Q9
	4-Ordnance Support Equip	U4,UH
	8-Personnel and Command Support	JC
WPN	2-Other Missiles	FE,G8,F6
	3-Torpedoes and Related Equipment	F8,DQ
	5-Other Weapons	AC,Q3
RDT&E	4-Tactical Programs	ER-Joint Service EOD Development
	6-Defense wide Mission Support	79-International RDT&E, ZZ-Defense wide Mission Support

*some program element names not available

Note: We also provide T&E support to the Army,Air Force, Marine Corp, Private Industry, and Other Government (e.g., DOE, NASA) as part of our energetics mission.

FUNCTIONAL AREA - WEAPONS/ARMAMENT FY 93

Approp	Budget Activity	Program Element Code/Name*
O&MN	General Purpose Forces	not applicable
APN	1-Combat Aircraft	A6,CA
	3-Trainer	CH
	5-Modification of Aircraft	BN
OPN	3-Aviation Support Equip	Q9
	4-Ordnance Support Equip	JC,UH
	8-Spares and Repair Parts	JC
SCN	2-Other Warships	24
WPN	2-Other Missiles	EL,EM,FE
	5-Other Ordnance	AJ
RDT&EN	4-Tactical Programs	04-Unguided Conventional Air-Launched Weapons 14-Marine Corps Combat Services Support NV-Surface Mine Counter-measures
	6-Defense wide Mission Support	57-Target Systems Development

*some program element names not available.

NOTE: We also provide T&E support to the Army, Air Force, Marine Corp, Private Industry, and Other Government (e.g. DOE, NASA) as part of our energetics mission.

FUNCTION AREA - WEAPONS/ARMAMENT FY 94 - 97

APPROP	BUDGET ACTIVITY	PROGRAM ELEMENT CODE/NAME *
O&MN	1-Strategic Forces	Not applicable
	2-General Purpose Forces	Not applicable
	4-Airlift and Sealift	Not applicable
	8-Training & General Personnel	Not applicable
APN	1-Combat Aircraft	AV,CK
	4-Other Aircraft	WT
OPN	3-Aviation Support Equip	Q4,A9
	4-Ordnance Support Equip	VM
	2-Other Missiles	FK,EM,EL
	3-Torpedoes and Related Equip	DQ
RDT&EN	4-Tactical Programs	NV-Surface Mine Counter-measures
	6-Defense wide Mission Support	ZZ-Other

*some program element names not available.

NOTE: We also provide T&E support to the Army, Air Force, Marine Corp, Private Industry, and Other Government (e.g. DOE, NASA) as part of our energetics mission.

-2.1.B.2 What amount of test work was performed at your facility (in workyears by functional areas of air vehicles, electronic combat, armament/weapons, other tests, and other) in FY92 & FY93?

FY92	FY93
136	**122**

Direct workyears performed in the armament/weapons functional area.

2.2 UNCONSTRAINED CAPACITY

-2.2.A Unconstrained capacity is the maximum capacity of this facility, assuming manpower and consumable supplies (excluding utilities) are unlimited, but allowing for expected downtime (maintenance, weather, darkness (daylight), holidays, etc.). Provide your response by filling out the Determination of Unconstrained Capacity Form in accordance with the instructions in
Appendix A.

See unconstrained capacity tables at Appendix a.

-2.2.B Is this capacity limited by the physical characteristics of the facility itself, safety or health considerations, commercial utility availability, etc?

The capacity of IHDIV test facilities is limited by the physical characteristics of the facility itself.

2.3 TECHNICAL RESOURCES

-2.3.A Does the facility have a specified war-time or contingency role established in approved war plans? Yes/no.

YES - The Indian Head Division's primary wartime mission is to provide energetic material and technical support for assigned weapon systems, weapons or components. As directed by NAVSEA logistics support and mobilization plan, Memorandum of Agreement with the Army, and other DD1519's, Indian Head Division is the assigned emergency producer for such items as: MK23, MK25 and MK 117 JATO Rocket Motors, M43 LOVA propellant, MK90 Rocket Motor Grain, M55 Ignition Element, JAU-13A Initiator Cartridge, and JAU-14A Initiator Cartridge. The test & evaluation function is integral to accomplish these assignments.

-2.3.B Does the facility provide a T&E product or service, without which irreparable harm would be imposed on the test mission of the host installation?

YES - Our in-house capability enables IHDIV to provide reliable products to the fleet by performing Test and Evaluation for energetic materials, ordnance devices and components, to include chemicals, propellants and their propulsion systems, explosives, pyrotechnics, and warheads.

A multitude of Test & Evaluation functions are performed that are integral to the IHDIV mission:

-static fire rocket motors in support of development, qualification, type life, lot acceptance, quality evaluation, and malfunction investigation programs;

-perform environmental test on new ordnance items (contractor and in-house).

-inspect ordnance items and metal parts for flaws, improper assembly, and any other anomalies which may have occurred during manufacture, storage, or service use;

-test and analyze properties of propellant, explosive, pyrotechnics, and chemical materials used for in-house research, development, manufacturing process, and acceptance testing of contractor supplied materials.

-Development, qualification, lot acceptance, quality evaluation, and malfunction investigation testing of more than 700 cartridge and cartridge actuated devices, man-rated percussion primers, rocket catapults, and underseat rocket motors.

The performance of these test & evaluation functions on the energetic materials processed at Indian Head cannot be separated from our research, development, and fleet support operations. Without on-site capability, it would be impossible to perform the other work in a safe and reliable manner; nor would it be possible to ensure the safety of the ordnance loaded for delivery to the fleet. This capability is an inherent part of operating a facility where energetic materials are processed. The ability to obtain quick response feedback from our test organization enables IHDIV to efficiently provide high quality and cost effective products to our customers. The fact that we do contractor acceptance and type life testing requires organic capability.

-2.3.B.1 On the test mission of any other activity?

NO - We don't directly impact other Activities "test" mission.

-2.3.B.2 On any other mission deemed critical to the operational effectiveness of the armed forces of the United States?

YES - IHDIV's test capability extends beyond serving the needs of the Navy to those of Department of Defense and the private sector.

SECTION 3: MEASURES OF MERIT

This section relates the measures of merit and the required data to the four criteria that have been established for Military Value. The four military value (MV) criteria are:

CRITERION 1: The current and future mission requirements and the impact on operational readiness of the Department of Defense's total force.

CRITERION 2: The availability and condition of land, facilities and associated airspace at both the existing and potential receiving locations.

CRITERION 3: The ability to accommodate contingency, mobilization, and future total force requirements at both the existing and potential receiving locations.

CRITERION 4: The cost and manpower implications.

3.1 OVER-ARCHING MEASURES OF MERIT

The over-arching measures of merit are listed with accompanying questions (or data requirements) intended to elicit standard information upon which the cross-service analyses can be based, and on which the Joint Cross-Service Groups can base their reviews of the Military Department analyses. Additional specific measures of merit are shown under individual functional areas. The numbers in parentheses () before each measure of merit indicate the BRAC selection criteria for military value.

3.1.A. Interconnectivity (MV I) - Measure of Merit: *Extent of linkage of this facility with other facilities and assessment of single-node failure potential.*

-3.1.A.1 What percentage of total test workload in FY93 involved the real-time or near real time exchange of data or control with another facility? List the facilities you interconnect to for test and identify how many are simultaneous activities. Identify these as to whether they are internal and external to the site.

If IHDIV's P&E functions were removed, there would be severe impacts on our ability to accomplish our mission.

-3.1.A.2 If your facility were to be closed, would there be an impact on other facilities to which you are connected? Yes/no. If yes, explain.

N/A

3.1.B Facility Condition (MV II) - Measure of merit: *Current and planned status of the T&E facilities for supporting assigned test missions.*
Fill out the Facility Condition Form in Appendix A in accordance with the instructions.

3.1.C Environmental and Encroachment Carrying Capacity (MV II) - Measure of Merit: *Extent of current and future potential environmental and encroachment impacts on air, land, and sea space for testing.*

- **3.1.C.1** Do you have limiting (current or future) environmental and/or encroachment characteristics associated with the installation/facility?
Yes/no. If yes, explain.

No Encroachment Limitations - Although Indian Head is within reasonable access to Washington, D.C. It is located on peninsula. The surrounding water and adjacent government owned land, which is restricted to development, provides good isolation. The code of Federal Regulations gives the Commander complete authority over the adjacent waterway. This location provides natural isolation. Consequently, there is no threat of encroachment caused by high density residential or industrial development.

No Environmental Limitations - With the implementation of the Clean Air and Water Act, all facilities processing and testing hazardous materials must have the appropriate environmental permits. IHDIV is well recognized as a leader in this area and is fully compliant.

- **3.1.C.2** How much could workload be increased before this limit would be reached? Express your answer as a percentage of your current workload.

We could operate our test facilities at full capacity and would remain within the limits of all environmental requirements.

- **3.1.C.3** Do you currently operate under temporary permits of an environmental nature, or voluntary agreements (including treaties) of any sort that deal with the environment? If so, when do they expire? Please describe.

See 3.1.C.1 above

- **3.1.C.4** What is the total population within a 50 mile radius? 100 mile radius? 150 mile radius? 200 mile radius?

The following are approximate numbers: 3 million, 9 million, 19 million, and 31 million.

- **3.1.C.5** Identify the commercial air/land/sea traffic routes, public use of air/land/sea space, and frequency of use for each that affects or could affect mission accomplishment in your air, land, or sea space.

NONE

- **3.1.C.5.A** How many test missions per year are canceled due to commercial or public use?

NONE

- **3.1.C.6** What is the number of test missions that have been canceled due to encroachment in each of the last two years?

NONE

3.1.D Specialized Test Support Facilities and Targets (MV I) - Measure of Merit: *Extent to which specialized test support facilities and targets are available.*

-3.1.D.1 Do you have specialized facilities are required to support you in conducting your test operations at your facility (e.g. Aerial delivery load build-up facilities; parachute drying towers/packing facilities; paratroop support facilities; specialized fuel storage and delivery systems; mission planning facilities; corrosion control, painting, washing facilities; and specialized maintenance facilities such as avionics intermediate shops)? Yes/no. If yes, please describe.

We perform specialized energetic test and evaluation functions, therefore almost all our facilities are considered specialized.

-3.1.D.2 Are specialized targets required to support this facility? Yes/no. If yes, explain.

NO

-3.1.D.2.A Have the specialized targets been validated? Yes/no. If yes, by whom?

N/A

3.1.E Expandability (MV III) - Measure of Merit: *Extent to which an installation/facility is able to expand to accommodate additional workload or new missions.*

-3.1.E.1 Other than the expandability inherent in unconstrained capacity, discussed earlier, are there any special aspects of this facility that enhance its ability to expand output within each T&E functional area? Yes/no. If yes, explain.

YES - We are not a Test and Evaluation Activity, however, we can increase the volume of output approximately 15% in some of the facilities described at Appendix A; others continue to operate at 100% capacity.

-3.1.E.1.A Can you accept new T&E workload different from what you are currently performing? Yes/no. If yes, identify by T&E functional area and test type.

NO - Our test facilities are specialized to our energetics mission.

-3.1.E.2 Are airspace, land, and water areas--adjacent to areas under DoD control--available and/or suited for physical expansion to support new missions or increased footprints? Yes/no. If yes, please explain.

YES - IHDIV has undeveloped land we could use to expand our test capability. We operate an annex across the creek which does have undeveloped land that could be made available.

-3.1.E.3 Is the facility equipped to support secure operations? Yes/no. If yes, to what level of classification (Confidential, Secret, Top Secret, Special Access Required)?

YES - Secret

-3.1.E.4 Are there any capital improvements underway or programmed in the 95 FYDP, that would change your capacity/capability? Yes/no. If yes, explain.

NO

3.1.F Uniqueness (MV I) - Measure of Merit: *Extent to which the facility is one-of-a kind.*

-3.1.F.1 Is this a one-of-a-kind facility within the DoD? Yes/no. If yes, describe.

YES - See Below

-3.1.F.1.A Within the US Government? Yes/no. If yes, describe.

YES - Our Chemical/Physical Characterization facility possesses a high-rate tester which is used to determine the characteristics of propellant and other energetic materials in the event of a detonation.

-3.1.F.1.B Within the US? Yes/no. If yes, describe.

YES - Our motor test facility includes a multi-axis rocket motor test stand which is capable of measuring 40 plus channels of information at multiple axes compared to the typical stand that only monitors a single axis.

Our motor test facility also possesses a one of a kind rocket catapult test stand for functioning Air Force and Navy aircrew escape system catapults. This is the only state-of-art multi-component test system for testing rocket catapults which are man-rated units.

Our environmental test facility has an electrostatic discharge (ESD) capability which is one of four in the united states and is entirely unique because of its analytical capability to constantly measure/monitor voltage and current during testing of ordnance. This facility also has the capability to control temperature conditions of the test items.

-3.1.F.2 Are you currently providing support to DoD users outside your Military Department? Yes/no. If yes, indicate percentage of total workload in FY92 and FY93 by Military Department.

SERVICE	% - FY 92	% - FY 93
ARMY	22%	11%
AIR FORCE	6%	5%
MARINE CORP	2%	2%

3.1.G Available Air, Land, and Sea Space (MV II) - Measure of Merit: *Extent to which controlled test ranges satisfy weapon system test requirements.*

-3.1.G.1 How many square miles of air, land, and sea space are available to support test operations?

N/A

-3.1.G.2 Who owns and or controls the land under the restricted airspace you use?

N/A

-3.1.G.3 How much of this is Restricted Airspace, and what altitude limits are associated with the restricted areas?

N/A

-3.1.G.4 Do you have special use airspace other than supersonic airspace? Yes/no. If yes, for what types of test (e.g. terrain following radar)? Dimensions? Will it support simultaneous users? Yes/no.

NO

-3.1.G.5 Is the airspace over land or water? List the number of square miles over each.
N/A

-3.1.G.6 Identify known or projected airspace problems that may prevent accomplishing your mission.

N/A

-3.1.G.7 What is the maximum straight line segment in your airspace in nautical miles?

N/A

-3.1.G.8 What public airspace have you used for overflight of weapons systems in the past? What was the nature of those tests? Do you anticipate being able to use that same public airspace for similar tests in the future? Yes/no.

N/A

3.1.H Geographic/Climatological Features (MV II) - Measure of Merit: *Extent to which types of climatic/geographic conditions represent world-wide operational conditions.*

-3.1.H.1 Describe the topography and ground cover/vegetation within your test airspace (include nap-of-the-earth capability). Identify all of the following that apply: mountains, forest/jungle, cultivated lowland, swamp/riverine, desert, and sea. State the area of each in square miles.

N/A

-3.1.H.2 Are there features of the local geology or soil conditions that enhance or inhibit any types of test?

NO

-3.1.H.3 Did you have to go to other geographical locations to satisfy test requirements? Yes/no and explain. If yes, provide as a percent of overall workload per year for the past 8 years.

YES - To share facilities with Army and other Navy activities for operational testing of live explosives. We went to other geographic locations for only 1-2% of our test requirements in the last three years. Prior to this there was no need.

-3.1.H.4 What is the number of days per year the average temperature is below 32 degrees F? Between 32 and 95 degrees? Above 95 degrees?

N/A - Temperature conditions do not affect IHDIV test operations.

-3.1.H.5 What is the number of days per year the average relative humidity is below 30%? Between 30 and 80%? Above 80%?

N/A - Humidity does not affect IHDIV test operations.

-3.1.H.6 What is the number of test missions per year (1985 - 1993) canceled due to weather?

NONE

-3.1.H.7 What is the number of test days per year (1985 - 1993) canceled due to weather?

NONE

-3.1.H.8 What is the number of days per year the visibility is less than 1 mile? Between 1 and 3 miles? Greater than 3 miles?

N/A - Visibility does not impact IHDIV test operations.

-3.1.H.9 What is the average number of flying days available per year for flight test? Provide historical average from the past eight years.

N/A

-3.1.H.10 What percentage of the time are your test operations restricted due to weather?

Negligible - The only weather restriction for our test operations is severe lightening situations. In the rare instance that this happens, test are delayed; not cancelled.

3.2 AIR VEHICLES

This functional area includes facilities involved in the testing of all air vehicles/subsystems/components whether fixed wing or rotary wing and test of major subsystems (e.g., avionics, engines, and sensors). This includes flight testing and the testing involving pre- and post-flight preparation and processing of the air vehicle. Unmanned air vehicles and cruise missiles are included.

3.2.A Supersonic Airspace (MV II) - Measure of Merit: *Extent of range size to support weapon system requirements.*

-3.2.A.1 Do supersonic corridors or areas exist? Yes/no.

N/A

-3.2.A.2 Where are they located relative to your airfield?

N/A

-3.2.A.3 At what altitude (upper and lower altitude)?

N/A

-3.2.A.4 Over land or water? What size and shape (length and width)?

N/A

-3.2.A.5 Are there restrictions you must observe to use this space? Yes/no. If yes, explain.

N/A

-3.2.A.6 What is the maximum number of simultaneous users?

N/A

-3.2.B Airfield and Facility Characteristics (MV II) - Measure of Merit: *Extent of air vehicle infrastructure to support T&E operations.*

-3.2.B.1 Provide a brief description of your airfield and support facilities, to include the following: number and azimuth of runways, elevation, runway length (excluding overrun), overrun length, terminal and/or landing aids, arresting cable (yes/no, type), ramp area (in square feet), construction material (runway and ramps), load capability, and hangar space.

N/A

-3.2.B.2 How close and how many emergency runways or airfields are in your area of operation?

N/A

-3.2.B.3 Where is your airfield situated relative to working areas (airspace) for supporting test operations?

N/A

-3.2.B.4 What makes your airfield unique or at least suited for supporting test operations?

N/A

-3.2.B.5 Is there a size, weight, maintenance or mission limitation that would affect test operations? If so, describe the limitation(s).

N/A

-3.2.B.6 Including hangers and ramp space, how many fighter size aircraft could you support? Large multi-engine aircraft? Rotary wing? UAV? Cruise missiles?

N/A

-3.2.C Test Operations (MV II) - Measure of Merit: *Extent of T&E operations that the airspace can accommodate.*

-3.2.C.1 What types of air vehicle testing (fixed wing, rotary wing, unmanned vehicles, and cruise missiles) can be supported? (e.g. performance, handling qualities, fatigue life, static, wheels and brakes, physical integration with external stores or avionics)

N/A

-3.2.C.2 Do ground support facilities exist for pre-flight checkout or rehearsal of test missions?

N/A

-3.2.C.3 What kinds, numbers of aircraft and mix can be supported (manned and unmanned)?

N/A

-3.2.C.4 Does UAV and or rotary wing operations pose any limitation on other types of missions? If yes, explain.

N/A

-3.2.C.5 What sorts of missions (e.g. air-to-air, air-to-ground and refueling) can be flown within local airspace?

N/A

-3.2.C.6 What is the maximum number of simultaneous missions you can support that require telemetry?

N/A

-3.2.C.7 What is the largest number of simultaneous test missions you have supported in your airspace?

N/A

-3.2.C.8 Identify the number, types, and owners of aircraft at your installation.

N/A

3.3 ELECTRONIC COMBAT

This functional area includes facilities involved in the testing of stand-alone electronic combat systems and electronic combat subsystems that are normally integrated into other weapon systems. It includes the testing of systems or subsystems that have as their primary mission threat warning, testing of systems that provide countermeasures in the RF (radio frequency) spectrum against radars and other RF sensors, systems that provide countermeasures that are used against sensors in the electro-optical or infrared spectrum as well as testing of electronic and C3 countermeasures.

3.3.A Threat Environment (MV I) - Measure of Merit: *Extent to which the capability satisfies weapon system requirements.*

-3.3.A.1 What is the number of threats simulated?

N/A

-3.3.A.2 How many simultaneous threats can be simulated? What type (e.g. AI, AAA, SAM)? What is maximum signal density? Average density? What power level? What band? Radiated or injected?

N/A

-3.3.A.3 Are the threat software models and simulators (software/hardware) validated? Yes/no. If yes, by whom?

N/A

-3.3.A.4 Do you conduct open loop testing? Reactive? Closed loop? Yes/no for each.

N/A

-3.3.A.5 What is the threat representation (fidelity) and density?

N/A

-3.3.A.6 Are you capable of simulating land threats? Sea threats? Combined land/sea threats? Yes/no. If yes, describe.

N/A

-3.3.A.7 What geographic dispersion can be simulated?

N/A

-3.3.A.7.A Threat lay down?

-3.3.A.7.B Representative distance?

-3.3.A.8 Are the threats moveable (i.e.dynamic) within a test scenario? relocatable to new scenarios? yes/no

N/A

-3.3.A.9 Is the facility interlinked with off-site threats? Yes/no. If yes, how are you linked?

N/A

-3.3.A.10 Is there a limit on simultaneous users? Yes/no. If no, explain.

N/A

3.3.B Test Article Support (MV II) - Measure of Merit: *Extent to which test support satisfies weapon system test requirements.*

-3.3.B.1 Is there a size, weight, or other limitation on test operations the facility can support? Yes/no. If so, identify the limits and measures to remove them.

N/A

-3.3.B.2 What is the number of simultaneous countermeasures that can be evaluated?

N/A

-3.3.B.3 What range of spectra can be tested and evaluated?

N/A

-3.3.B.4 What are the available spectra?

N/A

-3.3.B.5 Do you have a scene generation capability? Yes/no. If yes, describe.

N/A

3.4 ARMAMENTS / WEAPONS

This functional area includes facilities involved in the testing of the weapons portion of a weapon system. In those cases where the weapon system is composed almost exclusively of the weapon, it may include system-level and platform integration testing. In other cases, it addresses just the weapon subsystem (e.g., guidance and control, propulsion, warheads, and airframe), while the testing of the weapon system's vehicle is in another functional area.

3.4.A Directed Energy (MV II) - Measure of Merit: *Extent to which the facility satisfies directed energy weapon system test requirements.*
This includes testing of all types of directed energy weapons.

-3.4.A.1 Do you currently test directed energy weapon systems? Yes/no.

NO

If yes, explain. Describe the power source(s) you have available. What is your maximum downrange distance?

N/A

3.4.B Rocket / Missile / Bomb Systems (MV II) - Measure of Merit: *Extent capability satisfies weapon system test requirements.*

This includes the testing of all types of rocket, missile, and bomb systems at the system/subsystem/component level, both stand alone and integrated into the launch platform. This includes testing of air-to-air, air-to-surface, and surface-to-air missiles.

-3.4.B.1 Ground Space

-3.4.B.1.A What is the area in square miles of the land and water space which you can use to conduct tests of live rocket, missile, or bomb systems?

N/A - Our testing is at the subsystem/component level.

-3.4.B.1.B How many separate and distinct land and water test areas are available to conduct tests of live weapons? List them and the size of each in acres.

N/A

-3.4.B.1.C What are the maximum ranges (nautical miles) you can test, by type weapon?

N/A

3.4.B.2 Test Operations

-3.4.B.2.A For each of your land and water ranges, how many test missions were scheduled in FY92 and FY93 that were required to use safety footprints comparable to those required for the following types of weapons:

--Unguided 2000 pound-class ballistic weapon
---live?
---inert?
--Guided weapon (e.g., GBU-24 class)
---live?
---inert?
--Stand-off weapon (e.g., AGM-130 class)
---live?
---inert?
--Short-range missile (e.g., AIM-9)
---below 5000 feet MSL
---between 5000 and 20,000 feet MSL
---above 20,000 feet MSL
--Long-range missile (e.g., AIM-120)
---below 5000 feet MSL
---between 5000 and 20,000 feet MSL
---above 20,000 feet MSL

N/A - We do not conduct this type of testing.

-3.4.B.2.B Were flight termination systems required? Yes/no.

N/A

-3.4.B.2.C If no missions were scheduled in a category, give the reason(s).

N/A - We do not conduct this type of testing

-3.4.B.2.D Were any scheduled missions canceled before the mission, or terminated/aborted during the mission because of encroachments into the safety footprint? Yes/no. If yes, how many per year.

N/A

APPENDIX A - DATA FORMS AND INSTRUCTIONS

1. Form, General Information

Facility/Capability: Enter the descriptive title for the facility/capability. Avoid using acronyms and abbreviations unless the title defines the acronym. Example: Guided Weapons Evaluation Facility (GWEF).

Origin date: Enter today's date in the format MM/DD/YY.

Military Department: Allowable entries include "N" for Navy, "A" for Army, and "AF" for Air Force. If the facility/capability is managed by an "Other Government Agency" (e.g. ARPA, DNA, ACC) enter the appropriate Agency name.

Organization/Activity: Enter the name (with acronym) for the field activity. Example: White Sands Missile Range (WSMR).

Location: Enter the location where the facility/capability is physically located (installation, city or other common name).

Unit Identification Code (UIC): Enter the UIC.

T&E Functional Area: Enter the single area this facility/capability primarily supports: Air Vehicles, Armament/Weapons, Electronic Combat, or Other.

T&E Test Facility Category: Enter the facility category based on the following definitions:

(1) Digital Models and Computer Simulations (DMS)- Those models and simulations which either provide a simulated test environment or representations of systems, components, and platforms. DMSs are used throughout the development and test process, as analytical tools, as well as tools to drive or control electronic and other environmental stimuli provided, the test articles on Open Air Ranges (OARs), Installed Systems Test Facilities (ISTFs), Hardware in the Loop Test Facilities (HITLs), Integration Laboratories (ILs), and Measurement Facilities (MFs).

(2) Measurement Facilities (MF)- Those facilities used to provide a specialized test environment and/or data collection capability. MFs may be ground based laboratories or open air facilities (often located at or part of OARs).

(3) Integration Laboratories (IL)- Those facilities designed to support the integration and test of various systems and components that will be installed in a host platform. ILs are generally platform specific or unique. However, the simulated stimuli and data collection capabilities required by ILs are often common with those required by HITLS and ISTFs.

(4) Hardware-In-The-Loop (HITL)- Those facilities which provide capabilities to test systems or their components at various stages of development (e.g., brassboard, breadboard, prototype, preproduction, production). HITLs provide stimuli and data collection capabilities to permit test and evaluation of a system/component independent of the host platform.

(5) Installed Systems Test Facilities (ISTF)- Ground based test facilities (usually chambers) that allow test of systems and weapons as installed in the combat platform. ISTFs provide simulated test environments and stimuli and data collection capabilities for the test article(s).

(6) Open Air Ranges (OAR)- Those facilities which consist of controlled or restricted areas to support the test of platforms/systems in a real world, dynamic environment. They are instrumented with data collection, time-space-position information, positive control of test participants, and real or simulated targets and threats as appropriate.

Percentage Use: Enter percentage of time, based on hours, the facility is used to support each of the following (total must sum to 100%):

(1) Test and Evaluation (T&E)- Any facility that is accountable to Military Department and/or OSD T&E management oversight. Operation and sustainment of these facilities are typically funded from 6.5 or procurement program elements. Facilities in this category were developed to support developmental and/or operational test and evaluation and focus on the evaluation of system safety, technical performance, environmental (climatic, electromagnetic, etc.) effects, sustainability and operational suitability, maturity of production processes, and compliance with system specifications and quality standards.

(2) Science & Technology (S&T)- Any facility that is accountable to Military Department and/or OSD S&T management oversight. Operation and sustainment of these facilities are typically funded from 6.1, 6.2, and 6.3a program elements. Facilities in this category were developed to support experimental studies leading to enhanced understanding of new phenomena for new military applications as well as efforts directed toward the solution of problems in the physical, behavioral, and social sciences.

(3) Developmental Engineering (DE)- Any facility that is accountable to Military Department and/or OSD Research, Development and Engineering or acquisition management oversight. Operation and sustainment of these facilities are typically funded from 6.3b through 6.4 or procurement program elements. Facilities in this category were developed to support proof-of-principle and engineering development of systems.

(4) In-Service Engineering (IE)- Any facility that is accountable to Military Department and/or OSD logistics management oversight. Operation and sustainment of these facilities are typically funded from 6.7 or Operations and Maintenance (O&M) program elements. Facilities in this category were developed to support the maintenance facilities. These facilities tend to be system peculiar capabilities to conduct checkouts of the system/subsystems after they have undergone a modification, upgrade or improvement.

(5) Training and Doctrine (T&D)- Any facility that is accountable to Military Department and/or OSD training and doctrine management oversight. Operation and sustainment of these facilities are typically funded from O&M program elements. Facilities in this category were developed to support the training and proficiency of operational forces and/or the development of new tactics, doctrine or force structure concepts.

(6) Other - Any work outside the above.

Breakout by T&E Functional Area: For each of the above categories (T&E, S&T, DE, IE, T&D, Other) enter percentage of time facility is used to support Air Vehicles, Armament/Weapons, Electronic Combat, or Other. Total of breakout areas must sum to top line percentage.

2. Form, Technical Information

Facility Description: Enter a brief description of the facility, including the mission statement.

Interconnectivity/Multi-Use of Facility: Describe any linking/interconnectivity with other T&E facilities. Include physical and/or data linkages (bandwidth, data rate, etc.). Describe any unique characteristics or multiple use of the resource (e.g., operating by rotating crew, availability of resource dependent on ..., equipment will be obsolete by ..., etc.)

Type Tests Supported: Enter specific types of tests accomplished by the Facility (e.g., electromagnetic compatibility, radar cross section, missile miss distance, air-to-air radar simulation, etc).

Summary of Technical Capabilities: Describe technical capabilities at your facility to include:

Instrumentation/Assets: Enter instrumentation and other assets (e.g., jammers, target generators, recording equipment, computer support equipment) associated with the resource.

Provide fact sheets, not to exceed two pages.

Keywords: Enter any keywords (spelled-out with acronyms) associated with functions and capabilities of the facility (e.g., electromagnetic interference/electromagnetic compatibility (EMI/EMC), anechoic chamber, radar cross section (RCS)).

3. Form, Additional Information

Additional Information Form. Enter facility name. Provide personnel numbers for FY93, FY94, and each year in the FY95 FYDP broken out according to officers, enlisted, civilians and contractors. Enter total area square footage of indoor space, test area square footage of indoor space used for T&E purposes, and list office space square footage separately. Tonnage of equipment is the weight of all equipment associated with this facility. Volume of equipment is the volume of all equipment associated with this facility. Annual maintenance cost is self explanatory. Moving costs are estimates for packing equipment at the losing site and reassembly, calibration, etc at the receiving site, not including transportation costs. Capital equipment investments are the current improvement and modernization funds as well as any programs funds earmarked for equipment purchase.

4. Form, Facility Condition

Facility/Capability: Enter the descriptive title for the facility/capability.

Age: Indicate the age of the facility/capability as of the date on the General Information Form.

Replacement Value: Enter the replacement value for the facility/capability. Indicate whether this includes the replacement cost for the equipment.

Maintenance and Repair Backlog: Enter the total dollar amount of the backlog for maintenance and repair items.

Date of Last Upgrade: Date of the last major upgrade to the facility.

Nature of Last Upgrade: Describe the purpose and capability increase from the last major upgrade. Indicate the date this upgrade became available for use.

Major Upgrades Programmed: Enter information on each of the major upgrades that are programmed. Indicate the total programmed amount and provide a summary description of the upgrade.

5. Form, Historical Workload

Use this form to report the workload performed at this facility each year from FY86-93.

Facility/Capability Title: Enter the descriptive title for the facility/capability. Avoid using acronyms and abbreviations unless the title defines the acronym. Example: Guided Weapons Evaluation Facility (GWEF).

T&E Functional Area: For each of these functional areas (Air Vehicles, Armament/Weapons, Electronic Combat, Other Test, and Other), enter direct labor hours, test hours, and/or missions for FY86 through FY93. For open air ranges involving flight testing, report test hours and missions. For all other T&E facilities direct labor hours and test hours must be reported; if available, missions must be reported. If an estimation of test hours based on direct labor hours is necessary, refer to the instructions for Determination of Unconstrained Capacity on page 28.

6. Form, Determination of Unconstrained Capacity

Annual Hours of Downtime, 1: If the facility were required to operate continuously for 24 hours a day, seven days a week, 52 weeks a year, determine the number of hours per day the facility can reasonably operate if it is not constrained by personnel strength? Consider your facilities, equipment, and instrumentation fixed at current levels.

1. Add up the total hours of downtime per year for maintenance, weather, darkness (daylight), holidays, etc. Enter in line 1.

Average Downtime Per Day, 2: Divide line 1 by 365 to get the average downtime per day. Fill in at line 2.

Average Hours Available Per Day, 3: Subtract line 2 from 24 hours to get the average number of hours per day the facility is available for test. Fill in at line 3.

Analyze your historic workload mix to determine the average number and type of tests that have been run simultaneously at your facility. Determine the maximum number of tests that can be run simultaneously if there is no limit to personnel authorizations. Enter the following data from your analysis

Test Types, 4: Enter in column 4 the name of the type of test.

Tests at One Time, 5: List the number of each type of test that can be conducted simultaneously in column 5.

Workload Per Test Per Facility Hour, 6: List the workload (reported in units as follows: For open air range flight testing, report workload in flight hours and numbers of missions. For all other test facility categories, including open air range other than flight testing, report workload in direct labor hours) represented by each hour the test is run. Do this at line 6.

From the historic workload analysis, determine the average workload per facility hour represented by the average or "typical" test. In the row titled "TYPICAL", in column 5, enter the number of these "typical" tests that can be run in addition to those already listed above. Enter the workload per "typical" test per facility hour in column 6. To estimate test hours from direct labor hours for the Historic Workload Form, divide the facility workload by this number (the number of direct labor hours per "typical" test per facility hour) and enter in the test hour block on the Historic Workload Form.

Workload Per Facility Hour, 7: Multiply column 5 by column 6. Enter in column 7. Total column 7.

Unconstrained Capacity Per Day, 8: Multiply the total from column 7 by line 3 to get the unconstrained capacity per average day. Enter in line 8.

Annual Unconstrained Capacity, 9: Multiply line 8 by 365 to get the unconstrained capacity per year for the facility. Enter on line 9.

APPENDIX A

1995 Base Realignment and Closure
T&E Joint Cross Service Group Data Guidance

INDIAN HEAD DIVISION,
NAVAL SURFACE WARFARE CENTER

CONTENTS:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Non Destructive Test (NDT) Facility

AGE: 47 years

REPLACEMENT VALUE: $4.36M

MAINTENANCE AND REPAIR BACKLOG: $4,000

DATE OF LAST UPGRADE: 1984

NATURE OF LAST UPGRADE: Installation of 2-MEU Linatration X-Ray Machine in Bldg 1140

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Non Destructive Test (NDT) Facility

		FISCAL YEAR							
FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	34,475	34,475	34,475	34,475	34,475	34,475	34,475	31,028
	TEST HOURS	14,000	14,000	14,000	14,000	14,000	14,000	14,000	12,600 R
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Non Destructive Test (NDT) Facility

		FISCAL YEAR							
FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	34,475	34,475	34,475	34,475	34,475	34,475	34,475	31,028
	TEST HOURS	32,338	32,338	32,338	32,338	32,338	32,338	32,338	29,104
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: Non-Destructive Test (NDT) Facility

ANNUAL HOURS OF DOWNTIME	1	528 Hrs
AVERAGE DOWNTIME PER DAY (LINE 1÷ 365)	2	1.45
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	22.55

TEST TYPES 4	**TESTS AT ONE TIME** 5	**WORKLOAD PER TEST PER FACILITY HOUR** 6	**WORKLOAD PER FACILITY HOUR** 7
*	7	2.14	15
"Typical"	0	0	

TOTAL Σ 15

UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ)
8 **338.25**

ANNUAL UNCONSTRAINED CAPACITY
9 **123,461.3**

*** Conventional X-ray, Micro Focus/Real Time, Ultrasonic, Eddy Current, Liquid Penetrant, Magnetic Particle, Non Energetic Materials Mechanical Properties.**

TECHNICAL INFORMATION

Facility/Capability Title: NDT Facilities

-

Facility Description; Including mission statement:
The Non-Destructive Test (NDT) facility provides testing services in the areas of the five classical NDT techniques (Radiography, Dye Penetrant, Magnetic Particle, Eddy Current and Ultrasonic), and metals and non-propellants mechanical testing. The testing services can be used in the analysis, design, development, procurement, verification and surveillance processes associated with modern weapon components and systems. The NDT facility has three basic functional areas: two fully functioning X-Ray sites for radiography, an NDT Laboratory for the other four NDT techniques, and a metals and non-propellant mechanical properties test laboratory.

The radiographic facility at Indian Head maintains a variety of radiologic capabilities to support research and development, product improvement programs, ballistic testing and production processes. Eight separate radiographic units are available: one uses a microfocus source, three use high-energy Linatrons, and the other four use a standard low-energy source. Conventional film radiography is used routinely in all exposure bays. Additionally, there is a Level III Radiographer available for interpretation and method development. The capabilities are flexible: analysis can use the same source to produce a video screen image or a film image in either conventional or microfocus format.

The primary purpose for the radiographic portion of the facility is to non-destructively inspect energetic and non-energetic materials for flaw detections, signs of aging, improper assembly, foreign materials in the raw material and manufactured propellants, or any other anomalies that might occur. Items can be up to 5 feet in diameter and up to 18 feet in length with a maximum explosive weight of 4,000 pounds of Class 1.1 or 10,000 pounds of Class 1.3. All items that are ballistically tested are supported by this facility.

The facility supports pilot, development, qualification, production programs in inspecting the raw material, in-process and the final item. The facility also supports malfunction investigations such as the JAU-8 and HARM incidents. The JAU-8 is a propellant Actuated Initiator used in several Air Force Aircraft as part of an aircrew escape system and is manufactured in private industry. Recently an aircraft experienced a catastrophic failure requiring the pilot to eject. One JAU-8 failed while the redundant feature saved the pilot's life. IHDIV worked with the Air Force to determine how to correct the process used to inspect and accept these components which must work every time they are used. HARM is a high-speed anti-radiation rocket motor which is produced in private industry for the Army. Recently a HARM motor failed catastrophically during acceptance testing. IHDIV worked with Letterkenny Army Dept to develop a cost effective method to inspect these motors for defects and help with certification of 2,000 units. The independent facility is used to validate the NDT processes of private sector companies. The facility also helps to develop new x-ray techniques for IHDiv and vendor items. The facility performs audits of vendors and interpretations of vendor film as part of the acceptance process for vendor manufactured items (i.e. Cartridge Actuated Devices (CAD)/Propellant Actuated Devices (PAD) items used in aircrew escape systems, bomb release mechanisms, and mine clearance systems).

The Non-Destructive Test (NDT) facilities at Indian Head have state-of-the-art equipment available to perform a variety of tests and evaluations on almost any product. The equipment is used to perform receipt, in-process, and final inspections as well as discontinuity evaluations, vendor over-inspections and failure investigations. The Command has the facilities and personnel capable of training, testing, and qualifying NDT inspectors to a I, II, or III skill level in accordance with MIL-STD-410.

The radiographic/NDT facility makes recommendations to vendors on techniques for proper NDT inspections.

Without this capability, the Indian Head Division could not perform its daily mission.

Interconnectivity/Multi-Use of T&E Facility:

As defined by Data Call 13, this para is N/A.

Type of Test Supported:

The Non-Destructive Test (NDT) facility provides testing services in the areas of the five classical NDT techniques (Radiography, Dye Penetrant, Magnetic Particle, Eddy Current and Ultrasonic), and metals and non-propellants mechanical testing.

The radiographic facility at Indian Head maintains a variety of radiologic capabilities to support research and development, product improvement programs, ballistic testing and production processes.

State-of-the-art magnetic particle equipment.

Summary of Technical Capabilities:

a. High Energy Real-Time Radiographic Inspection System: The high energy real-time radiographic inspection system is composed of four different x-ray sources up to 4 million-electron-volts (4 MeV), including a 200kVP microfocus source, and three manipulator systems located in two different buildings. The primary purpose for this equipment is to non-destructively inspect energetic and non-energetic materials for flaw detection, signs of aging, improper assembly, foreign materials in the raw materials or manufactured propellants, or any other anomalies that might occur. These energetic materials can be up to 5 feet in diameter and up to 18 feet in length with a maximum explosive weight of 4,000 pounds of Class 1.1 or 10,000 pounds of Class 1.3. This asset is movable with a replacement value of $3,300,000. This equipment occupies approximately 5,000 cubic feet of space and weighs an estimated 25,000 pounds.

This equipment would be difficult, but not impossible, to relocate unless a suitable facility is designated. This inspection capability is replicated at a few select DOD and commercial sites around the continental US, primarily in the Southeast and the West Coast, but it would be impractical in some cases and impossible in others to have the work we do accomplished by them. The impact due to the loss of this equipment upon production programs within and outside the Department of the Navy would be significant. Factors about relocation to be considered are:

a) Availability of radiation shielding.
b) Availability of energetic event shielding or protection.
c) Impact due to non-availability of the in-process inspection for production items at NSWC/IHD (would shut down most production programs).
d) Security aspects of some classified programs that require inspection.
e) Unnecessary public exposure to energetic materials during transportation.
f) Additional costs incurred due to transportation.
g) Non-availability of a quality inspection process for all major programs at NSWC/IHD would have a significant negative effect on the quality of the units that are shipped out for fleet use.

Keywords:
Non-Destructive Test (NDT)

GENERAL INFORMATION

Facility/Capability Title: Non Destructive Test (NDT) Facility

Origin Date: 05/05/94

Service: "N" Organization/Activity: Indian Head Division, NSWC (IHDIV)

Location: Indian Head, Maryland

T&E Functional Area: Armament/Weapons

UIC = 00174

T&E Test Facility Category: Measurement Facilities (MF)

	T&E	S&T	D&E	IE	T&D	OTHER = 100%
PERCENTAGE USE:	60%	05%	20%	15%		

BREAKOUT BY T&E FUNCTIONAL AREA (%)

	T&E	S&T	D&E	IE	T&D	OTHER
Air Vehicles						
Armament/Weapons	60%	05%	20%	15%		
EC						
Other						

Total in Breakout Must Equal "Percentage Use" On First Line

ADDITIONAL INFORMATION

Facility/Capability Title: Non-Destructive Test (NDT) Facility

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	18	15	15	15	12	12	12
Contractor	0	0	0	0	0	0	0
Total	18	15	15	15	12	12	12

Total Square Footage: 7,205 GSF

Test Area Square Footage: 7,205 GSF

Office Space Square Footage: None

Tonnage of Equipment: Unavailable

Volume of Equipment: Unavailable

Annual Maintenance Cost: 65,360

Estimated Moving Cost: Unavailable

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
0	0	0	0	0	0	0

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Propulsion Component Test Facility

AGE: 41 years

REPLACEMENT VALUE: $8.75M

MAINTENANCE AND REPAIR BACKLOG: $6,000

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Upgrade of Firing Bay, Bldg 750, which includes a new test stand, data communication lines and electrical service.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Propulsion Component Test Facility

		FISCAL YEAR							
FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	68,950	68,950	65,503	65,503	60,331	60,331	51,713	48,265
	TEST HOURS	4,000	4,000	3,800	3,800	3,496	3,496	3,006	2,796
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

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23 September 1994
RFC # AW-092

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Propulsion Component Test Facility

FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	68,950	68,950	65,503	65,503	60,331	60,331	51,713	48,265
	TEST HOURS	65,296	65,296	62,031	62,031	57,133	57,133	48,972	45,707
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: Propulsion Component Test Facility

ANNUAL HOURS OF DOWNTIME — 1 468
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365) — 2 1.28
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2) — 3 22.72

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7
*	2	11	22
"Typical"	0	0	
		TOTAL Σ	22

UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ)
8 499.8

ANNUAL UNCONSTRAINED CAPACITY
9 182,441.6

* Standard Static Fire, Functional Ground Test, Thrust Vector Control, ROCAT

TECHNICAL INFORMATION

Facility/Capability Title: Propulsion Component Test Facility

Facility Description; Including mission statement:
The static firing facilities are used to test rocket motors for the Navy and other services during all phases of their life cycle at temperatures the rockets are likely to experience during fleet use. The static firing facilities are also used to test Navy and Air Force rocket catapults for aircrew escape from aircraft. This facility has a very high usage rate as compared to other static firing facilities elsewhere. Conducting approximately 5,040 static firings a year makes our operation very economically advantageous. The motor size that can be tested is up to 3 feet in diameter, 10 feet long and up to 500,000 pounds of thrust. The test results are compared against acceptance or performance specifications to assure that, when called upon, these motors will perform as required. If the rockets should fail to perform as designed, the data is available to provide a baseline for failure analysis. This capability serves the Indian Head Division during its research, development and scale up of new rocket motors. Additionally this capability is used to verify and establish test procedures from the private sector.

Motors are environmentally conditioned and static fired to simulate the real environments they will experience in the fleet. Test items are fired within a short time after being removed from the temperature conditioning chambers. Large conditioning chambers (31 ft in length) can condition to temperatures from -75 degrees F to 175 degrees F. Other capabilities include real-time data analysis and reduction, video coverage of the firings and high speed photography.

Static testing capabilities includes lot acceptance testing (LAT), quality evaluation/type-life for fleet returns, engineer investigation, product improvement programs (PIP), R&D, qualification and system level tests.

Functional Ground Test (FGT) is a system level approach to validating a missile's operational reliability and quality. It is a simulated flight which includes: rocket motor firing and separation; separation of all jettisoned items; deployment of fins, inlet ducts and wings; operation of TVC tabs, fins, engine, and guidance system. FGT used modified Operational Flight Software (OFS). The navigation and function in the OFS is replaced by a time & event table which provides the control logic in all phases of flight.

Tomahawk Missile-In-The-Loop (TMIL) is an enhancement to the FGT testing conducted at the motor test facility. TMIL uses a real-time vehicle/environment model with guidance direct memory access to functionally test a missile processing the real OFS (with a mission) in the ground test environment. TMIL simulates a complete mission, from missile power-up through test termination. Real OFS/missions are utilized to realistically test all missile hardware and the interfaces between missile hardware and software. TMIL is the first test to combine closed-loop guidance testing with a propulsion test.

Interconnectivity/Multi-Use of T&E Facility:

As defined by Data Call 13, this para is N/A

Type of Test Supported:
Static testing capabilities includes lot acceptance testing (LAT), quality evaluation/type-life for fleet returns, engineer investigation, product improvement programs (PIP), research and development (R&D, qualification and system level tests. The following are examples of items that are tested at the facility:

-LAT testing - MK 90, MK 22 line throwing rockets (IHDIV programs); UPCO CKU-5/A, Martin Baker Navy Aircrew Common Ejection Seat (NACES) Parachute Deployment Rocket Motor (PDRM) and Underseat motors (private sector).
-Qualification evaluation - Sidewinder, Phoenix, Underseat Rocket Catapults and various Jet Assisted Take-Off (JATO) Rocket Motors.
-Engineering investigations - MK 104 Bulb Tip Crack investigation, USS Princeton incident (rocket motor damage due to ship collision with a mine), HARM motor, advanced medium range air-to-air motor (AMRAAM), and the MK 1 Rocket Assisted Pilot Ejection Catapult (RAPEC) investigation.
-PIP programs - Lead-free propellants for MK 66 and MK 16 (environmental PIPs); MK 128, MK 91, MK 23, MK 7.
-R&D programs - mine countermeasures programs (i.e. MK 22 Mod 4, Distributed Explosive Mine Neutralization System (DEMNS), Distributed Explosive Technology (DET).
-Qualification programs - MK 104 Standard Missile, Sidewinder, Javelin, Harm and NACES rocket motors.
-System level testing - Tomahawk Cruise Missile Functional Ground Test.

Functional Ground Test (FGT) is a system level approach to validating a missile's operational reliability and quality. It is a simulated flight which includes: rocket motor firing and separation; separation of all jettisoned items; deployment of fins, inlet ducts and wings; operation of TVC tabs, fins, engine, and guidance system. FGT used modified Operational Flight Software (OFS). The navigation and function in the OFS is replaced by a time & event table which provides the control logic in all phases of flight.

Tomahawk Missile-In-The-Loop (TMIL) is an enhancement to the FGT testing conducted at the motor test facility. TMIL uses a real-time vehicle/environment model with guidance direct memory access to functionally test a missile processing the real OFS (with a mission) in the ground test environment. TMIL simulates a complete mission, from missile power-up through test termination. Real OFS/missions are utilized to realistically test all missile hardware and the interfaces between missile hardware and software. TMIL is the first test to combine closed-loop guidance testing with a propulsion test.

An elevated rocket motor stand is available for special secure (classified) static testing of rocket motors that need to be rotated on the stand.

There is a one of a kind Rocket Motor Thrust Vector Control test stand manufactured by Ormond Inc. used to determine serviceability of the MK 106 and MK 111 Tomahawk booster.

Summary of Technical Capabilities:

a. Tomahawk Functional Ground Test (FGT) System: The primary purpose of this equipment is to interface and gather data during Tomahawk Missile FGT. This asset is moveable with a replacement value of $6-7 million. It weighs approximately 12-15 tons. This is the only government owned Tomahawk FGT capability. If this capability is lost the Navy could not perform special test on the Tomahawk and would have to rely on expensive flight tests for data (greater than 30 times more expensive).

b. Rocket Motor Thrust Vector Control Test Stand (Ormond Inc.): A multi-component test stand with six-degree-of-freedom capability is employed to measure thrust vector components of total rocket thrust during static fire tests. This is a one of a kind test stand and is unique to the United States. This is a fixed asset with a replacement value of $750,000 - $1,000,000. It weighs approximately 20,000 lbs.

This is the only government owned multi-component test stand for evaluating the Tomahawk Booster (MK 106 and MK 111). If this capability were lost, the Navy could not perform quality evaluation (service life evaluation) on the Tomahawk Booster. To replicate or relocate this test stand the receiving activity must have a sophisticated data acquisition system (40 plus channel capability), Temperature conditioning chambers for the boosters (-20°F to 110°F), facility to perform remote explosive operations (1000 foot explosive arc) and a control room to house the fire control/servo controller/data acquisition system (20' x 20' building).

c. Multi-Component ROCAT Thrust Stand: This equipment is used to test Navy and Air Force rocket catapults for aircrew escape from aircraft. This is a fixed asset with a replacement value of $700,000. It weighs 8,000 lbs, and takes up 750 cubic feet. This is a one of a kind test stand. If this capability is lost the Navy will lose it's only state-of-the-art multi-component test system for testing rocket catapults which are man rated unit.

d. Large Motor Test Digital Data Acquisition System (HP-1000): This equipment is used to acquire digital data from

rocket motor static-fire operations. It supports lot acceptance testing of production items, quality evaluation for fleet returns and special tests. This asset is moveable with a replacement value of $2,000,000. It weighs 2,000 lbs, and takes up 144 cubic feet.
Without this equipment the Navy would lose the capability of testing a wide range of rocket motors (sidewinder, Tomahawk, Phoenix, JATOs, MK 70, MK 104 MK 66, Harm and etc.). This equipment would be difficult to replicate since it is configured for specific firing operations at the present location.

e. <u>Small Motor Test Digital Data Acquisition System (HP-1000)</u>: This equipment is used to acquire digital data from rocket motor static-fire operations. It supports lot acceptance testing of production items, quality evaluation for fleet returns and special tests. This asset is moveable with a replacement value of $2,000,000. It weighs 2,000 lbs, and take up 144 cubic feet of space.
Without this equipment the Navy would lose the capability of testing a wide range of ordnance (rocket catapults, Underseat rocket motors, Gas Generators, and other propellant actuated devices). This equipment would be difficult to replicate since it is configured for specific firing operations at the present location.

f. <u>Large Motor Test Automatic Data Acquisition Equipment</u>: This equipment is used to acquire digital data from rocket motor static-fire operations. It supports lot acceptance testing of production items, quality evaluation for fleet returns and special tests. This asset is moveable with a replacement value of $1,200,000. It weighs 2,000 lbs, and take up 384 cubic feet of space.
Without this equipment the Navy would lose the capability of testing a wide range of rocket motors (sidewinder, Tomahawk, Phoenix, JATOs, MK 70, MK 104 MK 66, Harm and etc.). This equipment would be difficult to replicate since it is configured for specific firing operations at the present location.

g. <u>Small Motor Test Automatic Data Recording Equipment</u>: This equipment is used to acquire digital data from rocket motor static-fire operations. It supports lot acceptance testing of production items, quality evaluation for fleet returns and special tests. This asset is moveable with a replacement value of $1,000,000. It weighs 6,000 lbs, and take up 336 cubic feet of space.
Without this equipment the Navy would lose the capability of testing a wide range of ordnance (rocket catapults, Underseat rocket motors, Gas Generators, and other propellant actuated devices). This equipment would be difficult to replicate since it is configured for specific firing operations at the present location.

Keywords:
Static Testing, Static Firing
Rocket Motors , Rocket Catapults

GENERAL INFORMATION

Facility/Capability Title: Propulsion Component Test Facility

Origin Date: 05/05/94

Service: "N" Organization/Activity: Indian Head Division, NSWC (IHDIV)

Location: Indian Head, Maryland

T&E Functional Area: Armament/Weapons

UIC = 00174

T&E Test Facility Category Measurement Facilities (MF)

	T&E	S&T	D&E	IE	T&D	OTHER = 100%
PERCENTAGE USE:	50%	10%	30%	10&		
BREAKOUT BY T&E FUNCTIONAL AREA (%)						
Air Vehicles						
Armament/Weapons	50%	10%	30%	10%		
EC						
Other						

Total in Breakout Must Equal "Percentage Use" On First Line

ADDITIONAL INFORMATION

Facility/Capability Title: Propulsion Component Test Facility

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	28	22	22	22	20	20	20
Contractor	0	0	0	0	0	0	0
Total	28	22	22	22	20	20	20

Total Square Footage: 25,993 GSF

Test Area Square Footage: 25,993 GSF

Office Space Square Footage: None

Tonnage of Equipment: Unavailable

Volume of Equipment: Unavailable

Annual Maintenance Cost: $131,190

Estimated Moving Cost: Unavailable

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
0	$205,000	$200,000	0	0	0	0

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Environmental Test Facility

AGE: 33 years

REPLACEMENT VALUE: $2.43M

MAINTENANCE AND REPAIR BACKLOG: $5,000

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Construction of Electro-Static Discharge Facility

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Environmental Test Facility

FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	17,238	17,238	17,238	17,238	17,238	17,238	17,238	17,238
	TEST HOURS	16,000	16,000	16,000	16,000	16,000	16,000	16,000	16,000 R
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Environmental Test Facility

FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	17,238	17,238	17,238	17,238	17,238	17,238	17,238	17,238
	TEST HOURS	15,583	15,583	15,538	15,583	15,583	15,583	15,583	15,583
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: Environmental Test Facility

ANNUAL HOURS OF DOWNTIME 1 842 Hrs
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365) 2 2.31
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2) 3 21.69

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7
*	8	1.25	10
"Typical"	0	0	
		TOTAL Σ	10

UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8 216.9

ANNUAL UNCONSTRAINED CAPACITY 9 79,168.5

* Drop Test, Shock, Vibration, Leak, Acceleration, Climatic, Altitutde, ESD

TECHNICAL INFORMATION

Facility/Capability Title: Environmental Test Facility

—

Facility Description; Including mission statement:
The Environmental facilities at Indian Head simulates the adverse environments to which ordnance is subject during its normal life cycle. The types of testing performed fall into two general categories: mechanical testing and climatic testing.

- Mechanical testing includes shock, drop, vibration, leak, hydro (pressurized water), and acceleration testing.
- Climatic testing includes altitude, temperature, humidity, thermal shock, salt-fog, wind and rain, sand, and dust.

Environmental testing conducted at IHDIV is different from what is conducted routinely at other sites in that our tests are performed on explosive/propulsion components that necessitate special handling and safety precautions.

All facilities are set up for remote control and data acquisition. The Environmental testing capabilities includes lot acceptance testing (LAT), quality evaluation/type-life for fleet returns, engineer investigation, product improvement programs (PIP), and qualification tests.

The Environmental Test Facility also supports briefings to IHDIV and Coast Guard personnel on what to look for during an investigation of vendor environmental testing. This facility also offers technical expertise to other vendor test laboratories.

Additionally, the Electrostatic Discharge (ESD) facility at Indian Head is capable of conducting 300,000 volt discharge testing as required by MIL-STD-331. This test is to evaluate the effects of electrostatic discharges generated principally by helicopters which may affect ordnance. The ordnance may be part of helicopter weapons system, being carried on-board by troops, or being transported by helicopter. This capability supports the Navy Explosives Safety Program. In addition, this facility is only one of four the United States and is entirely unique because of its analytical capability to constantly measure/monitor voltage and current during testing of the ordnance. This facility also has the capability to control the temperature conditions of the test items.

Interconnectivity/Multi-Use of T&E Facility:

As defined by Data Call 13, this para N/A.

Type of Test Supported:
The types of testing performed fall into two general categories: mechanical testing and climatic testing.
- Mechanical testing includes shock, drop, vibration, leak, hydro, and acceleration testing.
- Climatic testing includes altitude, temperature, humidity, thermal shock, salt-fog, wind and rain, and sand and dust.

The following are examples of items that are tested at the facility:
-Lot Acceptance Testing - Cartridge Actuated Devices (CADs)/Propellant Actuated Devices (PADs) items (IHDIV and private sector programs).
-Qualification evaluation - Harpoon program (U.S. & U.K. program).
-Engineering investigations - MK 104 Bulb Tip Crack investigation, HARM motor, and MK 66 investigation.
Product Improvement Programs (PIPs) - Lead-free propellant for MK 66 (environmental PIP).
Research and Development (R&D) programs - mine countermeasures programs (i.e. MK 22 Mod 4,and MK 47).
Qualification programs - Sidewinder, various JATOs, Harm and NACES rocket motors.

-The Electrostatic Discharge (ESD) facility is capable of conducting 300,000 volt discharge testing as required by MIL-STD-331. This test is to evaluate the effects of electrostatic discharges generated principally by helicopters on ordnance. The ordnance may be part of helicopter weapons system or ordnance being transported or carried by troops being transported. This capability supports the Navy Explosives Safety Program.

Summary of Technical Capabilities:

a. <u>Digital/Analog Vibration Control System includes 20,000 lb-f Electromagnetic Shaker</u>: The vibration system is used to conduct environmental vibration tests on a wide array of ordnance and inert items to simulate adverse environmental conditions that the item will be exposed to during its normal service life. The equipment is moveable with a replacement value of $575,000.00

Keywords:
Electrostatic Discharge (ESD)
Mechanical Testing
Climatic Testing

GENERAL INFORMATION

Facility/Capability Title: Environmental Test Facility

Origin Date: 05/05/94

Service: "N" Organization/Activity: Indian Head Division, NSWC (IHDIV)

Location: Indian Head, Maryland

T&E Functional Area: Armament/Weapons

UIC = 00174

T&E Test Facility Category Measurement Facilities (MF)

	T&E	S&T	D&E	IE	T&D	OTHER = 100%
PERCENTAGE USE:	10%	20%	50%	20&		
BREAKOUT BY T&E FUNCTIONAL AREA (%)						
Air Vehicles						
Armament/Weapons	10%	20%	50%	20%		
EC						
Other						

Total in Breakout Must Equal "Percentage Use" On First Line

ADDITIONAL INFORMATION

Facility/Capability Title: Environmental Test Facility

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	10	10	10	10	10	10	10
Contractor	0	0	0	0	0	0	0
Total	10	10	10	10	10	10	10

Total Square Footage: 8,830 GSF

Test Area Square Footage: 8,830 GSF

Office Space Square Footage: None

Tonnage of Equipment: Unavailable

Volume of Equipment: Unavailable

Annual Maintenance Cost: $36,500

Estimated Moving Cost: Unavailable

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
0	0	0	0	0	0	0

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Cartridge Actuated Devices (CAD) Test Facility

AGE: 23 years REPLACEMENT VALUE: $1.88M

MAINTENANCE AND REPAIR BACKLOG: $8,000

DATE OF LAST UPGRADE: 1989

NATURE OF LAST UPGRADE: Replacement of Environmental Control in Bldg 889

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Cartridge Actuated Devices (CAD) Test Facility

		FISCAL YEAR							
FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	48,265	48,265	48,265	48,265	43,094	43,094	43,094	31,028
	TEST HOURS	10,000	10,000	10,000	10,000	8,900	8,900	8,900	6,408 R
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Cartridge Actuated Devices (CAD) Test Facility

FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	48,265	48,265	48,265	48,265	43,094	43,094	43,094	31,028
	TEST HOURS	46,190	46,190	46,190	46,190	41,241	41,241	41,241	29,694
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: Cartridge Actuated Devices (CAD) Test Facility

ANNUAL HOURS OF DOWNTIME	1	378 Hrs
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	1.04
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	22.96

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7
*	5	2.6	13
"Typical"	0	0	
		TOTAL Σ	13

UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ)
8 298.5

ANNUAL UNCONSTRAINED CAPACITY
9 108,945.2

* Closed bomb, Track, Water Resistence "Moby Dick", Bomb Rack, JAU 8 Type, Altitude, Cook-off, Non Firing, Shielded Detonator Cord, Blasting Cap, Primer, ESD, Drogue Release, Visible Cries

TECHNICAL INFORMATION

Facility/Capability Title: Cartridge Actuated Devices (CAD) Test Facility

Facility Description; Including mission statement:
The Cartridge Actuated Devices (CADs) facility at Indian Head supports the IHDIV's **TRI-SERVICE** responsibility for Cartridges, CADs, and Aircrew Escape System (AEPS) components. Cartridges are installed in mechanisms or devices to convert the explosive energy into useful types of work. Examples are initiators, detonators, ignitors, delays, and cartridges for bomb release mechanisms. A CAD uses the ballistic energy produced by an explosive or propellant charge to perform some type of work, provide heat, provide pressure, and/or initiate another device. Typically a CAD will retain the explosive or propellant output. A Propellant Actuated Device (PAD) uses a propellant charge to perform some type of work by controlling the hot gases which are vented. Examples are aircraft canopy removing thrusters, ejection seat catapults, ejection seat rocket motors, and emergency door/hatch removers. The facilities simulate environments from 2,000 feet deep in the ocean to upper atmosphere with temperature ranges in excess of 65°F to +350°F. Procedures have been developed to test approximately 700 different cartridges and CADs in numbers sufficient to ensure reliability while minimizing the cost and time of testing. The capability supports the research, development and scale-up and production of CADs/PADs/AEPS at Indian Head, as well as, the testing of private contractors. Government acceptance and surveillance testing of these man-rated systems are both performed here.

Interconnectivity/Multi-Use of T&E Facility:

As defined by Data Call 13, this para is N/A.

Type of Test Supported:
The capability supports the research, development and scale-up and production of CADs/PADs/AEPS at Indian Head, as well as, the testing private contractors' components. Government acceptance and surveillance testing of these man-rated systems are both performed here. The different types of test conducted include functional testing of CADs/PADs/AEPS in simulated environments, high temperature exposure testing, altitude simulation testing, deep sea submergence testing, and ignition primer testing.

The following are examples of the various items and tests performed at the facility:
-Lot Acceptance Testing (LAT) - Energy Transfer Lines (Teledyne, E.T.), CCU-90 Fire Extinguisher Cartridge (ESD), JAU-53 Initiator (IHDIV), and M91 Impulse Cartridge (IHDIV).

-Quality Evaluation/Type-Life - CCU-73 Delay Cartridge (IHDIV and private contractor).
-Engineering Investigations - Malfunction Investigations of M162 Fire Extinguisher Cartridge and M193 Fire Extinguisher Cartridge.
-PIP - M178 Impulse Cartridge and CCU-107 Impulse Cartridge (Storage Release Cartridges).
-R&D programs - Laser initiated CADS, M55 Ignition Element, and various Storage Release Cartridges.
-Qualification Programs - CEEDS (Cats Eyes Emergency Detachment System) and SH60 (Flotation Device Actuator).

Summary of Technical Capabilities:
Production cartridge actuated devices are proof-tested against performance specifications - Closed bomb test equipment: Many sized and ratings, including more than 500 different test fixtures.

Parachute spreader gun equipped with high speed video recorder and custom-designed velocity measurement system.

Stores ejection device - two dedicated test bays, stores ejection rank, bomb release racks, simulated bombs ranging from 25 lb. to 2,000 lb., and simulated missile stores.

Customer designed altitude chamber.

Catapult test facility.

IHDIV designed fixtures and instrumentation.

Keywords:
Cartridge Actuated Device (CAD)
Propellant Actuated Device (PAD)
Aircrew Escape Propulsion Systems (AEPS)

GENERAL INFORMATION

Facility/Capability Title: Cartridge Actuated Devices (CAD) Test Facility

Origin Date: 05/05/94

Service: "N" Organization/Activity: Indian Head Division, NSWC (IHDIV)

Location: Indian Head, Maryland

T&E Functional Area: Armament/Weapons

UIC = 00174

T&E Test Facility Category Measurement Facilities (MF)

	T&E	S&T	D&E	IE	T&D	OTHER = 100%
PERCENTAGE USE:	60%	05%	20%	25%		
BREAKOUT BY T&E FUNCTIONAL AREA (%)						
Air Vehicles						
Armament/Weapons	60%	05%	20%	25%		
EC						
Other						

Total in Breakout Must Equal "Percentage Use" On First Line

ADDITIONAL INFORMATION

Facility/Capability Title: Cartridge Actuated Device (CAD) Test Facility

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	18	13	13	13	13	13	13
Contractor	0	0	0	0	0	0	0
Total	18	13	13	13	13	13	13

Total Square Footage: 8,436 GSF

Test Area Square Footage: 8,436 GSF

Office Space Square Footage: None

Tonnage of Equipment: Unavailable

Volume of Equipment: Unavailable

Annual Maintenance Cost: $28,160

Estimated Moving Cost: Unavailable

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$147,726	0	0	0	0	0	0

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Chemical/Physical Characterization Facility

AGE: 30 years

REPLACEMENT VALUE: $12.07M

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Construction of new Chemical Laboratory

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE: None

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Chemical//Physical Characterization Facility

		FISCAL YEAR							
FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	77,568	77,568	77,568	77,568	77,568	86,188	86,188	86,188
	TEST HOURS	42,000	42,000	42,000	42,000	42,000	46,667	46,667	46,667 R
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

23 September 1994
RFC # AW-092

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Chemical//Physical Characterization Facility

FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/ WEAPONS	DIRECT LABOR	77,568	77,568	77,568	77,568	77,568	86,188	86,188	86,188
	TEST HOURS	71,130	71,130	71,130	71,130	71,130	79,034	79,034	79,034
	MISSIONS	0	0	0	0	0	0	0	0
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: Chemical/Physical Characterization Facility

ANNUAL HOURS OF DOWNTIME	1	726 Hrs
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	1.99
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	22.01

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
				1,034.5
*	21	2.24	47	
				ANNUAL UNCONSTRAINED CAPACITY
				9 377,592.5
"Typical"	0	0	0	

TOTAL Σ 47

* Metallurgical Analysis, Nuclear Magnetic Resonance Spectrometry (Fourier Transform), Fourier Transform Infrared Spectroscopy, Gas and Liquid Chromatography, Ion Chromatography, Gel Permeation Chromatography, Gas Chromatography/Mass Spectrometry, Ultraviolet/Visible/Near-Infrared Spectroscopy, Atomic Absorption and Atomic Emission Spectroscopy, X-Ray Diffraction, Scanning Electron Microscopy, Thermal Analysis, Calorimetry (Heat of Explosion), Particle Size Testing, Physical Measurement Capabilities, Vacuum Stability/Taliani Testing, Ballistic Evaluation Motor, Strand Burning, Closed Bomb, Mechanical Properties, Energetic Materials Machining, Gun Test

TECHNICAL INFORMATION

Facility/Capability Title: Chemical/Physical Characterization Facility

Facility Description; Including mission statement:
The state-of-the-art Chemical/Physical (ChemPhys) Characterization facilities at Indian Head contain all of the different equipments to offer a broad spectrum of services including metallurgical analysis, nuclear magnetic resonance spectrometry, fourier transform infrared spectroscopy, gas and liquid chromatography, ion chromatography, gel permeation chromatography, gas chromatography/mass spectrometry, ultraviolet/visible/near-infrared spectroscopy, atomic absorption and atomic emission spectroscopy, x-ray diffraction, scanning electron microscopy, thermal analysis, calorimetry (heat of explosion), particle size testing, physical measurement capabilities, and vacuum stability/Taliani testing. Analysts have broad knowledge and experience with explosives, propellants, and other energetic materials both known and unknown. A large component of the ChemPhys facilities is all the in-process type testing on command wherein the customer takes a sample and then suspends processing or does not start the manufacturing of propellants, motors, warhead and energetic materials. The facility provides all ballistic and physical properties data needed to support manufacturing, formulation and R&D.

State-of-the-art propellant properties test and evaluation require an integrated approach that reflects the interrelated phenomena that affects ballistic, mechanical, plume, and hazard properties. Modern solid propellants must meet an ever-increasing number of stringent performance requirements. Unlike the past, in which the motor designer specified primarily ballistic and mechanical property requirements, today's tactical propellants must conform to insensitive munitions, low smoke, plume signature, ballistic performance, and mechanical properties criteria. This trend will continue as future missile systems will must meet an increasingly complex set of mission requirements.

The material characterization facility also includes the explosive machining capability which has a complete spectrum of capabilities to machine bulk propellant or grain specimens for specialized requirements. The propellants are machined for the following reasons:

- For final fit into motor cases
- To create special grain shapes that cannot be cast or extruded
- To create test samples
- To excise propellant from motor cases.

The ChemPhys facility also includes the gun test facility at Rum Point. The gun test facility is mainly used to test projectiles and gun propellants for development and production programs.

Interconnectivity/Multi-Use of T&E Facility:

Ad defined by Data Call 13, this para is N/A.

Type of Test Supported:
The following are examples of the various items and tests performed at the facility:

- In-process 24 hour support of the nitrated ester production at the Biazzi Plant.
- In-process pot life measurement to determine cure time for Standard Missile Warhead including SR121, LOVA, Javelin, and MK 50 Torpedo.
- All in house JATO, rocket motor and warhead ballistic and mechanical properties including SR121, MK 128, 2.75 Rocket Motor program, and Cartridge Actuated Device (CAD)/Propellant Actuated Device (PAD) Underseat Rocket Motors.
- In-process support of RDX Lova gun propellant manufacturing.
- In-process surveillance mechanical properties testing and analysis for Standard Missile.
- In-process support for the Trident surveillance aging plan.
- All in house, in-process warhead mechanical properties testing including Standard Missile plastic-bonded explosives.
- In-process support of the R&D development of new air bag propellant.
- In-process DOT hazards classification testing necessary to classify and transport products for all programs.
- Whole spectrum support (i.e. in-process, engineering investigation, failure investigation, and production) of the Tri-Service CAD/PAD programs.
- Support of the Tomahawk engineering investigation.
- Safety surveillance of gun propellant and explosives.
- Classified foreign ordnance identification and characterization.
- Failure analysis on squibs, HMS DET Cord, MK 66, Sidewinder, Phoenix, and Underseat Rocket Catapult.
- Characterization of the lead-free propellant MK 66, AA7 and KU formulations. Wrote specifications and test procedures.
- New materials characterization for Pilot Plant including ADN and CL20.
- Developed analytical methods for replacement fuel for Otto Fuel.
- Responsible for conducting tests for IHDIV's Environmental Protection Agency (EPA) requirements.

Summary of Technical Capabilities:

a. Boring Mill: The boring mill is a machine used to cut propellants and explosives from a remote location. This machine is specially designed to accommodate larger propellant samples and rocket motors. The mill is completely versatile and its capabilities are almost unlimited. The equipment is fixed. The machine is set on a special foundation and machine parts are trued and leveled with respect to each other. Remote control circuitry is run with conduit to the two remote control rooms at the machining facility. The cost to replace the boring mill is $900,000. The boring mill weighs approximately 40,000 pounds. and takes up 2,400 cubic feet.

The boring mill completes our capabilities as a propellant and explosive machining facility. This machine was designed and installed concurrently with the building design that houses it. To remove or relocate would require possible machine redesign and/or facility modifications.

b. High-Rate Tester: The test system is used to perform static tests (tensile, compression) on propellant and other energetic materials to define the mechanical behavior of the materials. The machine was specially designed to simulate the stresses and strains propellants would encounter upon ignition or detonation. This is a fixed asset with many facility support systems that are very difficult to move and relocate. The effort would require extensive facility modifications. Support systems include: hydraulic pump system, compressed gas delivery system, liquid nitrogen delivery system, and video monitoring system. The replacement value of the equipment is $850,000. The equipment's gross weight is approximately 5,000 pounds and it takes up 3,000 cubic feet of space. We receive outside contracts from private industry and other military operations requesting the tests this equipment performs.

Keywords:
Chemical/Physical (ChemPhys)

GENERAL INFORMATION

Facility/Capability Title: Chemical/Physical Test Facility

Origin Date: 05/05/94

Service: "N" Organization/Activity: Indian Head Division, NSWC (IHDIV)

Location: Indian Head, Maryland

T&E Functional Area: Armament/Weapons

UIC = 00174

T&E Test Facility Category Measurement Facilities (MF)

	T&E	S&T	D&E	IE	T&D	OTHER = 100%
PERCENTAGE USE:	05%	30%	30%	35%	—	—
BREAKOUT BY T&E FUNCTIONAL AREA (%)						
Air Vehicles	—	—	—	—	—	—
Armament/Weapons	05%	30%	30%	35%	—	—
EC	—	—	—	—		
Other	—	—	—	—	—	—

Total in Breakout Must Equal "Percentage Use" On First Line

ADDITIONAL INFORMATION

Facility/Capability Title: Chemical/Physical Characterization Facility

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	50	47	47	47	47	47	47
Contractor	0	0	0	0	0	0	0
Total	50	47	47	47	47	47	47

Total Square Footage: 48,054 GSF

Test Area Square Footage: 48,054 GSF

Office Space Square Footage: None

Tonnage of Equipment: Unavailable

Volume of Equipment: Unavailable

Annual Maintenance Cost: $181,020

Estimated Moving Cost: Unavailable

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$178,000	99,000	0	0	0	0	0

205 R

Clean

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T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER **UIC:** 00174

Facility/Capability Title: N/A - IHDIV REPORTED NO TEST FACILITIES (IN THE ELECTRONIC COMBAT CATEGORY)

T&E Test Facility Category: N/A
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)		
Electro-Optical (EO)		
Infrared (IR)		
Millimeter Wave (MMW)		
Ultra Violet (UV)		
Laser		

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

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T&E JCSG CLARIFICATION - FORM #2
Armament/Weapons (HITL & ISTF)

Activity Title: INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER **UIC:** 00174

Facility/Capability Title: NON-DESTRUCTIVE TEST (NDT) FACILITY

T&E Test Facility Category: (HITL or ISTF) INDIHD'S TEST CAPABILITY DOES NOT MEET THE HITL OR ISTF DEFINITION

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	N/A	
Electro-Optical (EO)	N/A	
Infrared (IR)	N/A	
Millimeter Wave (MMW)	N/A	
Ultra Violet (UV)	N/A	
Laser	N/A	
MIDCOURSE INERTIAL/GPS (HITL)	N/A	

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

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T&E JCSG CLARIFICATION - FORM #2
Armament/Weapons (HITL & ISTF)

Activity Title: INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER **UIC:** 00174

Facility/Capability Title: PROPULSION/COMPONENT TEST FACILITY

T&E Test Facility Category: (HITL or ISTF) INDIV'S TEST CAPABILITY DOES NOT MEET THE HITL OR ISTF DEFINITION

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	N	A
Electro-Optical (EO)	N	A
Infrared (IR)	N	A
Millimeter Wave (MMW)	N	A
Ultra Violet (UV)	N	A
Laser	N	A
Mid Course Inertial/GPS (HITL)	N	A

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

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T&E JCSG CLARIFICATION - FORM #2
Armament/Weapons (HITL & ISTF)

Activity Title: INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER **UIC:** 00174

Facility/Capability Title: ENVIRONMENTAL TEST FACILITY

T&E Test Facility Category: (HITL or ISTF) INDIV'S TEST CAPABILITY DOES NOT MEET THE HITL OR ISTF DEFINITION

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	N	A
Electro-Optical (EO)	N	A
Infrared (IR)	N	A
Millimeter Wave (MMW)	N	A
Ultra Violet (UV)	N	A
Laser	N	A
Mid Course Inertial/GPS (HITL)	N	A

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

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T&E JCSG CLARIFICATION - FORM #2
Armament/Weapons (HITL & ISTF)

Activity Title: INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER **UIC:** 00174

Facility/Capability Title: CARTRIDGE ACTUATED DEVICE (CAD) TEST FACILITY

T&E Test Facility Category: (HITL or ISTF) INDIV'S TEST CAPABILITY DOES NOT MEET THE HITL OR ISTF DEFINITION

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	N	A
Electro-Optical (EO)	N	A
Infrared (IR)	N	A
Millimeter Wave (MMW)	N	A
Ultra Violet (UV)	N	A
Laser	N	A
Mid Course Inertial/GPS (HITL)	N	A

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

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T&E JCSG CLARIFICATION - FORM #2
Armament/Weapons (HITL & ISTF)

Activity Title: INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER **UIC:** 00174

Facility/Capability Title: CHEMICAL/PHYSICAL CHARACTERIZATION FACILI

T&E Test Facility Category: (HITL or ISTF) INDIV'S TEST CAPABILITY DOES NOT MEET THE HITL OR ISTF DEFINITION

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	N/A	
Electro-Optical (EO)	N/A	
Infrared (IR)	N/A	
Millimeter Wave (MMW)	N/A	
Ultra Violet (UV)	N/A	
Laser	N/A	
Mid Course Inertial/GPS (HITL)	N/A	

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

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T&E JCSG CLARIFICATION - FORM #3
Armament/Weapons (MF)

Activity Title: INDIAN HEAD DIVISION **UIC:** 00174

Facility/Capability Title: PROPULSION/COMPONENT TEST FACILITY

T&E Test Facility Category: **Measurement Facility (MF)**

Utilize the following table to indicate which of the indicated T&E testing can be conducted by this Measurement Facility.

* SEE NOTE

Spectra	Yes	No
Environmental T&E		X
Safety T&E		X
Warhead Performance T&E		X
Fuze T&E		X
Seeker, sensor and guidance/control performance and target/background signature characterization		X
Propulsion Performance T&E	X	
Airframe/aerodynamic/aerothermal performance T&E across subsonic, transonic, and hypersonic regimes		X
Gun Performance T&E		X
Electromagnetic Environmental Effects		X
Directed Energy		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

* IHDIV'S TEST CAPABILITIES ARE FOR PROPULSION COMPONENTS OF A WEAPON SYSTEM. WE DO NOT DO PLATFORM INTEGRATIONAL TESTING.

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T&E JCSG CLARIFICATION - FORM #3
Armament/Weapons (MF)

Activity Title: INDIAN HEAD DIVISION **UIC:** 00174

Facility/Capability Title: CHEMICAL/PHYSICAL CHARACTERIZATION FACILITY

T&E Test Facility Category: **Measurement Facility (MF)**

Utilize the following table to indicate which of the indicated T&E testing can be conducted by this Measurement Facility.

* SEE NOTE

Spectra	Yes	No
Environmental T&E		X
Safety T&E	X	
Warhead Performance T&E		X
Fuze T&E		X
Seeker, sensor and guidance/control performance and target/background signature characterization		X
Propulsion Performance T&E		X
Airframe/aerodynamic/aerothermal performance T&E across subsonic, transonic, and hypersonic regimes		X
Gun Performance T&E		X
Electromagnetic Environmental Effects		X
Directed Energy		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

* IHDIV'S TEST CAPABILITIES ARE FOR PROPULSION COMPONENTS OF A WEAPON SYSTEM. WE DO NOT DO PLATFORM INTEGRATIONAL TESTING.

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T&E JCSG CLARIFICATION - FORM #3
Armament/Weapons (MF)

Activity Title: INDIAN HEAD DIVISION **UIC:** 00174

Facility/Capability Title: ENVIRONMENTAL TEST FACILITY

T&E Test Facility Category: Measurement Facility (MF)

Utilize the following table to indicate which of the indicated T&E testing can be conducted by this Measurement Facility.

* SEE NOTE

Spectra	Yes	No
Environmental T&E	X	
Safety T&E		X
Warhead Performance T&E		X
Fuze T&E		X
Seeker, sensor and guidance/control performance and target/background signature characterization		X
Propulsion Performance T&E		X
Airframe/aerodynamic/aerothermal performance T&E across subsonic, transonic, and hypersonic regimes		X
Gun Performance T&E		X
Electromagnetic Environmental Effects		X
Directed Energy		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

* IHDIV'S TEST CAPABILITIES ARE FOR PROPULSION COMPONENTS OF A WEAPON SYSTEM. WE DO NOT DO PLATFORM INTEGRATIONAL TESTING.

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T&E JCSG CLARIFICATION - FORM #3
Armament/Weapons (MF)

Activity Title: INDIAN HEAD DIVISION **UIC:** 00174

Facility/Capability Title: CARTRIDGE ACTUATED DEVICE (CAD) TEST FACILITY

T&E Test Facility Category: **Measurement Facility (MF)**

Utilize the following table to indicate which of the indicated T&E testing can be conducted by this Measurement Facility.

* SEE NOTE

Spectra	Yes	No
Environmental T&E		X
Safety T&E		X
Warhead Performance T&E		X
Fuze T&E		X
Seeker, sensor and guidance/control performance and target/background signature characterization		X
Propulsion Performance T&E		X
Airframe/aerodynamic/aerothermal performance T&E across subsonic, transonic, and hypersonic regimes		X
Gun Performance T&E		X
Electromagnetic Environmental Effects		X
Directed Energy		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

* IHDIV'S TEST CAPABILITIES ARE FOR PROPULSION COMPONENTS OF A WEAPON SYSTEM. WE DO NOT DO PLATFORM INTEGRATIONAL TESTING.

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T&E JCSG CLARIFICATION - FORM #3
Armament/Weapons (MF)

Activity Title: INDIAN HEAD DIVISION **UIC:** 00174

Facility/Capability Title: NON-DESTRUCTIVE TEST (NDT) FACILITY

T&E Test Facility Category: **Measurement Facility (MF)**

Utilize the following table to indicate which of the indicated T&E testing can be conducted by this Measurement Facility.

* SEE NOTE

Spectra	Yes	No
Environmental T&E		X
Safety T&E		X
Warhead Performance T&E		X
Fuze T&E		X
Seeker, sensor and guidance/control performance and target/background signature characterization		X
Propulsion Performance T&E		X
Airframe/aerodynamic/aerothermal performance T&E across subsonic, transonic, and hypersonic regimes		X
Gun Performance T&E		X
Electromagnetic Environmental Effects		X
Directed Energy		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

* IHDIV'S TEST CAPABILITIES ARE FOR PROPULSION COMPONENTS OF A WEAPON SYSTEM. WE DO NOT DO PLATFORM INTEGRATIONAL TESTING.

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NSWC INDIAN HEAD
DATA CALL #13

JL
SEA 09X
5/13/94

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 David G. Maxwell
NAME (Please type or print)

Signature

Commander
Title

8 May 94
Date

Indian Head Division, NSWC
Activity

NSWC INDIAN HEAD
DATA CALL #13

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 David G. Maxwell
NAME (Please type or print)

Signature

Commander
Title

8 May 94
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)

RADM(SEL) D.P. SARGENT, JR.
NAME (Please type or print)

Signature

Commander
Title

5/11/94
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

G. R. STERNER
NAME (Please type or print)

Signature

~~Commander~~
Naval Sea Systems Command
Title

5-13-94
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)

J. B. Greene, Jr.
NAME (Please type or print)

Signature

ACTING
Title

20 MAY 1994
Date

DC #13 Clarification
Control #: EC-02A

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 — W. J. Newton
NAME (Please type or print) — Signature

COMMANDER — 12 Sept 1994
Title — 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)

RADM(SEL) D. P. SARGENT, JR. — D P Sargent
NAME (Please type or print) — Signature

COMMANDER — 9/14/94
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

G. R. Sterner
NAME (Please type or print) — Signature

G. R. STERNER
Commander
Naval Sea Systems Command
Title — 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

9/29/94
Title — Date

DC #13 Clarification
Control #: EC-02A

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	W. J. Newton
NAME (Please type or print)	Signature
COMMANDER	12 Sept 1994
Title	Date
INDIAN HEAD DIVISION, NSWC	
Activity	

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DATA CALL #13
INDIAN HEAD

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 of print

Signature

TECHNICAL DIRECTOR

Title

9/26/94

Date

NAVAL SURFACE WARFARE CENTER

Activity

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

MAJOR CLAIMANT LEVEL

NAME (Please type or print

G. R. STERNER

Signature

Commander

9/29/94

Title

Date

Naval Sea Systems Command

Activity

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

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

NAME (Please type of print

Signature

10/6/94

Title

Date

Revision
DC #13
23 Sep 94

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

23 September 1994
Date

INDIAN HEAD DIVISION, NSWC
Activity

Pages A-2, A-10, A-19, A-26, and A-33: Per RFC # AW-092, changed *Armament/Weapons Test Hours* for FYs 86-93 to show the hours the facility was in use or will be used, not total man-hours worked in the facility.

Document Separator

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DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Activity Identification: Please complete the following table, identifying the activity for which this response is being submitted.

Activity Name:	**Indian Head Division, NSWC**
UIC:	**00174**
Major Claimant:	**NAVSEA**

General Instructions/Background:

Information requested in this data call is required for use by the Base Structure Evaluation Committee (BSEC), in concert with information from other data calls, to analyze both the impact that potential closure or realignment actions would have on a local community and the impact that relocations of personnel would have on communities surrounding receiving activities. In addition to Cost of Base Realignment Actions (COBRA) analyses which incorporate standard Department of the Navy (DON) average cost factors, the BSEC will also be conducting more sophisticated economic and community infrastructure analyses requiring more precise, activity-specific data. For example, activity-specific salary rates are required to reflect differences in salary costs for activities with large concentrations of scientists and engineers and to address geographic differences in wage grade salary rates. Questions relating to "Community Infrastructure" are required to assist the BSEC in evaluating the ability of a community to absorb additional employees and functions as the result of relocation from a closing or realigning DON activity.

Due to the varied nature of potential sources which could be used to respond to the questions contained in this data call, a block appears after each question, requesting the identification of the source of data used to respond to the question. To complete this block, identify the source of the data provided, including the appropriate references for source documents, names and organizational titles of individuals providing information, etc. Completion of this "Source of Data" block is critical since some of the information requested may be available from a non-DoD source such as a published document from the local chamber of commerce, school board, etc. Certification of data obtained from a non-DoD source is then limited to certifying that the information contained in the data call response is an accurate and complete representation of the information obtained from the source. Records must be retained by the certifying official to clearly document the source of any non-DoD information submitted for this data call.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

General Instructions/Background (Continued):

The following notes are provided to further define terms and methodologies used in this data call. Please ensure that responses consistently follow this guidance:

Note 1: Throughout this data call, the term "**activity**" is used to refer to the DON installation that is the addressee for the data call.

Note 2: Periodically throughout this data call, questions will include the statement that the response should refer to the "**area defined in response to question 1.b., (page 3)**". Recognizing that in some large metropolitan areas employee residences may be scattered among many counties or states, **the scope of the "area defined" may be limited to the sum of:**

- **those counties that contain government (DoD) housing units (as identified in 1.b.2)), and,**

- **those counties closest to the activity which, in the aggregate, include the residences of 80% or more of the activity's employees.**

Note 3: Responses to questions referring to "**civilians**" in this data call should reflect **federal civil service appropriated fund employees.**

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

1. Workforce Data

a. Average Federal Civilian Salary Rate. Provide the projected FY 1996 average gross annual appropriated fund **civil service** salary rate for the activity identified as the addressee in this data call. This rate should include all cash payments to employees, and exclude non-cash personnel benefits such as employer retirement contributions, payments to former employees, etc.

Average Appropriated Fund Civilian Salary Rate:	$46,000/year

Source of Data (1.a. Salary Rate): CP-2 Submission from FY96/97 BFMB; NAVCOMPT Civilian Manpower Budget of 4/11/94; GS Salary Rate; W-2 Forms; President's Budget.

b. Location of Residence. Complete the following table to identify where employees live. Data should reflect current workforce.

1) Residency Table. Identify residency data, by county, for both military and civilian (civil service) employees working at the installation (including, for example, operational units that are homeported or stationed at the installation). For each county listed, also provide the estimated average distance from the activity, in miles, of employee residences and the estimated average length of time to commute one-way to work. For the purposes of displaying data in the table, any county(s) in which 1% or fewer of the activity's employees reside may be consolidated as a single line entry in the table, titled "Other".

County of Residence	State	No. of Employees Residing in County		Percentage of Total Employees	Average Distance From Base (Miles)	Average Duration of Commute (Minutes)
		Military	Civilian			
Charles	MD	272	1,890	74	10	18
Prince George's	MD	15	257	9	22	38
St Mary's	MD	4	144	5	36	62
Fairfax	VA	8	118	4	30	52
King George	VA	1	49	2	50	86
Other	N/A	16	162	6	N/A	N/A

= 100%

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

As discussed in Note 2 on Page 2, subsequent questions in the data call refer to the "area defined in response to question 1.b., (page 3)". In responding to these questions, the scope of the "area defined" may be limited to the sum of: a) those counties that contain government (DoD) housing units (as identified below), and, b) those counties closest to the activity which, in the aggregate, include the residences of 80% or more of the activity's employees.

2) **Location of Government (DoD) Housing.** If some employees of the base live in government housing, identify the county(s) where government housing is located:

Charles County, MD
Washington D.C. (1 at Bolling AFB)
Prince William County, VA (2)

Source of Data (1.b. 1) & 2) Residence Data): DCPS Employee Master Record; Staffing Plan; Employee Surveys

Note: **Throughout this data call the "area defined in response to question 1.b" includes Charles County only since 74% of all the employees and all but 3 of the military employees living in government housing live in Charles County. This is consistent with our response to BRAC 93 Data Call #38.**

c. **Nearest Metropolitan Area(s).** Identify all major metropolitan area(s) (i.e., population concentrations of 100,000 or more people) which are within 50 miles of the installation. If no major metropolitan area is within 50 miles of the base, then identify the nearest major metropolitan area(s) (100,000 or more people) and its distance(s) from the base.

City	County	Distance from base (miles)
Alexandria, VA	N/A	23
Washington, D. C.	N/A	30
Arlington, VA	Arlington	32

Source of Data (1.c. Metro Areas): Webster's II New Riverside University Dictionary; Maps of Maryland and Virginia

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

d. Age of Civilian Workforce. Complete the following table, identifying the age of the activity's **civil service** workforce.

Age Category	Number of Employees	Percentage of Employees
16 - 19 Years	7	1
20 - 24 Years	74	3
25 - 34 Years	797	30
35 - 44 Years	746	28
45 - 54 Years	759	29
55 - 64 Years	217	8
65 or Older	20	1
TOTAL	2,620	100 %

Source of Data (1.d.) Age Data): DCPDS; Employee Surveys

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

e. Education Level of Civilian Workforce

1) **Education Level Table.** Complete the following table, identifying the education level of the activity's **civil service** workforce.

Last School Year Completed	Number of Employees	Percentage of Employees
8th Grade or less	7	1
9th through 11th Grade	73	3
12th Grade or High School Equivalency	1,369	52
1-3 Years of College	296	11
4 Years of College (Bachelors Degree)	688	26
5 or More Years of College (Graduate Work)	187	7
TOTAL	2,620	100 %

2) **Degrees Achieved.** Complete the following table for the activity's **civil service** workforce. Identify the number of employees with each of the following degrees, etc. To avoid double counting, only identify the highest degree obtained by a worker (e.g., if an employee has both a Master's Degree and a Doctorate, only include the employee under the category "Doctorate").

Degree	Number of Civilian Employees
Terminal Occupation Program - Certificate of Completion, Diploma or Equivalent (for areas such as technicians, craftsmen, artisans, skilled operators, etc.)	6
Associate Degree	149
Bachelor Degree	717
Masters Degree	137
Doctorate	13

Source of Data (1.e.1) and 2) Education Level Data): DCPDS; Employee Surveys

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

f. Civilian Employment By Industry. Complete the following table to identify by "industry" the type of work performed by **civil service** employees at the activity. The intent of this table is to attempt to stratify the activity civilian workforce using the same categories of industries used to identify private sector employment. Employees should be categorized based on their primary duties. Additional information on categorization of private sector employment by industry can be found in the Office of Management and Budget Standard Industrial Classification (SIC) Manual. However, you do not need to obtain a copy of this publication to provide the data requested in this table.

Note the following specific guidance regarding the "Industry Type" codes in the first column of the table: Even though categories listed may not perfectly match the type of work performed by civilian employees, please attempt to assign each civilian employee to one of the "Industry Types" identified in the table. However, only use the Category 6, "Public Administration" sub-categories when none of the other categories apply. Retain supporting data used to construct this table at the activity-level, in case questions arise or additional information is required at some future time. **Leave shaded areas blank.**

Industry	SIC Codes	**No. of Civilians**	**% of Civilians**
1. **Agriculture, Forestry & Fishing**	01-09	1	0
2. **Construction** (includes facility maintenance and repair)	15-17	146	6
3. **Manufacturing** (includes Intermediate and Depot level maintenance)	20-39		
3a. Fabricated Metal Products (include ordnance, ammo, etc.)	34	16	1
3b. Aircraft (includes engines and missiles)	3721 et al	223	9
3c. Ships	3731	0	0
3d. Other Transportation (includes ground vehicles)	various	0	0
3e. Other Manufacturing not included in 3a. through 3d.	various	0	0
Sub-Total 3a. through 3e.	20-39	239	9

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Industry	SIC Codes	No. of Civilians	% of Civilians
4. Transportation/Communications/Utilities	40-49		
4a. Railroad Transportation	40	**0**	**0**
4b. Motor Freight Transportation & Warehousing (includes supply services)	42	**81**	**3**
4c. Water Transportation (includes organizational level maintenance)	44	**0**	**0**
4d. Air Transportation (includes organizational level maintenance)	45	**0**	**0**
4e. Other Transportation Services (includes organizational level maintenance)	47	**1**	**0**
4f. Communications	48	**13**	**0**
4g. Utilities	49	**66**	**3**
Sub-Total 4a. through 4g.	40-49	**161**	**6**
5. Services	70-89		
5a. Lodging Services	70	**0**	**0**
5b. Personal Services (includes laundry and funeral services)	72	**0**	**0**
5c. Business Services (includes mail, security guards, pest control, photography, janitorial and ADP services)	73	**166**	**6**
5d. Automotive Repair and Services	75	**0**	**0**
5e. Other Misc. Repair Services	76	**0**	**0**
5f. Motion Pictures	78	**0**	**0**
5g. Amusement and Recreation Services	79	**24**	**1**
5h. Health Services	80	**13**	**0**
5i. Legal Services	81	**3**	**0**

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Industry	SIC Codes	No. of Civilians	% of Civilians
5j. Educational Services	82	**2**	**0**
5k. Social Services	83	**0**	**0**
5l. Museums	84	**0**	**0**
5m. Engineering, Accounting, Research & Related Services (includes RDT&E, ISE, etc.)	87	**1,383**	**53**
5n. Other Misc. Services	89	**186**	**7**
Sub-Total 5a. through 5n.:	70-89	**1,777**	**68**
6. Public Administration	91-97		
6a. Executive and General Government, Except Finance	91	**158**	**6**
6b. Justice, Public Order & Safety (includes police, firefighting and emergency management)	92	**80**	**3**
6c. Public Finance	93	**50**	**2**
6d. Environmental Quality and Housing Programs	95	**8**	**0**
Sub-Total 6a. through 6d.	91-97	**296**	**11**
TOTAL		**2,620**	**100 %**

Source of Data (1.f.) Classification By Industry Data): Corporate Operations Department - IHDIV; Staffing Plan; Employee Surveys; Personal Knowledge; DCPDS

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

g. Civilian Employment by Occupation. Complete the following table to identify the types of "occupations" performed by **civil service** employees at the activity. Employees should be categorized based on their primary duties. Additional information on categorization of employment by occupation can be found in the Department of Labor Occupational Outlook Handbook. However, you do not need to obtain a copy of this publication to provide the data requested in this table.

Note the following specific guidance regarding the "Occupation Type" codes in the first column of the table: Even though categories listed may not perfectly match the type of work performed by civilian employees, please attempt to assign each civilian employee to one of the "Occupation Types" identified in the table. Refer to the descriptions immediately following this table for more information on the various occupational categories. Retain supporting data used to construct this table at the activity-level, in case questions arise or additional information is required at some future time. **Leave shaded areas blank.**

Occupation	Number of Civilian Employees	Percent of Civilian Employees
1. Executive, Administrative and Management	497	19
2. Professional Specialty		
2a. Engineers	655	25
2b. Architects and Surveyors	1	0
2c. Computer, Mathematical & Operations Research	185	7
2d. Life Scientists	1	0
2e. Physical Scientists	43	2
2f. Lawyers and Judges	2	0
2g. Social Scientists & Urban Planners	0	0
2h. Social & Recreation Workers	0	0
2i. Religious Workers	0	0
2j. Teachers, Librarians & Counselors	4	0
2k. Health Diagnosing Practitioners (Doctors)	1	0
2l. Health Assessment & Treating(Nurses, Therapists, Pharmacists, Nutritionists, etc.)	2	0

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Occupation	Number of Civilian Employees	Percent of Civilian Employees
2m. Communications	0	0
2n. Visual Arts	1	0
Sub-Total 2a. through 2n.:	895	34
3. Technicians and Related Support		
3a. Health Technologists and Technicians	1	0
3b. Other Technologists	425	16
Sub-Total 3a. and 3b.:	426	16
4. Administrative Support & Clerical	222	8
5. Services		
5a. Protective Services (includes guards, firefighters, police)	68	3
5b. Food Preparation & Service	0	0
5c. Dental/Medical Assistants/Aides	2	0
5d. Personal Service & Building & Grounds Services (includes janitorial, grounds maintenance, child care workers)	0	0
Sub-Total 5a. through 5d.	70	3
6. Agricultural, Forestry & Fishing	0	0
7. Mechanics, Installers and Repairers	108	4
8. Construction Trades	23	1
9. Production Occupations	376	14
10. Transportation & Material Moving	3	0
11. Handlers, Equipment Cleaners, Helpers and Laborers (not included elsewhere)	0	0
TOTAL	2,620	100 %

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Source of Data (1.g.) Classification By Occupation Data): Corporate Operations Department - IHDIV; Staffing Plan; Employee Surveys; Personal Knowledge; DCPDS

Description of Occupational Categories used in Table 1.g. The following list identifies public and private sector occupations included in each of the major occupational categories used in the table. Refer to these examples as a guide in determining where to allocate **appropriated fund civil service jobs** at the activity.

1. **Executive, Administrative and Management.** Accountants and auditors; administrative services managers; budget analysts; construction and building inspectors; construction contractors and managers; cost estimators; education administrators; employment interviewers; engineering, science and data processing managers; financial managers; general managers and top executives; chief executives and legislators; health services managers; hotel managers and assistants; industrial production managers; inspectors and compliance officers, except construction; management analysts and consultants; marketing, advertising and public relations managers; personnel, training and labor relations specialists and managers; property and real estate managers; purchasing agents and managers; restaurant and food service managers; underwriters; wholesale and retail buyers and merchandise managers.
2. **Professional Specialty.** Use sub-headings provided.
3. **Technicians and Related Support.** Health Technologists and Technicians sub-category - self-explanatory. Other Technologists sub-category includes aircraft pilots; air traffic controllers; broadcast technicians; computer programmers; drafters; engineering technicians; library technicians; paralegals; science technicians; numerical control tool programmers.
4. **Administrative Support & Clerical.** Adjusters, investigators and collectors; bank tellers; clerical supervisors and managers; computer and peripheral equipment operators; credit clerks and authorizers; general office clerks; information clerks; mail clerks and messengers; material recording, scheduling, dispatching and distributing; postal clerks and mail carriers; records clerks; secretaries; stenographers and court reporters; teacher aides; telephone, telegraph and teletype operators; typists, word processors and data entry keyers.
5. **Services.** Use sub-headings provided.
6. **Agricultural, Forestry & Fishing.** Self explanatory.
7. **Mechanics, Installers and Repairers.**Aircraft mechanics and engine specialists; automotive body repairers; automotive mechanics; diesel mechanics; electronic equipment repairers; elevator installers and repairers; farm equipment mechanics; general maintenance mechanics; heating, air conditioning and refrigeration technicians; home appliance and power tool repairers, industrial machinery repairers; line installers and cable splicers; millwrights; mobile heavy equipment mechanics; motorcycle, boat and small engine mechanics; musical instrument repairers and tuners; vending machine servicers and repairers.
8. **Construction Trades.** Bricklayers and stonemasons; carpenters; carpet installers; concrete masons and terrazzo workers; drywall workers and lathers; electricians; glaziers; highway maintenance; insulation workers; painters and paperhangers; plasterers; plumbers and pipefitters; roofers; sheet metal workers; structural and reinforcing ironworkers; tilesetters.
9. **Production Occupations.** Assemblers; food processing occupations; inspectors, testers and graders; metalworking and plastics-working occupations; plant and systems operators, printing occupations; textile, apparel and furnishings occupations; woodworking occupations; miscellaneous production operations.
10. **Transportation & Material Moving.** Busdrivers; material moving equipment operators; rail transportation occupations; truckdrivers; water transportation occupations.
11. **Handlers, Equipment Cleaners, Helpers and Laborers** (not included elsewhere). Entry level jobs not requiring significant training.

h. Employment of Military Spouses. Complete the following table to provide estimated information concerning **military spouses** who are also employed in the area defined in response to question 1.b., above. **Do not fill in shaded area.**

1. Percentage of Military Employees Who Are Married:	**63%**
2. Percentage of Military Spouses Who Work Outside of the Home:	**44%**
3. Break out of Spouses' Location of Employment (Total of rows 3a. through 3d. should equal 100% and reflect the number of spouses used in the calculation of the "Percentage of Spouses Who Work Outside of the Home".	
3a. Employed "On-Base" - Appropriated Fund:	**2**
3b. Employed "On-Base" - Non-Appropriated Fund:	**1**
3c. Employed "Off-Base" - Federal Employment:	**8**
3d. Employed "Off-Base" - Other Than Federal Employment	**89**

Source of Data (1.h.) Spouse Employment Data): Military Records; Survey; Personal Knowledge

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

2. Infrastructure Data. For each element of community infrastructure identified in the two tables below, rate the community's ability to accommodate the relocation of additional functions and personnel to your activity. Please complete each of the three columns listed in the table, reflecting the impact of various levels of increase (20%, 50% and 100%) in the number of personnel working at the activity (and their associated families). In ranking each category, use one of the following three ratings:

A - Growth can be accommodated with little or no adverse impact to existing community infrastructure and at little or no additional expense.

B - Growth can be accommodated, but will require some investment to improve and/or expand existing community infrastructure.

C - Growth either cannot be accommodated due to physical/environmental limitations or would require substantial investment in community infrastructure improvements.

Table 2.a., "Local Communities": This first table refers to the local community (i.e., the community in which the base is located) and its ability to meet the increased requirements of the installation.

Table 2.b., "Economic Region": This second table asks for an assessment of the infrastructure of the economic region (those counties identified in response to question 1.b., (page 3) - taken in the aggregate) and its ability to meet the needs of additional employees and their families moving into the area.

For both tables, annotate with an asterisk (*) any categories which are wholly supported on-base, i.e., are not provided by the local community. These categories should also receive an A-B-C rating. Answers for these "wholly supported on-base" categories should refer to base infrastructure rather than community infrastructure.

a. Table A: Ability of the local community to meet the expanded needs of the base.

1) Using the **A - B - C** rating system described above, complete the table below.

Category	20% Increase	50% Increase	100% Increase
Off-Base Housing	A	A	A
Schools - Public	B	B	B
Schools - Private	A	A	A
Public Transportation - Roadways	A	A	A
Public Transportation - Buses/Subways [1]	A	A	B
Public Transportation - Rail [2]	N/A	N/A	N/A
Fire Protection	A	A	B
Police	A	A	B
Health Care Facilities	A	A	A
Utilities:			
Water Supply *	A	A	A
Water Distribution *	A	A	A
Energy Supply	A	A	A
Energy Distribution	A	A	A
Wastewater Collection *	A	A	A
Wastewater Treatment *	A	A	A
Storm Water Collection *	A	A	A
Solid Waste Collection and Disposal	A	A	A
Hazardous/Toxic Waste Disposal	A	A	A
Recreational Activities	A	A	B

1. Public Bus Service is provided from various commuter lots throughout Charles County to the Washington Metropolitan Area.

2. Charles County has no public rail transportation system.

Remember to mark with an asterisk any categories which are wholly supported on-base.

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2) For each rating of "C" identified in the table on the preceding page, attach a brief narrative explanation of the types and magnitude of improvements required and/or the nature of any barriers that preclude expansion.

N/A

Source of Data (2.a. 1) & 2) - Local Community Table): Mr. Steve Magoon, Charles County Department of Planning & Growth Management

b. Table B: Ability of the region described in the response to question 1.b. (page 3) (taken in the aggregate) to meet the needs of additional employees and their families relocating into the area.

1) Using the **A - B - C** rating system described above, complete the table below.

Category	20% Increase	50% Increase	100% Increase
Off-Base Housing	A	A	A
Schools - Public	B	B	B
Schools - Private	A	A	A
Public Transportation - Roadways	A	A	A
Public Transportation - Buses/Subways [1]	A	A	B
Public Transportation - Rail [2]	N/A	N/A	N/A
Fire Protection	A	A	B
Police	A	A	B
Health Care Facilities	A	A	A
Utilities:			
Water Supply *	A	A	A
Water Distribution *	A	A	A
Energy Supply	A	A	A
Energy Distribution	A	A	A
Wastewater Collection *	A	A	A
Wastewater Treatment *	A	A	A
Storm Water Collection *	A	A	A
Solid Waste Collection and Disposal	A	A	A
Hazardous/Toxic Waste Disposal	A	A	A
Recreation Facilities	A	A	B

1. Public Bus Service is provided from various commuter lots throughout Charles County to the Washington Metropolitan Area.
2. Charles County has no public rail transportation system.

Remember to mark with an asterisk any categories which are wholly supported on-base.

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2) For each rating of "C" identified in the table on the preceding page, attach a brief narrative explanation of the types and magnitude of improvements required and/or the nature of any barriers that preclude expansion.

N/A

Source of Data (2.b. 1) & 2) - Regional Table): Mr. Steve Magoon, Charles County Department of Planning & Growth Management

3. Public Facilities Data:

a. **Off-Base Housing Availability.** For the counties identified in the response to question 1.b. (page 3), in the aggregate, estimate the current average vacancy rate for community housing. Use current data or information identified on the latest family housing market analysis. For each of the categories listed (rental units and units for sale), combine single family homes, condominiums, townhouses, mobile homes, etc., into a single rate:

Rental Units: **7%**

Units for Sale: **5%**

By the year 2,000 we project an additional 1,163 dwelling units available in Western Charles County (the 7th election district) and 12,000 throughout Charles County.

Source of Data (3.a. Off-Base Housing): Ms. Susan Wilkinson - St. Mary's County Department of Economic and Community Development; Mr. Steve Magoon, Charles County Department of Planning & Growth Management

b. **Education.**

1) Information is required on the current capacity and enrollment levels of school systems serving employees of the activity. Information should be keyed to the counties identified in the response to question 1.b. (page 3).

School District	County	Number of Schools			Enrollment		Pupil-to-Teacher Ratio		Does School District Serve Gov't Housing Units? *
		Element-ary	Middle	High	Current	Max. Capacity	Current	Max. Ratio	
All District Combined - Public	Charles	18	6	5	19,772a	21,426	20:1 K 25:1	30:1	Yes
All Districts Combined - Private	Charles	b	b	b	2,183	2,545	14:1	20:1	Yes

* Answer "Yes" in this column if the school district in question enrolls students who reside in government housing.

a. Public School counts are full-time equivalents.
b. One school is K; One school is PreK and K; One school is Pre K through 4th; Three schools are PreK through 5th; Five schools are PreK through 8th; One school is K through 8th; One school is PreK through 12th. Total of 13 private schools.

Source of Data (3.b.1) Education Table): Ms. Linda Dent Brown - Charles County Board of Education; Ms. Susan Wilkinson - St. Mary's County Department of Economic and Community Development; Corporate Operations Department - IHDIV.

2) Are there any on-base "Section 6" Schools? If so, identify number of schools and current enrollment.

No

Source of Data (3.b.2) On-Base Schools): Corporate Operations Department - IHDIV

3) For the counties identified in the response to question 1.b. (page 3), in the aggregate, list the names of undergraduate and graduate colleges and universities which offer certificates, Associate, Bachelor or Graduate degrees :

Charles County Community College, University of Maryland - University College, George Washington University (Satellite Program)

Source of Data (3.b.3) Colleges): Corporate Operations Department - IHDIV

4) For the counties identified in the response to question 1.b. (page 3), in the aggregate, list the names and major curriculums of vocational/technical training schools:

Vocational education is provided through the Business and Home Economics programs in all five high schools, a graphic arts program at McDonough High School, and a full range of technical and industrial programs at the Vocational-Technical Center. There are four Home Economics and Technology Educations programs in the middle and high schools. The Vocational-Technical Center provides eighteen programs. The students are transported from their home high schools to the center for half-days of vocational-technical instruction. Also housed at the center are: a vocational education evaluation unit, a support service team for handicapped and disadvantaged, as well as counseling and job placement services.

Source of Data (3.b. Comprehensive Plan for School Facilities - Board of Education of Charles County

c. **Transportation.**

1) Is the activity served by public transportation?

	Yes	No
Bus:		X
Rail:		X
Subway:		X
Ferry:		X

Source of Data (3.c.1) Transportation): Corporate Operations Department - IHDIV

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2) Identify the location of the nearest passenger railroad station (long distance rail service, not commuter service within a city) and the distance from the activity to the station.

Alexandria, VA - 26 miles

Source of Data (3.c.2) Transportation): Corporate Operations Department - IHDIV

3) Identify the name and location of the nearest commercial airport (with public carriers, e.g., USAIR, United, etc.) and the distance from the activity to the airport.

Washington National Airport (DCA) - 32 miles

Source of Data (3.c.3) Transportation): Corporate Operations Department - IHDIV

4) How many carriers are available at this airport?

16

Source of Data (3.c.4) Transportation): Mr. Mark Baldy - DCA Airport Manager's Office

5) What is the Interstate route number and distance, in miles, from the activity to the nearest Interstate highway?

U.S. 301 - 14 miles

Source of Data (3.c.5) Transportation): Corporate Operations Department - IHDIV

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6) Access to Base:

a) Describe the quality and capacity of the road systems providing access to the base, specifically during peak periods. (Include both information on the area surrounding the base and information on access to the base, e.g., numbers of gates, congestion problems, etc.)

Charles County is served by almost 500 miles of highways. Skeletal framework of the system is the arterial and collector highways. U. S. Route 301 carries uninterrupted traffic from origin to destination. The intermediate arterial MD 210, the main access to the Base is primarily used as a net exporter of commuters to Washington, DC. Travel into Charles County is evenly distributed and has less impact on community travel.

Access to the base is through a single entrance - the Main gate. MD 210 provides direct access to the base as it terminates at the main gate. There are no congestions problems accessing the base.

b) Do access roads transit residential neighborhoods?

No

c) Are there any easements that preclude expansion of the access road system?

No

d) Are there any man-made barriers that inhibit traffic flow (e.g., draw bridges, etc.)?

No

Source of Data (3.c.6) Transportation): Mr. Steve Magoon, Charles County Department of Planning & Growth Management; Charles County Comprehensive Plan; Corporate Operations Department - IHDIV.

d. **Fire Protection/Hazardous Materials Incidents.** Does the activity have an agreement with the local community for fire protection or hazardous materials incidents? Explain the nature of the agreement and identify the provider of the service.

Per DoD Instruction 6055.6, activities are encouraged to enter into firefighting mutual aid agreements with local agencies. The Indian Head Division (IHDIV) currently has a mutual aid agreement with Charles County Volunteer Fire Department.

The agreement authorizes the IHDIV to provide additional firefighting and emergency medical services (personnel and apparatus) to the local community. This agreement also authorizes the local fire companies to respond to the IHDIV when requested. Periodically, the Company Chiefs from the local agencies meet to discuss operations and procedures during emergency situations.

Hazardous materials incidents/responses are not included in the current mutual aid agreement. Under the Charles County Emergency Management Program, hazardous materials incidents/accidents are addressed under their own procedures. However, under DoN Emergency Management Program, local agencies may request assistance or additional support from the activity Commander at any time.

We have also developed and proved a Hazardous Materials response capability including extensive personnel training, in-house construction and equipping of a spill response vehicle, and the acquisition of a complete inventory of spill and emergency response supplies and equipment.

Source of Data (3.d. Fire/Hazmat): Security Department - IHDIV

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e. **Police Protection.**

1) What is the level of legislative jurisdiction held by the installation?
Exclusive

2) If there is more than one level of legislative jurisdiction for installation property, provide a brief narrative description of the areas covered by each level of legislative jurisdiction and whether there are separate agreements for local law enforcement protection.

Exclusive jurisdiction for the entire Activity. Concurrent with civil authorities for 17.5 acres of housing located in LaPlata, MD and Waldorf, MD.

3) Does the activity have a specific written agreement with local law enforcement concerning the provision of local police protection?

Memorandum of Agreement with Charles County Sheriff's Department for law enforcement. Memorandum of Understanding with Charles County Youth Division for battered spouse, child abuse, etc.

4) If agreements exist with more than one local law enforcement entity, provide a brief narrative description of whom the agreement is with and what services are covered.

We have a verbal agreement with Maryland State Police which provides back-up service for emergencies.

5) If military law enforcement officials are routinely augmented by officials of other federal agencies (BLM, Forest Service, etc.), identify any written agreements covering such services and briefly describe the level of support received.

None

Source of Data (3.e. 1) - 5) - Police): Security Department - IHDIV

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f. **Utilities.**

1) Does the activity have an agreement with the local community for water, refuse disposal, power or any other utility requirements? Explain the nature of the agreement and identify the provider of the service.

IHDIV is self sufficient in the utility area (water, waste water treatment, steam, compressed air, river water) with the exception of power. IHDIV purchases roughly 30 % of its electrical needs from PEPCO and produces the rest.

2) Has the activity been subject to water rationing or interruption of delivery during the last five years? If so, identify time period during which rationing existed and the restrictions imposed. Were activity operations affected by these situations? If so, explain extent of impact.

Since IHDIV is self sufficient in potable water area, it is not subject to any water rationing or interruption of delivery. There is no adverse affect on the activity's operations.

3) Has the activity been subject to any other significant disruptions in utility service, e.g., electrical "brown outs", "rolling black outs", etc., during the last five years? If so, identify time period(s) covered and extent/nature of restrictions/disruption. Were activity operations affected by these situations? If so, explain extent of impact.

There have been some significant disruptions in PEPCO electrical service in the last 5 years. However, activity operations were not affected. Auxiliary equipment was utilized to satisfy the activity's electrical demand. This occurs approximately 1 to 2 times per year. (Specific dates and durations of these disruptions are not readily available. This would require extensive research of volumes of log books). There have been no brownouts or rolling black outs at this activity.

Source of Data (3.f. 1) - 3) Utilities): Public Works Department, Utilities Division - IHDIV

4. **Business Profile.** List the top ten employers in the geographic area defined by your response to question 1.b. (page 3), taken in the aggregate, (include your activity, if appropriate):

Employer	Product/Service	No. of Employees
1. Indian Head Division, NSWC	Energetics	3,000
2. Charles County Board of Education	Public Education	2,600
3. Charles County Community College	College Education	649
4. Physicians Memorial Hospital	130 Bed Hospital	400
5. Charles County Government	Local Government	350
6. Chaney Enterprises	Sand, Gravel, Block, and Concrete	350
7. Southern Maryland Electric Cooperative (SMECO)	Electric Power Generation, Transmission, and Distribution	277 (450 Total)
8. Southern Maryland Oil	Sale of Fuel Oils	240 (780 Total)
9. Potomac Electric Power Company	Electric Power Generation	210
10. Automated Graphic Systems	Printing	200

Source of Data (4. Business Profile): Charles County Economic Development Commission; Corporate Operations Department - IHDIV

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5. **Other Socio-Economic Impacts.** For each of the following areas, describe other recent (past 5 years), on-going or projected economic impacts (both positive and negative) on the geographic region defined by your response to question 1.b. (page 3), in the aggregate:

a. Loss of Major Employers: **Only one major employer has gone under in the last five years. That company being W&W Fabricators in La Plata, MD. The company employed 65 people and specialized in metal fabrication. The building has since been purchased and has a new owner and tenant.**

b. Introduction of New Businesses/Technologies: **The recent recession created many small technology based start-up companies in the area with technologies ranging from software development to multimedia. Retail has continued to dominate the new business sector primarily due to the St Charles Towne Center Mall and continuing population growth.**

c. Natural Disasters: **None**

d. Overall Economic Trends: **Retail will continue to remain strong with increased growth in the service sector. Office market picking up briskly with some new building starts. Industrial still somewhat weak with very little available space for new industrial. As economy "picks up" this will be resolved with speculative building of industrial space.**

Source of Data (5. Other Socio/Econ): Mr. Chris Savage - Charles County Economic Development Commission

6. Other. Identify any contributions of your activity to the local community not discussed elsewhere in this response.

The Indian Head Division is Charles County's largest employer and actively contributes to the community. The IHDIV maintains a positive relationship with the community by contributing time and resources to various organizations and programs. Indian Head is an active member in various and numerous Charles County committees and organizations and is heavily involved in the County's educational programs and community events as shown below:

COMMITTEES/ORGANIZATIONS

* **Western Charles County Business Association**
* **Charles County Chamber of Commerce**
* **Charles County Youth Division**
* **Charles County Government**
* **Economic Development Commission of Charles County**
* **Charles County Board of Education**
* **Southern Maryland Education Consortium**
* **La Plata Rotary Club**
* **United Way for Charles County**
* **Charles County for Christmas in April**
* **Tri-County Council for Southern Maryland**
* **Restoration Advisory Board**

EDUCATIONAL PROGRAMS

* **Community Action Program (see description below)**
* **Natural Resources Education Center**
* **Chicamuxen Creek Watchable Wildlife Area**

COMMUNITY EVENTS:

* **Earth Day**
* **Autumn Festival**
* **Southern Maryland Wildlife Festival**
* **Charles County Fair**
* **Charles County Trade Fair and Market Place**
* **The Great Southern Maryland Recycling and Eco Fair**

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Community Action Program

Indian Head has a partnership with the schools through the Division's Community Action Program (CAP). This program, which began in 1978, is supported by a cadre of over 200 Division employees who volunteer their services. The Program has several "modules," each focused on a particular aspect of education. The basic module is career education, particularly in the science and engineering fields. Another module arranges for employee volunteers to serve as advisors and judges during the county-wide Science Fairs. Volunteers in the literacy module extend our efforts into the adult community by serving as literacy tutors for non-readers. The newest CAP module, Technology Assistance, is a partnership with the Charles County Public Schools to improve the learning environment for our children and their teachers. Tech Assist teams will provide excess DoD computer equipment to the schools, install it, train teachers and students in the use of the equipment and software, repair equipment as necessary, and provide advice and guidance. Eventually, the program will expand to networking the schools and providing assistance to the tri-county area. Finally, the Professional Development Council, a group of non-supervisory personnel in a development program, also conducts career seminars and hosts tours during an "Engineering Buddy Day" for engineering students of Charles County Community College and the University of Maryland.

Source of Data (6. Other): **Public Affairs Office - IHDIV; Corporate operations Department - IHDIV**

DC #65

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. D. G. MAXWELL
NAME (Please type or print)

Signature

COMMANDER
Title

14 July 94
Date

INDIAN HEAD DIVISION, NSWC
Activity

DC #65

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. D. G. MAXWELL

NAME (Please type or print)

COMMANDER

Title

INDIAN HEAD DIVISION, NSWC

Activity

Signature

14 July 94

Date

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

NEXT ECHELON LEVEL (if applicable)

RADM(SEL) D. P. SARGENT, JR.

NAME (Please type or print)

COMMANDER

Title

NAVAL SURFACE WARFARE CENTER

Activity

Signature

7/19/94

Date

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

MAJOR CLAIMANT LEVEL

G. R. STERNER

NAME (Please type or print)

Title [illegible]

[illegible] Sea Systems Command

Activity

Signature

7/25/94

Date

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

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

W. A. EARNER

NAME (Please type or print)

Title

Signature

8/6/94

Date