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DATA CALL 64
CONSTRUCTION COST AVOIDANCES

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

Installation Name:	**BAYVIEW ID NSURFWARDENDET**
Unit Identification Code (UIC):	**N62182**
Major Claimant:	**NAVSEA**

Project FY	Project No.	Description	Appn	Project Cost Avoid ($000)
1999	210	SHIPS MODEL ENGR & SPT FAC	MCON	7,230
		Sub-Total - 1999		7,230
		Grand Total		7,230

(Revised 9 Dec 94) *(* - Cost Avoidance is less than project programmed amount)*

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

MAJOR CLAIMANT LEVEL

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

Signature

COMMANDER
Title

12/9/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

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

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

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

Signature

Title

12/9/94
Date

BRAC-95 CERTIFICATION

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

MICHAEL D. THORNTON
NAME (Please type or print)

CDR, CEC, USN
Title

MILCON PROGRAMMING DIVISION
Division

NAVAL FACILITIES ENGINEERING COMMAND
Activity

MD Thornton
Signature

9 Dec 94
Date

Document Separator

DATA CALL 64

CONSTRUCTION COST AVOIDANCES

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

Installation Name:	BAYVIEW ID NSURFWARDENDET
Unit Identification Code (UIC):	N62182 #176
Major Claimant:	NAVSEA

Project FY	Project No.	Description	Appn	Project Cost Avoid ($000)
1999	210	SHIPS MODEL ENGR & SPT FAC	MCON	7,230
		Sub-Total - 1999		7,230
		Grand Total		7,230

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

MAJOR CLAIMANT LEVEL

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

Signature

COMMANDER
Title

7/13/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

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

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

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

Signature

Title

7/18/94
Date

BRAC-95 CERTIFICATION

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

MARK E. DONALDSON
NAME (Please type or print)

Signature

CDR, CEC, USN
Title

12 July 1994
Date

MILCON PROGRAMMING DIVISION
Division

FACILITIES PROGRAMMING AND CONSTRUCTION DIRECTORATE
Department

NAVAL FACILITIES ENGINEERING COMMAND
Activity

Enclosure (1)

BRAC DATA CALL NUMBER 64
CONSTRUCTION COST AVOIDANCE

Information on cost avoidance which could be realized as the result of cancellation of on-going or programmed construction projects is provided in Tables 1 (MILCON) and 2 (FAMILY HOUSING). These tables list MILCON/FAMILY HOUSING projects which fall within the following categories:

1. all programmed construction projects included in the FY1996 - 2001 MILCON/FAMILY HOUSING Project List,

2. all programmed projects from FY1995 or earlier for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995, and,

3. all programmed BRAC MILCON/FAMILY HOUSING projects for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995.

Projects listed in Tables 1 and 2 with potential cost avoidance were determined as meeting any one of the following criteria:

Projects with projected Work in Place (WIP) less than 75% of the Current Working Estimate (CWE) as of 1 OCT 1995 .

Projects with projected completion dates or Beneficial Occupancy Dates subsequent to 31 March 1996.

Projects with projected CWE amount greater than $15M.

The estimated cost avoidance for projects terminated after construction award would be approximately one-half of the CWE for the remaining work. Close-out, claims and other termination costs can consume the other half.

Document Separator

CAPACITY ANALYSIS:
DATA CALL #4 WORK SHEET FOR
TECHNICAL CENTER or LABORATORY: **Carderock Division**
Naval Surface Warfare Center
Bayview Site

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TAB A: Ship Berthing Capacity
TAB B: Operational Airfield Capacity
TAB C: Depot Level Maintenance Capacity
TAB D: Ordnance Storage Capacity

**********If any responses are classified, attach a separate classified annex. **********

9 May 1994

0. Background.

The work at Bayview is scientifically based on general principles published in books and Professional Society Journals by the Signatures Directorate's senior staff. The overall technical responsibility rests with the Head of the Ship Signatures Directorate, a member of the National Academy of Engineering. The staff at Bayview generally has advanced academic degrees as well as at-sea experience acquired during submarine acoustic trials executed by Carderock Division personnel. Examples of products in the Fleet and in new designs are: GRP sonar domes and neoprene boots, special hull treatments and their arrangements on the submarine for reductions in radiated noise and target strength, hull transfer functions for monitoring transients and own ship radiated noise, and discovery of exploitable phenomena in Low Frequency Acoustics.

Unpowered, buoyantly propelled 1/4 scale models of SSN 637, SSN 688 and SSN 21 class submarines have provided essential design data for sonar self-noise control at high speeds. A 1/4 scale powered model of SSN 21 has been instrumental in developing a new propulsor of exceptional performance. Currently, this vehicle is used for developing a propulsor for the NSSN, intended to meet SSN 21 goals at less than half the cost. The Lake's unique environment is also ideally suited for evaluating the performance of Towed Arrays in cold water.

The Intermediate Scale Measurement System, currently in the final stages of installation, will provide new technologies leading to integrated hull/internal structural arrangements which combine low cost with intrinsically effective reductions of radiated and Target Strength signatures.

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 Bayview Site (UIC 62182)

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	6630	6,376	0	14	14.1	14.9
87	15,118	12,535	4,428	25	23.4	59.2
88	4,654	3,897	4,940	23	23.4	89.3
89	3,256	3,144	3,188	29	27.5	70.7
90	3,525	4,233	3,220	26	26.0	69.3
91	3,476	4,127	2,866	34	32.6	63.1
92	4,246	4,581	2,809	32	32.7	73.6
93	5,599	7,518	2,613	35	38.5	70.9
94	7,733			68(1)		
95	7,588			60(2)		
96	7,506			57		
97	7,064			51		

(1) Increase in FY 94 is due to final installation and check out of Intermediate Scale Measurement Systems (ISMS).
(2) Increase over FY 93 is due to operation and maintenance of ISMS.

Table 1.2 Historical and Projected Workload for Detachments of _____
(UIC _____)
NOT APPLICABLE TO THIS SITE

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						
87						
88						
89						
90						
91						
92						
93						
94						
95						
96						
97						

TABLE 1.3 FY 1993 BREAKOUT OF FUNDS BUDGETED for Acoustic Research Detachment, Bayview Site (UIC 62182)

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
Navy Labs		57		606	63						88		20		
NAVSEA				900	3,162						409				
ONR		180		1,986											
ONI								60							

TABLE 1.3 FY 1994 BREAKOUT OF FUNDS BUDGETED for Acoustic Research Detachment, Bayview Site (UIC 62182)

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
Navy Labs				441											
NAVSEA				3,882	845						110				
ONR		50		2,046											
ONI								359							

TABLE 1.3 FY 1995 BREAKOUT OF FUNDS BUDGETED for Acoustic Research Detachment, Bayview Site (UIC 62182)

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				3,880	1,025				40		150		20		
ONR		40		1,770											
Navy Labs				209											
ONI								454							

TABLE 1.3 FY 1996 BREAKOUT OF FUNDS BUDGETED for Acoustic Research Detachment, Bayview Site (UIC 62182)

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				5,311	1,095				20		140				
ONR		40		800											
Navy Labs				100											

TABLE 1.3 FY 1997 BREAKOUT OF FUNDS BUDGETED for Acoustic Research Detachment, Bayview Site (UIC 62182)

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				6,379	275				30		140				
ONR		40													
Navy Labs				200											

TABLE 1.4 FY 199_ BREAKOUT OF FUNDS BUDGETED for DETACHMENTS of _____
(UIC _____)

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

This table is not applicable as there are no detachments for this site.

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). 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.

MILCON Project P-0210, Ship Model Engineering & Support Facility. This project is a land level two story concrete masonry building with 36,500 sq. ft. of floor, office and lab space. The building will be outfitted with fire protection, air conditioning, and special model handling equipment. Estimated construction start date 1 January 1996, with a BOD of October 1996.

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.

See Table 2.1

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.

Not applicable to this Detachment.

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. Provide numbered notes to identify the title and UIC of the plant account holder/lessor, quantity of leased space and the associated lease cost.

See Table 2.3.

Table 2.1 Main Site Class 2 Assets of Acoustic Research Detachment, Bayview Site (UIC 62182)

Building type	NAVFAC (P-80) category code	Gross Floor/Building Area (KSF)			
		Adequate	Sub-standard	In-adequate	Total
Operational & Training	100	0.02	16.3	0	16.32
Maintenance & Production	200	0.6	5.3	0	5.9
Science labs	310	0	0	0	0
Aircraft labs	311	0	0	0	0
Missile and Space labs	312	0	0	0	0
Ship and Marine labs	313	0	0	0	0
Ground Transportation labs	314	0	0	0	0
Weapon and Weapon Systems labs	315	0	0	0	0
Ammunition, Explosives, & Toxics labs	316	0	0	0	0
Electrical Equip. labs	317	2.1	0	0	2.1
Propulsion labs	318	0	0	0	0
Miscellaneous labs	319	13.8	4.1	0	17.9
Underwater Equip. labs	320	10.8	6.7	0	17.5
Technical Services labs	321	0	0	0	0
Supply Facilities	400	0	2.6	0	2.6
Hospital & other Medical	500	0	0	0	0
Administrative Facilities	600	0.3	0	0	0.3
Housing & Community	700	0.06	0.4	0	0.46
Utilities & Grounds	800	0.2	0	0	0.2
Other					0
	Totals	27.88	35.4	0	

NOTE: MILCON P-210 PROGRAMMED (FY-96) (SEE SECTION 7)

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?

No inadequate space identified

Table 2.2 Main Site Class 2 Space of _____ (UIC _____)
Assigned to Tenants

This table is not applicable as there are no tenants at this site.

TENANT		NAVFAC (P-80) Category Code	GF/BA Assigned (KSF)
Name	UIC		
		Total:	

Table 2.3 Class 2 Space Utilized/Leased by CDNSWC-BAYVIEW (UIC 62182)

Building type	NAVFAC (P-80) category code	GF/BA (KSF)			
		Adequate	Sub-standard	In	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				

This table is NOT APPLICABLE as there are no tenants at this site.

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.

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.

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.

NOT APPLICABLE TO THIS SITE.

Table 2.4 Class 2 Assets of _____ 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				

This table is not applicable as there are no detachments to this site.

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?

This information is not applicable as there are no detachments at this site.

Table 2.5 Class 2 Space at Detachment Sites of _____ (UIC _____)
Assigned to Tenants

TENANT		NAVFAC (P-80) Category Code	GF/BA (KSF) Assigned
Name	UIC		
		Total:	

This table is not applicable as there are no tenants at this site.

Table 2.6 Class 2 Space Utilized/Leased by Detachments of _____ (UIC _____)

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				

This table is not applicable as there are no detachments to this site.

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 under utilized storage space into laboratory spaces, or buildout of a high bay area into a multi-floor 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 Gross Floor Area (GFA) 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.

By definition there is no unoccupied space

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 Gross Floor Area" as shown in Tables 3.1 & 3.2. -- **3.3k 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 GFA " as shown in Tables 3.1 & 3.2. -- **0 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 GFA (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 CDNSWC-BAYVIEW (UIC 62182)

Building # / Category Code (3 digit)	Current GFA (KSF)	Additional Capacity Provided By Expansion		Height of High Bay (FT)	Estimated Cost of Rehab ($K's)
		GFA (KSF)	# of Personnel		
#1 / 319 Note A&C	2.3	2.3	10		115
#1 / 320 Note B&C	1	1	5		50
Totals	3.3	3.3	15		165

NOTE 1: No remediation or waivers required for building space modification.

A. Boiler Room Remodel

B. Storage Area Conversion

C. In reference to question 3.b, all space that could be expanded will require more than minimal costs.

Table 3.2 Unconstrained Class 2 Space Available for Expansion at CDNSWC-BAYVIEW (UIC 62182)

Building # / Category Code (3 digit)	Current GFA (KSF)	Additional Capacity Provided By Expansion		Height of High Bay (FT)	Estimated Cost of Rehab ($K's)
		GFA (KSF)	# of Personnel		
New Construct Note C		12	40		1,900
New Construct Note B	1,664	2.4	0		60
#1 /319 Note A		2	13		150
New Construct Note D		30	100		4,700
Totals	1,664	46.4	153		6810

NOTE 1: No land use waivers required, NEPA documentation will be required (All Projects)
NOTE A: N62182 Building #1 Upper Story Addition
NOTE B: N62182 Building #4 Replacement
NOTE C: Administration Building (Ref. Master Plan)
NOTE D: Project Support Facility

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).

See Table 4.1; 7 acres listed in OTHER column is steep hill terrain unsuitable for development.

b. Are there any constraints such as parking, utilities, legal restrictions that limit the potential for using Undeveloped land for expansion?

On base short term parking is a constraint. Environmental issues such as NEPA documentation could be a constraint. Actual building site of the 6 unrestricted acres is 30% or 1.8 acres which equates to 78.4 K SQFT actual building site. 40% or 2.4 acres utilized for parking expansion, 30% or 1.8 acres utilized for environmental site work i.e., grassy swales.

c. Explain the radio frequency constraints/opportunities within your Class 1 holdings.

No RF operational restrictions, but the facility has the normal constraints to have additional RF authorized in accordance with FCC regulations.

Class 1 Resources of CDNSWC-ARD (UIC: 62182)
Site Location: MAIN BASE CDNSWC-BAYVIEW

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	1	1	0	0
Operational	10	7	0	3
Training	0	0	0	0
R & D	0	0	0	0
Supply & Storage	6	3	0	3
Admin	.8	.8	0	0
Housing	0	0	0	0
Recreational	0	0	0	0
Navy Forestry Program	0	0	0	0
Navy Agricultural Outlease Program	0	0	0	0
Hunting/Fishing Programs	0	0	0	0
Other	7	0	7	0
Total:	24.8	11.8	7	6

d. Of the total Unrestricted Acres reported above, how much of it has existing roads and/or utilities that could support expansion efforts? 6 Acres. Explain.

Of the total Unrestricted Acres reported above, 6 acres has existing roads and/or utilities that could support expansion efforts. This acreage is general land situated adjacent to existing buildings and roads.

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)	5000 KWH	5000 KWH	320 KWH	625 KWH
Natural Gas (CFH)	0	0	0	0
Sewage (GPD) Note 1	14,000	14,000	8,000	9,000
Potable Water (GPD) Note 1	18,000	18,000	8,000	10,000
Steam (PSI & lbm/Hr)	0	0	0	0
Long Term Parking	0	0	0	0
Short Term Parking	125 (2)	0	135	150

NOTE 1: Potable Water and Sewage are not metered. Usage is based on number of employees and irrigated land equivalent resident (ER) factors per existing lease/contract with suppliers. Values listed are estimated based on normal study state loads.

NOTE 2: On base short term parking is a constraint. Environmental issues such as NEPA documentation could be a constraint. Actual building site of the 6 unrestricted acres is 30% or 1.8 acres which equates to 78.4 K SQFT actual building site. 40% or 2.4 acres utilized for parking expansion, 30% or 1.8 acres utilized for environmental site work i.e., grassy swales.

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 as ACE.

Table 5.2 Maintenance, Repair & Equipment Expenditure Data for CDNSWC-ARD (UIC: 62182)

Fiscal Year	MRP ($M)	CPV ($M)	#ACE ($M)*
1985	.12	4.2	6
1986	.06	4.5	6
1987	.06	5.0	8
1988	.17	7.3	8
1989	.30	7.5	8
1990	.29	7.7	8
1991	.65	7.8	8
1992	.30	8.4	8
1993	.85	9.1	8
1994	.30	9.7[1]	8
1995	.17	10.4[1]	8
1996	.20	10.9[1]	9
1997	.43	11.5[1]	9

[1] Data extrapolated based on historical trend.
Data provided by Ed Murtha (Code 3131) CDNSWC Headquarters
* Additional project equipment, not currently on CDNSWC plant account.

ADDENDUM TO DATA CALL # 4, TABLE 5.2

CURRENT PLANT VALUE (CPV) OF CLASS 2 REAL PROPERTY AND ACQUISITION COST OF EQUIPMENT (ACE)

The CPV data contained within Table 5.2 is the Current plant Value of Class II Real Property as obtained from the NAVFAC P-164 Report dated 09/30/93. The ACE Plant Account Equipment is only that Class III/IV equipment registered in our Central Plant Account records and the value represents the original acquisition cost of the equipment.

Because of the unique nature of experimental facilities located at the Bayview site, and because of specialized built-in features which cannot be adequately estimated using routine estimating techniques, the CPV reflected in the P-164 does not accurately reflect the true replacement value of the facilities. In addition, the Central Plan Account records do not contain much equipment which was acquired after the establishment of the site, but prior to the development of centralized site plant account records.

The table shown below is illustrative of the actual estimated replacement costs of the listed facilities, as developed by the principal organizational custodians and operators of the facilities. As can be seen from this abbreviated list, the estimated replacement value of Classes II, III and IV facilities and equipment is significantly higher than shown from the data in Table 5.2 above.

The data in the table below is representative of 31 March 1994.

BAYVIEW SITE

	MAJOR ASSET DESCRIPTION	CLASS	EQUIPMENT
		II	III/IV
Miscl.	Industrial Bldgs.	$ 4	$ 1
Miscl.	Remote Sites	$ 5	$ 6
	Wharfs, Docks, Etc.	$ 3	$ 1
	Offices	$ 1	$ 1
	Storage	$ 1	$ -
	Subtotal	$ 14	$ 10
Test Facilities			
	LSV	$ 15	$ 25
	Buoyant Vehicles	$ -	$ 2
	Static Systems	$ -	$ 2
	ISMS	$ -	$ 80
	Test Support Platforms	$ -	$ 18
	Marine Craft	$ -	$ 2
	Test Vehicles/Models	$ -	$ 149
	Subtotal	$ 15	$ 238
	Bayview Totals	$ 29	$ 248
	Value in Millions		$ 277

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.

NOT APPLICABLE TO THIS SITE AT THIS TIME

Type of Training Facility/CCN	School	Type of Training	FY 1993 Requirements			FY 2001 Requirements		
			A	B	C	A	B	C

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.

NOT APPLICABLE TO THIS SITE AT THIS TIME

Type Training Facility/CCN	Total Number	Design Capacity (PN)[1]	Capacity (Student HRS/YR)

(3) Describe how the Student HRS/YR value in the preceding table was derived.

[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.

Applicable to ARD Bayview.

7. Operational Airfield Capacity. If your activity owns and operates an operational airfield fill out the data sheets provided at TAB B.

N/A

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.

N/A

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.

N/A

TAB A

SHIP BERTHING CAPACITY

Note: Question numbers in [ ]'s are for internal BSAT purposes.

SHIP BERTHING CAPACITY - SMALL CRAFT BERTHING AT INLAND FRESH WATER LAKE

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.
Fac.#13 1992	151-20	120	12' MLLW 13' MHW	N/A	10	N	None	N/A
Fac.#43 1961	390-20	180	15' MLLW 25' MHW	N/A	11	N	None	N/A
Fac.#5 1961	155-10	400	10' MLLW 25' MHW	N/A	8	N	None	N/A
Fac.#6 1961	155-20	120	10' MLLW 21' MHW	N/A	8	N	None	N/A
Fac.#42 1942	155-20	328	10' MLLW 21' MHW	N/A	48	N	None	N/A
Fac.#48 1948	155-20	100	1' MLLW 11' MHW	N/A	100	N	None	N/A
Bulkhead	154-10	100	Dry @ MLLW 11' MHW	N/A	219	N	None	N/A
Fac.#11 1942	155-21	120	10' MLLW 25' MHW	N/A	68	N	None	N/A
Fac.#12 1942	155-21	120	11' MLLW 28' MHW	N/A	68	N	None	N/A

TAB A
Page1 ___ of 1
Primary UIC 00167
Secondary UIC 62182

NOTES:

[1]Original age and footnote a list of MILCON improvements in the past 10 years.

No MILCON'S have been authorized for Pier/Wharfs in past 10 years.

[2]Use NAVFAC P-80 for category code number.

[3]Comment if unable to maintain design dredge depth

Lake adjusted 12' from summer to winter by Army Corps of Engineers (ACOE)

[4]Water distance between adjacent finger piers.

[5]Indicate if RO/RO and/or Aircraft access.

No Pier/Wharfs have RO/RO or aircraft access.

[6]Describe the additional controls for the pier.

Wharf/Pier inside facility fence only, FAC. #13 and FAC. #43 located at remote sites.

[7]Net explosive weight. List all ESQD waivers that are in effect with expiration date.

Wharf/Pier not certified for explosive handling.

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]
Fac.#13	N	30 Amps @208 volts	NONE	NONE	0	NONE	NONE	NONE
Fac.#43	N	40 Amps @ 208 volts	NONE	NONE	0	NONE	NONE	NONE
Fac.#5	N	NONE	NONE	NONE	0	NONE	NONE	NONE
Fac.#6	N	NONE	NONE	NONE	0	NONE	NONE	NONE
Fac.#42	N	200 Amps @ 208 volts	NONE	NONE	2000	NONE	NONE	NONE
Fac.#48	N	200 Amps @480 volts	NONE	NONE	2000	NONE	NONE	NONE
Bulkhead	N	NONE	NONE	NONE	0	NONE	NONE	NONE
Fac.#11	N	100 Amps @ 208 volts	NONE	NONE	0	NONE	NONE	NONE
Fac.#12	N	100 Amps @ 208 volts	NONE	NONE	0	NONE	NONE	NONE

[1]List only permanently installed facilities.
[2]indicate if the steam is certified steam.
[3]Describe any permanent fendering arrangement limits on ship berthing.

TAB A
Page3 ___ of 3
Primary UIC 00167
Secondary UIC 62182

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]
Fac. #13	0	2 Cat. II 1 Cat. III	None	None
Fac. #43	0	2 Cat. II 1 Cat. III	None	None
Fac. #5	0	5 Cat. I-II	None	None
Fac. #6	0	3 Cat. I-II 1 Cat. III	None	None
Fac. #42	1	1 Cat. II 3 Cat. III	None	None
Fac. #48	0	2 Cat. III	None	None
Bulkhead	0	0	None	None
Fac. #11	10 Cat. I-II	12 Cat. I-II	None	None
Fac. #12	6 Cat. II	8 Cat. II	None	None

[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.

Note 1: Category I - Small work boats under 25' length
Category II - Work boats 25'-60' length
Category III - Work barges 50'-100' length

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]
Fac. #13	0	2 Cat.II 1 Cat. III	None	N/A
Fac. #43	0	2 Cat. II 1 Cat. III	None	N/A
Fac. #5	0	5 Cat. I-II	None	N/A
Fac. #6	0	3 Cat. I-II 1 Cat. III	None	N/A
Fac. #42	1	1 Cat. II 3 Cat. III	None	N/A
Fac. #48	0	2 Cat. III	None	N/A
Bulkhead	0	0	None	N/A
Fac. #11	10 Cat. I-II	12 Cat. I-II	None	N/A
Fac. #12	6 Cat. II	8 Cat. II	None	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.

Note 1: Category I - Small work boats under 25' length
Category II - Work boats 25'-60' length
Category III - Barges 50'-100' length

TAB A
Page5 ___ of 5
Primary UIC 00167
Secondary UIC 62182

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.

50% of pier space is required to berth and support our ancillary craft and barges. Pier 42 is a "Sharks Mouth" type of pier with a 20 ton overhead crane system located above the pier opening used to load/unload work boats and barges up to 60 ft length.

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.

N/A

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.

N/A

8. [15.d.] Describe any unique limits or enhancements on the berthing of ships at specific piers at your base.

The Acoustic Research Detachment (ARD) is located on an inland lake and has no navigable access to ocean without land transport.

NSWC CARDEROCK, BAYVIEW

JL
SEA 09X
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)

D. K. Kruse; Captain, USN
NAME (Please type or print)

Signature

Commander
Title

5/10/94
Date

Carderock Division, USN
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. STEPHER
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)

NAME (Please type or print)

Signature

Title

Date

Activity

ORIGINAL

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

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

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

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

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

NOTE: FOR TSRAC DATA CALL #4

ACTIVITY COMMANDER

F. F. SCHULZ, LCDR, USN
NAME (Please type or print)

Signature

OFFICER IN CHARGE
Title

5/5/94
Date

ACOUSTIC RESEARCH DETACHMENT
Activity CD NSWC, BAYVIEW, ID 83803

ORIGINAL

Document Separator

MILITARY VALUE DATA CALL
TECHNICAL CENTERS

Category	
Technical Center Site	NSWC, Carderock Division, Acoustic Research Detachment
Location/Address	Bayview, Idaho

Executive Summary

Mission

1. Mission Statement
2. Joint Service Missions

Technical Functions

3. Technical Functions Resource Allocations

Manpower

4. Work Breakdown Structure
5. Technical Staff Qualifications

Facilities and Equipment

6. Special Facilities/Equipment Resources
7. General Facilities/Equipment Resources

Location

8. Geographic Location

Features and Capabilities

9. Computational Facilities
10. Mobilization Responsibility and Capability
11. Range Resources

Quality of Life

12. Military Housing
13. MWR Facilities
14. Base Family Support Facilities
15. Metropolitan Areas
16. VHA
17. Off-base Housing Rental and Purchase
18. Sea Intensive Ratings
19. Commute
20. Educational Opportunities
21. Employment Opportunities
22. Medical/Dental
23. Crime Rate

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

TAB B - Facilities and Equipment: Facilities/Equipment Capability Data

TAB C - Range Resources: Range Capability Data

EXECUTIVE SUMMARY FOR NSWC, CARDEROCK DIVISION ACOUSTIC RESEARCH DETACHMENT, BAYVIEW - LOCATED AT LAKE PEND 'OREILLE, IDAHO

Mission

The mission of the Carderock Division, Naval Surface Warfare Center is to: "Provide research, development, test and evaluation, fleet support, and in-service engineering for surface and undersea vehicle, hull, mechanical and electrical systems, and propulsors; provide logistics R&D; and provide support to the Maritime Administration and the maritime industry." (OPNAVNOTE 5450)

The Submarine Acoustic Research Detachment, Bayview supports the mission of the Carderock Division of the Naval Surface Warfare Center by maintaining and operating facilities at Lake Pend Oreille, Idaho for conducting experimental programs in underwater acoustics and other areas of interest where a large, deep, quiet body of water is essential.

Technical Functions

The technical staff at the site design and implement complex hydro-acoustic, structural acoustic and target strength tests on large scale models. Experience acquired during the past twenty five years has demonstrated that submarine models large enough to represent the essential hydrodynamic and structural features of full-scale ships are highly cost-effective tools for developing new technologies and validating their performance. Test models of about 1/4 the linear dimension of the full scale design have been shown to be the only means to provide adequate size and detail to be able to rely on the measurements in translating to full scale performance.

Lake Pend Oreille's 1100 foot water depth, exceptionally low ambient noise, unobstructed operating areas, isothermal temperature profile, favorable bottom contour, still water and low acoustic propagation fluctuations are a unique combination of attributes essential for current and future progress in submarine stealth. This test environment, coupled with the extensive test support platforms, large scale models, base infrastructure and qualified engineering staff are the core of the highly cost effective techniques used at this site for developing and refining new stealth technologies and validating their performance before incorporating in the Fleet or in new designs.

Manpower and Facilities

The staff at Bayview generally has advanced academic degrees as well as at-sea experience acquired during submarine acoustic trials executed by Carderock Division personnel. The engineers and scientists have extensive experience in conducting research experiments on large models and on full scale ships. A strong synergism exists between the analytical and the full scale signature measurement arms of the Carderock Division located primarily at the Carderock and Annapolis sites, and the R&D test arm at Bayview.

Unpowered, buoyantly propelled 1/4 scale models of SSN 637, SSN 688 and SSN 21 class submarines have provided essential design data for sonar self-noise control at high speeds. A 1/4 scale powered model of SSN 21 has been instrumental in developing a new

propulsor of exceptional performance. The Intermediate Scale Measurement System, currently in the final stages of installation, will provide new technologies leading to integrated hull/internal structural arrangements which combine low cost with intrinsically effective reductions of radiated and Target Strength signatures.The Lake's unique environment is also ideally suited for evaluating the performance of Towed Arrays in cold water.

Geographic Location

Lake Pend Oreille's 1100 foot water depth, exceptionally low ambient noise, unobstructed operating areas, isothermal temperature profile, favorable bottom contour, still water and low acoustic propagation fluctuations are a unique combination of attributes that at not available to the Navy at any other location. An independent study sponsored by OP-91 and conducted under the joint supervision of ARPA and ONR concluded that Lake Pend Oreille was the only site to develop the facility to study target strength reduction technologies.

The site attracts highly qualified engineers and scientists from throughout the country, particularly who are outdoor enthusiasts. Continuing education is provided via satellite link to two major universities. The area supports very qualified personnel for technical support. The low cost of living and challenging work environment makes Bayview a very attractive work place.

MILITARY VALUE MEASURES

MISSION

1. Mission Statement.

The mission of the Carderock Division, Naval Surface Warfare Center is to:

"Provide research, development, test and evaluation, fleet support, and in-service engineering for surface and undersea vehicle, hull, mechanical and electrical systems, and propulsors; provide logistics R&D; and provide support to the Maritime Administration and the maritime industry." (OPNAVNOTE 5450)

No other activity is assigned mission responsibilities for surface and undersea vehicle platform systems in these areas. In addition, Public Laws HR4045 (15 Jan 1896) and HR 10135 (24 Feb 1937) state that CDNSWC shall be the Navy's technical agent for marine vehicles and for providing support to the maritime industry.

The Bayview Detachment supports the mission of the Carderock Division of the Naval Surface Warfare Center by maintaining and operating facilities at Lake Pend Oreille, Idaho for conducting experimental programs in underwater acoustics and other areas of interest where a large, deep, quiet body of water is essential.

The Carderock Division provides many unique capabilities, not available elsewhere, for the design, development and support of Navy surface ships, submarines and small manned and unmanned vehicles. These capabilities are essential because they provide the technology, smart buyer expertise, and engineering support for the Navy to acquire and operate affordable, effective and safe ships. The Division contributes to the performance of the Joint Mission and Support areas by ensuring that current and future ships: 1) meet their mobility (performance/maneuverability/seakeeping) requirements, 2) have the lowest signature possible (are not detectable), 3) are survivable (able to withstand weapon impacts and continue to operate), and 4) can be procured and operated in sufficient numbers to meet national commitments (have affordable acquisition, operation and manning costs).

The Bayview Detachment supports Naval Surface Warfare Center leadership areas (NSWC Charter of 2 Jan 92) listed below and provides primary support to the highlighted leadership area.

(1) Surface Warfare Modeling and Analysis [Primarily Carderock Site]

(2) Surface Ship Combat and Combat Control Systems

(3) Surface Ship Electronic Warfare

(4) Surface Ship Electromagnetic and Electro-optic Reconnaissance, Search and Track Systems

(5) Surface Ship Weapons Systems (Including Shipboard Missile Integration)

(6) Ship Vulnerability and Survivability (Includes Submarine HM&E) [Primarily Carderock and Annapolis Sites]

(7) Ship Active and Passive Signatures (Includes Submarine HM&E) [Primarily Carderock, Annapolis and Bayview Sites]

(8) Surface and Undersea Vehicle Hull, Machinery, Propulsors and Equipment [Carderock, Annapolis and NAVSSES Sites]

(9) Platform Systems Integration [Primarily Carderock Site]

(10) Strategic Targeting Support (including Fire Control, Targeting and Re-entry Systems)

(11) Amphibious Warfare Systems

(12) Special Warfare Systems

(13) Warheads (Explosives and Energetic Materials)

(14) Mines, Mine Countermeasures and Mine Clearance Systems

2. Joint Service Missions.

None.

TECHNICAL FUNCTIONS

3. Technical Functions Resource Allocations.

TAB-A's are included after the main body of the submission.

MANPOWER

4. Work Breakdown Structure.

0. Description of the Site

The NSWC Detachment in Bayview provides an ideal test environment for the conduct of experiments in underwater acoustics and other fields where a large, deep, quiet body of water is desirable. It is an organizational component of the NSWC Carderock Division's Signatures Directorate. With a current staff of about 50 government employees and 70 contractor employees, the Detachment is primarily a test and evaluation facility which has played a major role in supporting various R&D and ship design programs in underwater acoustics, particularly in submarine noise control.

Typically, the development of a new submarine quieting concept is initiated in the laboratory and tested using computer models, analytical models and small scale physical models. If the concept appears viable, it must then be developed and demonstrated on a scale large enough so that the results can reasonably be extrapolated to full-scale. The models used at the Bayview Detachment are one-fifth to one-quarter scale. It has been shown that this scale is large enough to accommodate sufficient structural detail and to allow accurate scaling of important hydrodynamic parameters, yet small enough to make the testing economically feasible.

All of the facilities used for test and evaluation at the Bayview Detachment are located in or on Lake Pend Oreille. The lake lies almost entirely north of 48^0 N, in the northern panhandle of Idaho. It is a temperature dimictic lake (two thermal overturns each year), with a relatively low nutrient level and a high oxygen content. Lying in a glacially deepened part of the Purcell Trench, the lake has a mean Summer elevation of 2062.5 feet above sea level. (See figure 4.1.)

Lake Pend Oreille is the largest lake in Idaho at 147 square miles, and it is one of the deepest in the United States, with over 26 square miles at 1000 feet or more. (See figure 4.2.) There are three permanent test sites on the lake, with a fourth site currently under development. 1) The Static Test Site near Bayview supports structural testing of submarine engine room models along with small scale target strength measurements and sensor calibrations. 2) Sonar self-noise measurements and active noise tests of large scale models are accomplished at the Buoyant Vehicle Range, about 5 miles from Bayview. 3) Radiated noise measurements are made at the LSV range. 4) Large scale bi-static Target Strength measurements will be performed at the ISMS Range, located about 12 miles from the Base in Bayview. The importance of the testing at these sites is the reason for the existence of the Detachment.

The desirable features of Lake Pend Oreille establish the necessity for the Detachment to be at its current location. The most important feature is that it is acoustically very quiet. The background noise level (including interference) is below sea state zero 25% of the time, with nighttime levels as much as 15 dB below sea state zero. During daytime hours, one-third octave ambient noise levels at 1 kHz are less than 80 dB more than 50% of the time, while at night, these levels are less than 68 dB more than 50% of the time. Cumulative probability curves can be seen at the bottom of figure 4.3. For a given wind velocity, the noise level at Lake Pend Oreille is about 4 dB lower than the open ocean (top of figure 4.3) and, on the average, there is a 6 to 10 dB advantage in ambient noise at the 50% to 80% cumulative probability level over other large test areas such as Tongue of the Ocean in the Bahamas.

Another important feature of Lake Pend Oreille is the very stable water column. The water temperature is isothermal at 39.5 degrees F for all depths below the surface layer (bottom of figure 4.4). Horizontal currents are less than one-tenth knot below 100 feet with an average of 0.02 knots. Volume reverberation is low with a maximum level of -39 dB (relative to the incident pulse at 3 kHz) dropping to the -53 dB ambient level within 0.3 seconds.

Another important features of Lake Pend Oreille is that the cavitation index is very similar to the ocean for depths greater than 70 feet. This is somewhat unusual for a lake environment where the cavitation index tends to be somewhat higher. Finally, not only is the lake very deep, but there are large areas of the lake bottom that are essentially flat at a depth of 1150 feet, with variations of only $\pm$ 5 feet. This greatly facilitates the installation of test equipment and the operation of test vehicles.

The Detachment in Bayview is largely defined by the combination of technical facilities and the body of water forming the test environment. One of the primary R&D product areas is the support of small scale active acoustic tests. These tests are performed at the static test site near Bayview. Several different types of measurements are performed as indicated in figure 4.5. Two large scale machinery

models are used for radiated noise and structural acoustics experiments. Typical experiments include: 1) design verification of machinery foundations which avoid resonances at driving frequencies, 2) damping treatment effectiveness, and 3) active noise cancellation.

The measurement of hydroacoustics and sonar self-noise make up a second R&D product area at the Detachment. These experiments are conducted at the Buoyant Vehicle Range where buoyant models are used for measuring the self-noise of vehicle mounted sonar systems. (See figure 4.6.) Flow noise can be studied without contaminating the data with the normal sounds associated with propulsion. Large Scale active monostatic acosutic tests are also conducted at this Range (See Figure 4.7)

The Bayview Detachment also has the capability to measure the self-noise of towed sonar arrays in a cold-water environment. In addition to several submarine towed arrays (TB-16, TB-23 & TB-29), other experimental arrays and towed devices are also tested. The tow vessel can achieve speeds in excess of 25 knots while pulling a drag of over 5000 pounds. The test range (shown in Figure 4.8) maintains a depth in excess of 800 feet over a distance of several miles. Logistic Support and "daily ops" type of operations greatly reduce costs compared to open ocean approaches.

A third R&D product area is the measurement of radiated noise. The Radiated Noise Range is primarily used for testing self-propelled vehicles equipped with automatic guidance systems, although it could be used to measure the noise from any target. Figure 4.9 shows a vehicle passing between two bottom moored vertical hydrophone arrays. The range also includes an acoustic tracking and control system consisting of six bottom mounted transponders. The principal vehicle used for testing on the Radiated Noise Range is the LSV Kokanee shown in figure 4.10. This vehicle is a one-quarter scale, self-propelled, unmanned submarine model currently used for the evaluation of new propulsor technology and to gain a better understanding of propulsor hydroacoustic and hydrodynamics.

The new Intermediate Scale Measurement System (shown in figure 4.11) will have the capability to make radiated noise and bistatic target strength measurements on large scale structural acoustic models. A shore winching site for model handling is called the OUTPOST and is located on Forest Service property. Both active and passive acoustic signatures will be measured using large scale models to simulate full scale concepts. Revolutionary concepts will be evaluated without the restrictions and high cost of full scale prototype submarines. The initial system will be operational in the Fall of 1994.

The shore base in Bayview is the home port for maintaining and operating the various test sites on the Lake. It includes facilities for reconfiguring models and it provides storage and staging areas for experiments on the Lake. A sketch of the shore facilities

is provided by figure 4.12. Bayview is staffed by approximately 50 government and 70 contractor personnel. Government scientists and engineers have advanced academic degrees as well as at-sea experience acquired during full scale submarine acoustic trials. As required, Carderock provides scientific and management support. Close connection with the fleet, NAVSEA, OPNAV and ONR ensures a focused research program which is responsive to Navy needs.

In summary, the Bayview Detachment is the key to the economical testing, evaluation and demonstration of new submarine quieting technologies. Most of the test facilities at the Detachment are very flexible and can be reconfigured to support specific requirements.

The imperative that requires the test facilities in Bayview to remain at their present location is primarily associated with the geological, climatic and other environmental characteristics of Lake Pend Oreille. Lake Pend Oreille's depth, exceptionally low ambient noise, large and unobstructed operating areas, isothermal temperature profile, favorable bottom contour and still waters are a unique combination of attributes essential for current and future progress in submarine stealth. The facility can not be duplicated elsewhere since no other site exists with the required environmental attributes. No known U.S. facility, and certainly no other current DoD facility, provides the needed combination of depth, still water, flat bottom contour, isothermal temperature profile, low ambient noise, very low encroachment potential, large and unobstructed operating areas, etc. which are provided by Lake Pend Oreille. The most important hydroacoustic advances in design of U.S. nuclear submarines have all been tested at Lake Pend Oreille.

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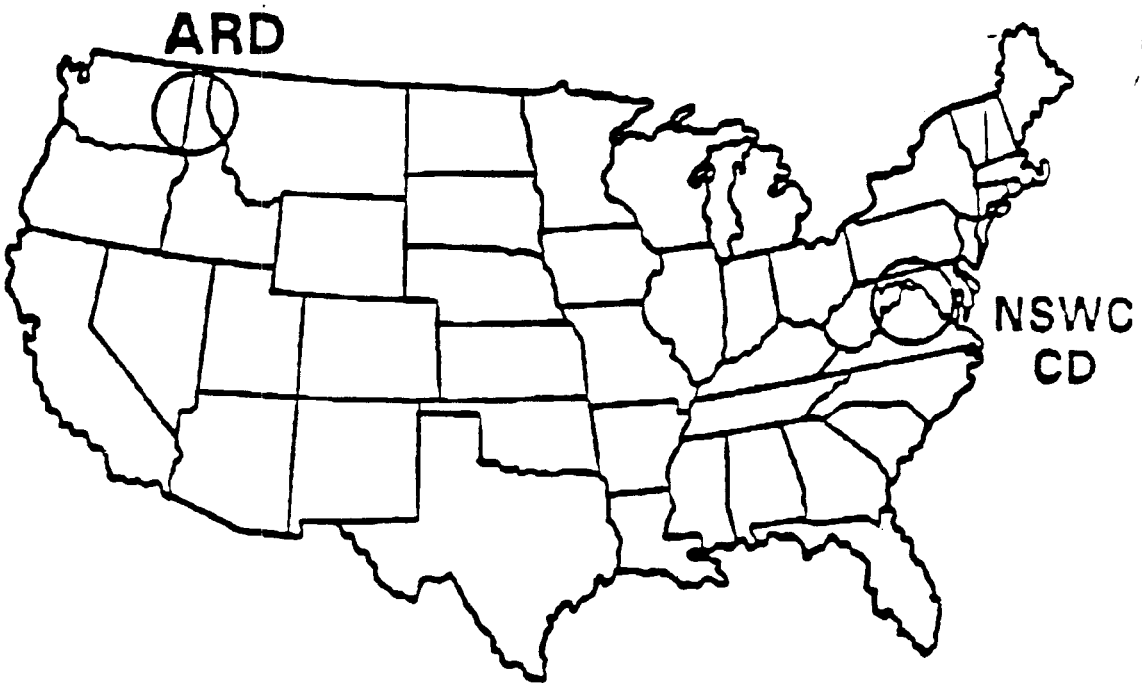
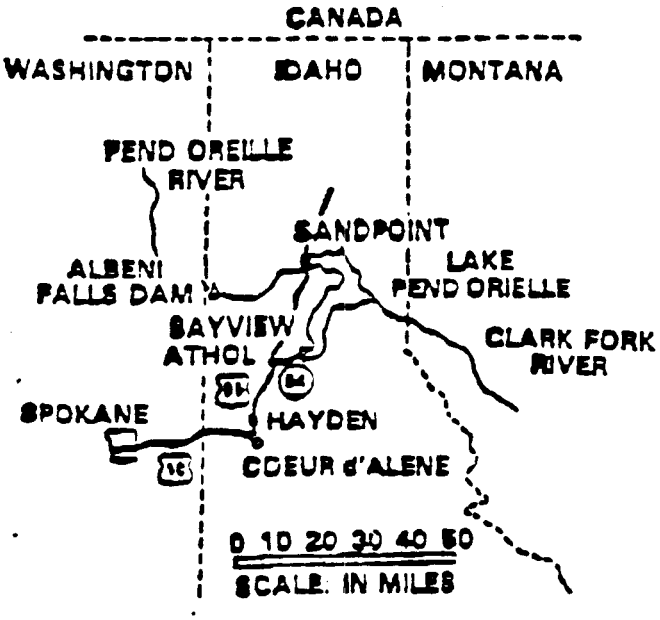
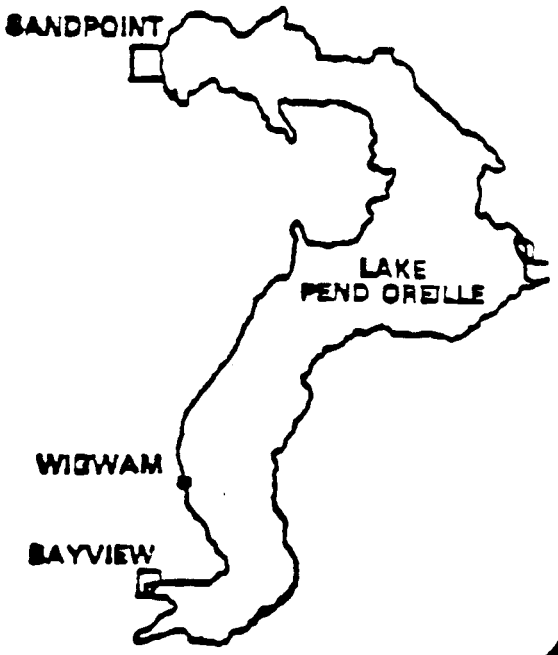
ACOUSTIC RESEARCH DETACHMENT

ACOUSTIC RESEARCH DETACHMENT







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CARDEROCK DIVISION

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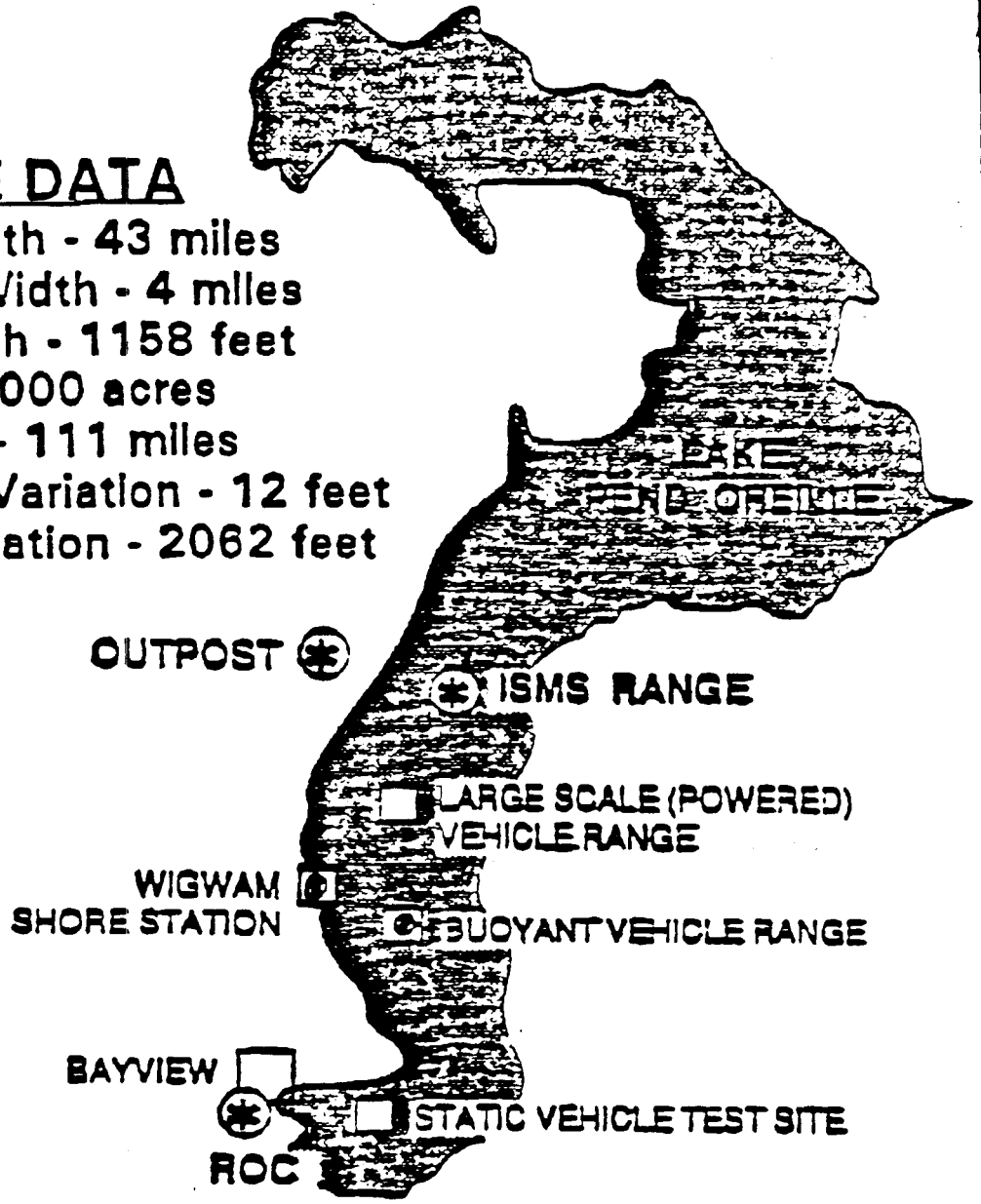
ACOUSTIC RESEARCH DETACHMENT

LAKE DATA

Max. Length - 43 miles
Average Width - 4 miles
Max. Depth - 1158 feet
Area - 94,000 acres
Shoreline - 111 miles
Seasonal Variation - 12 feet
Mean Elevation - 2062 feet



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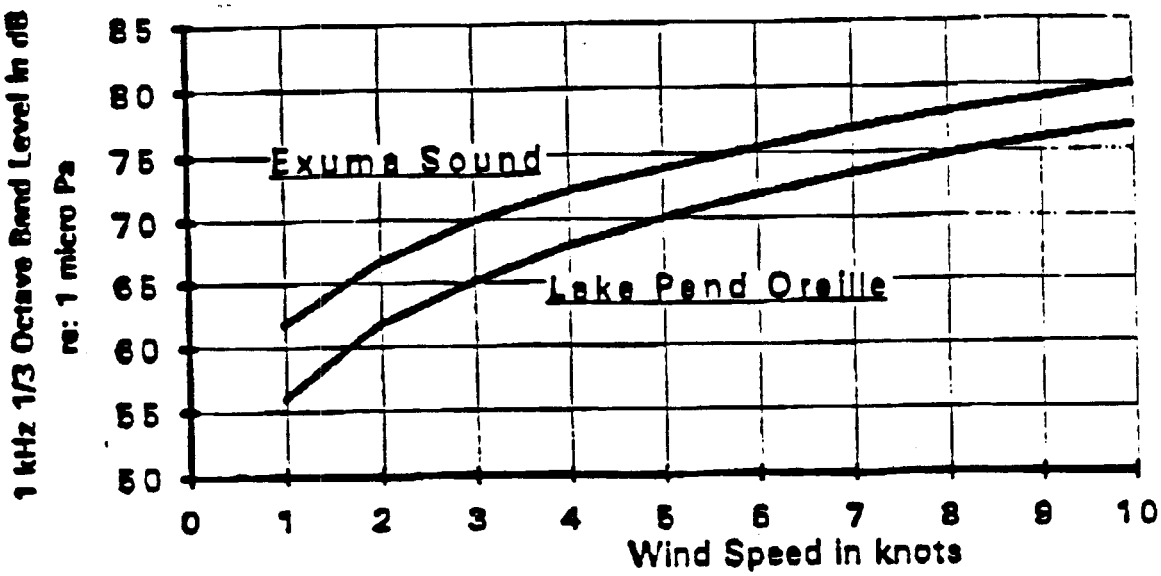
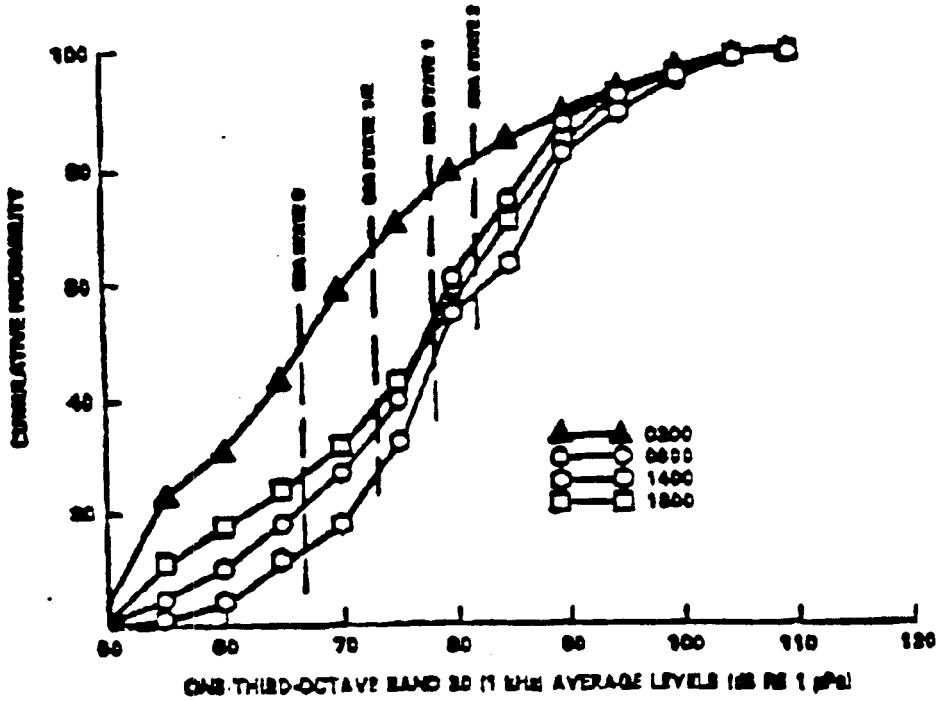
ACOUSTIC RESEARCH DETACHMENT

AMBIENT NOISE LEVELS





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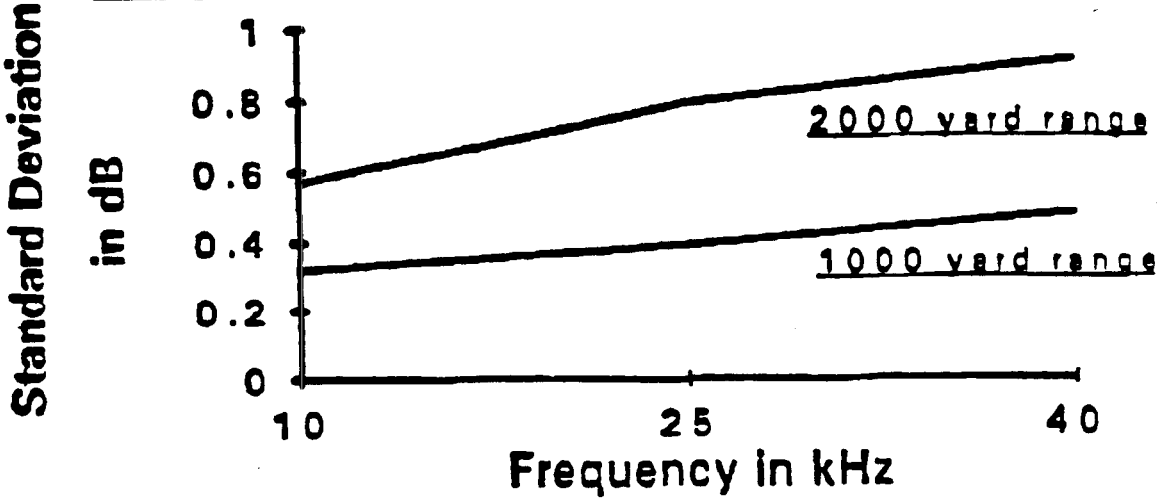
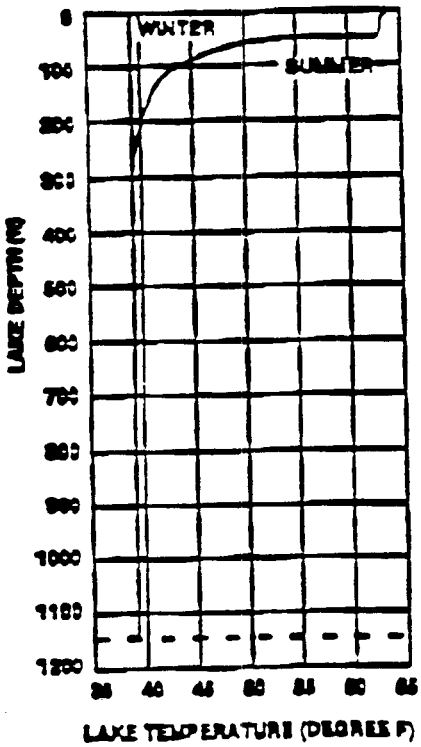
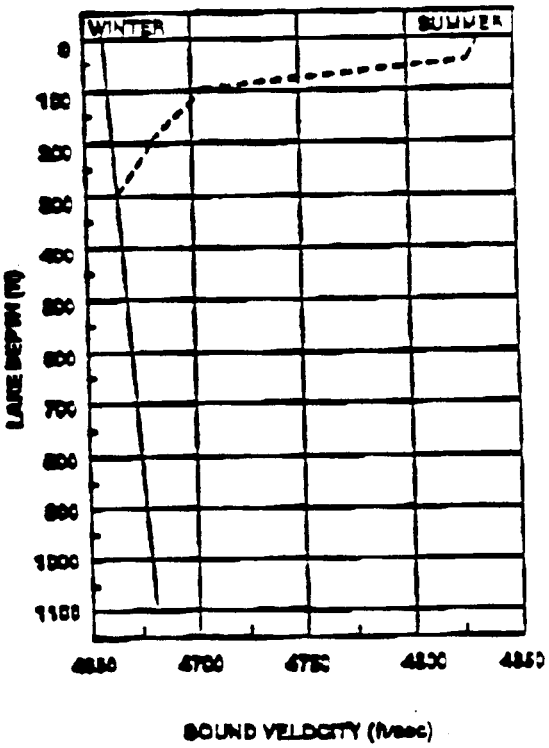
TRANSMISSION LOSS FLUCTUATIONS







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Bayview Detachment
Acoustic Research Detachment

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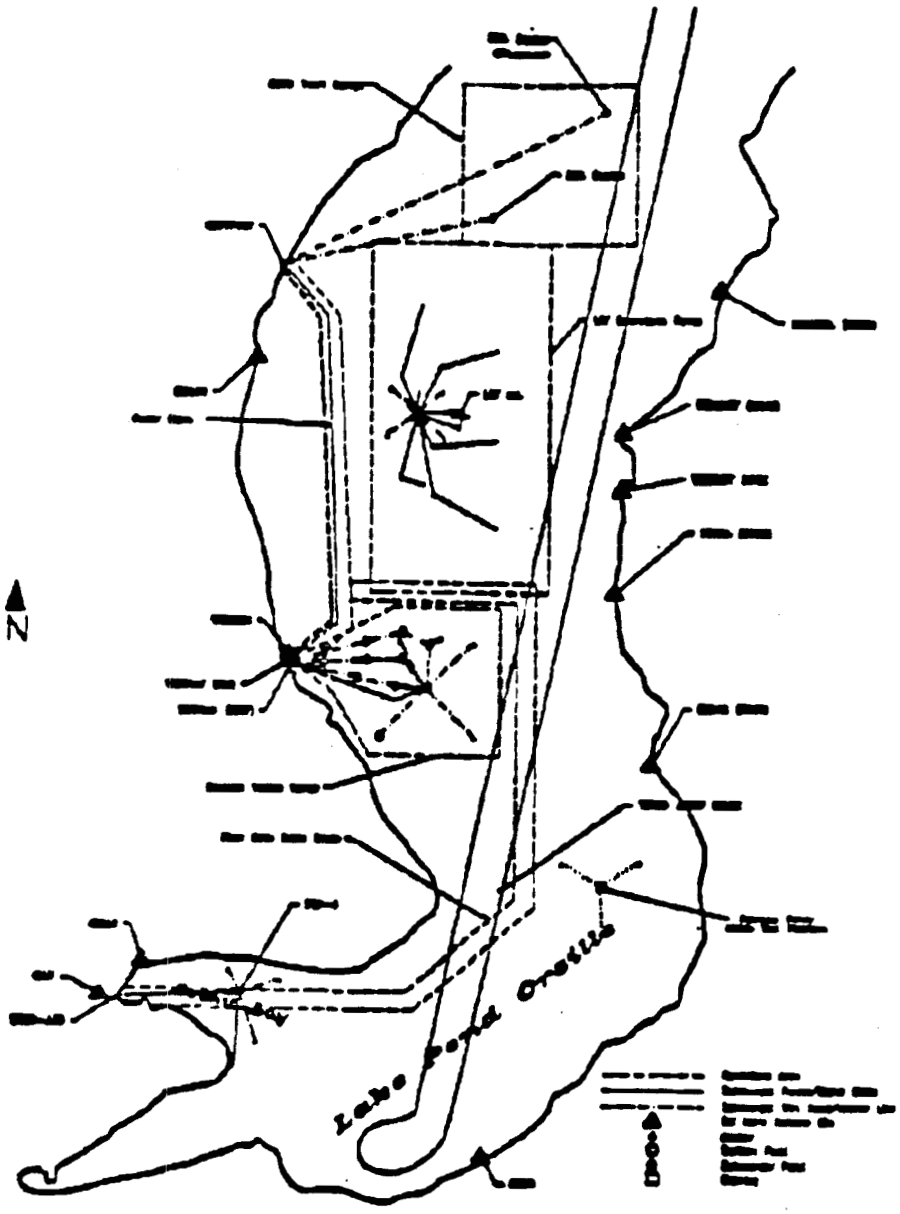
LAKE PEND OREILLE NAVY TEST AREAS



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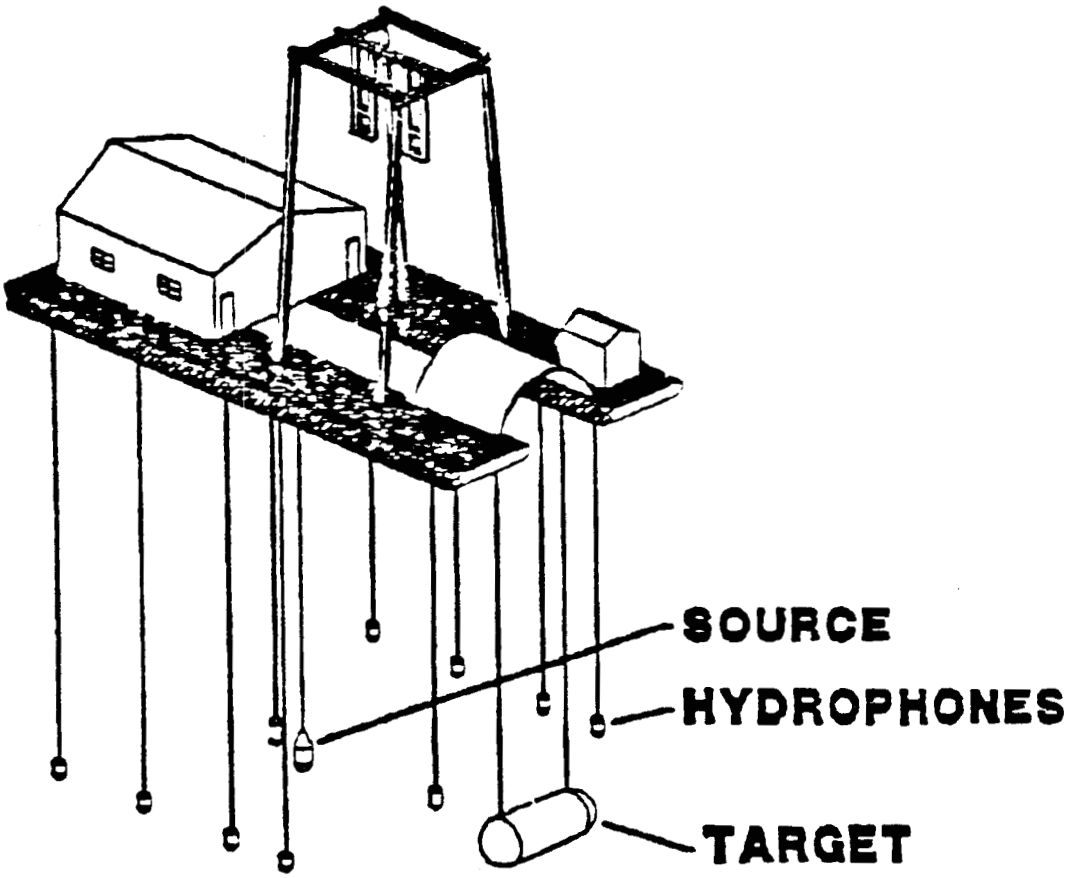
ACOUSTIC RESEARCH DETACHMENT

SMALL SCALE ACTIVE ACOUSTIC TESTS



- Bistatic Target Strength
- Sensor Calibration
- Reciprocity Measurements

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BUOYANT MODEL TESTS

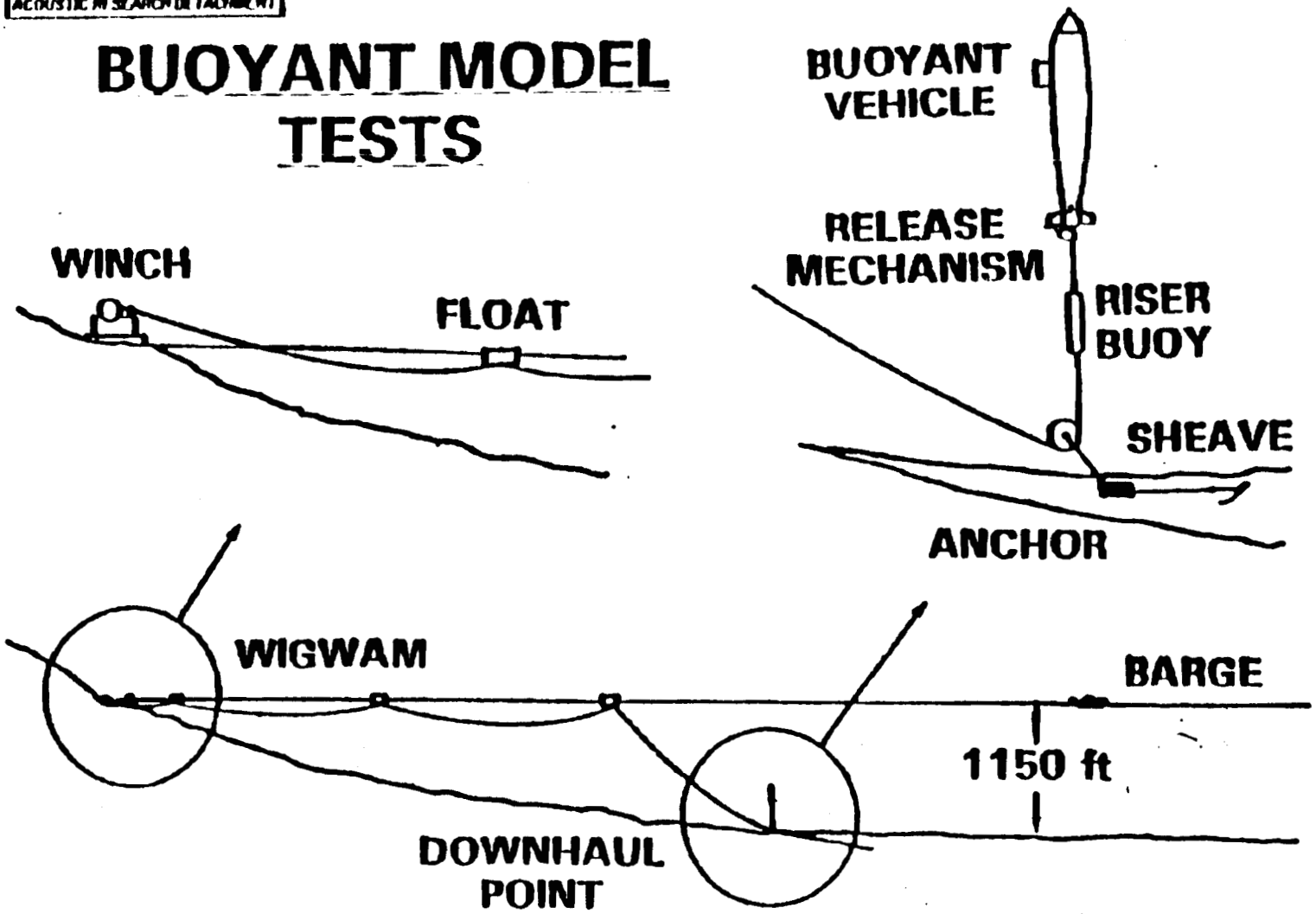
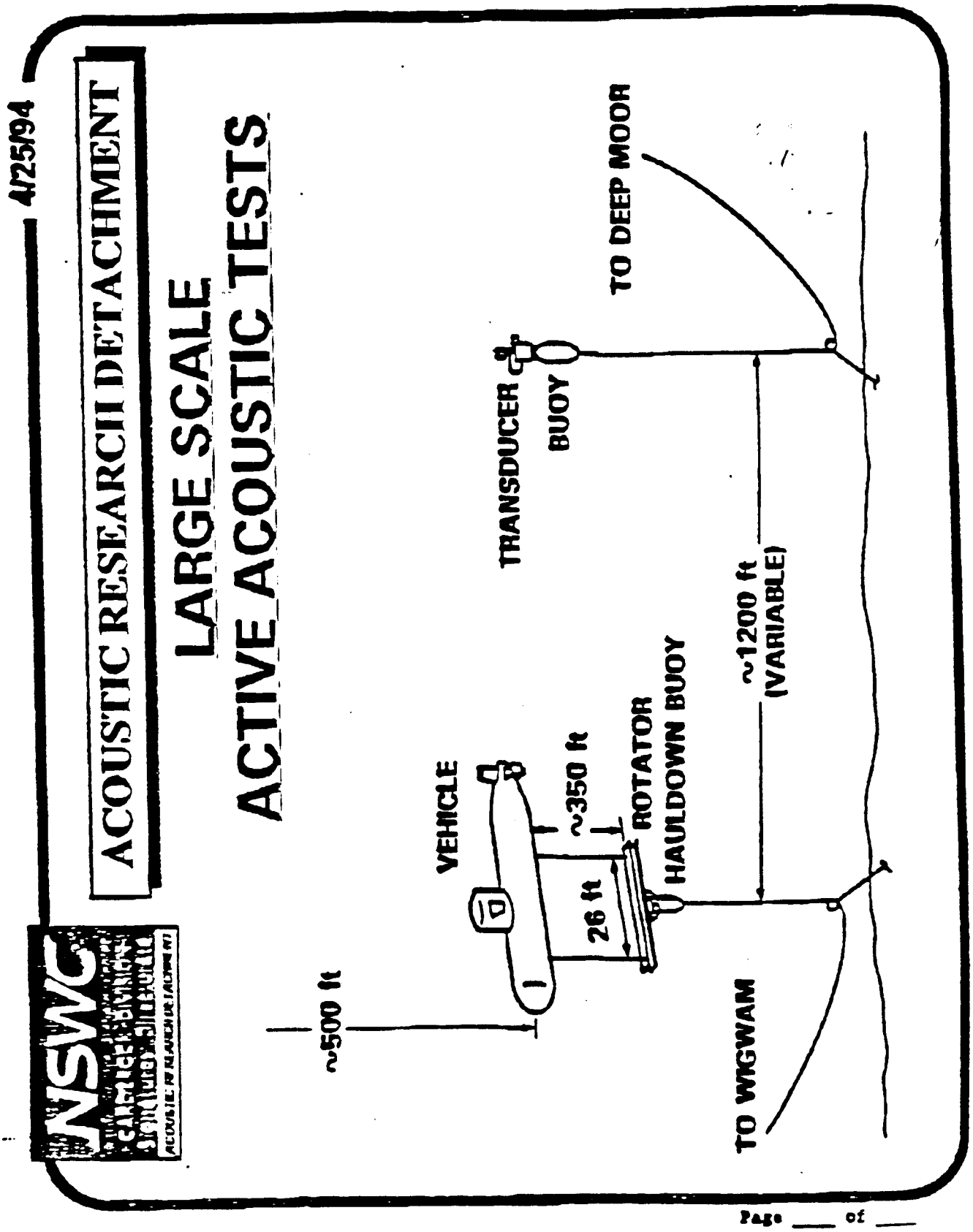


Figure 4.7


4/25/94
ACOUSTIC RESEARCH DETACHMENT
LARGE SCALE
ACTIVE ACOUSTIC TESTS
NSWC
TO DEEP MOOR
TRANSDUCER
BUOY
~1200 ft
(VARIABLE)
VEHICLE
~350 ft
ROTATOR
HAULDOWN BUOY
26 ft
~500 ft
TO WIGWAM

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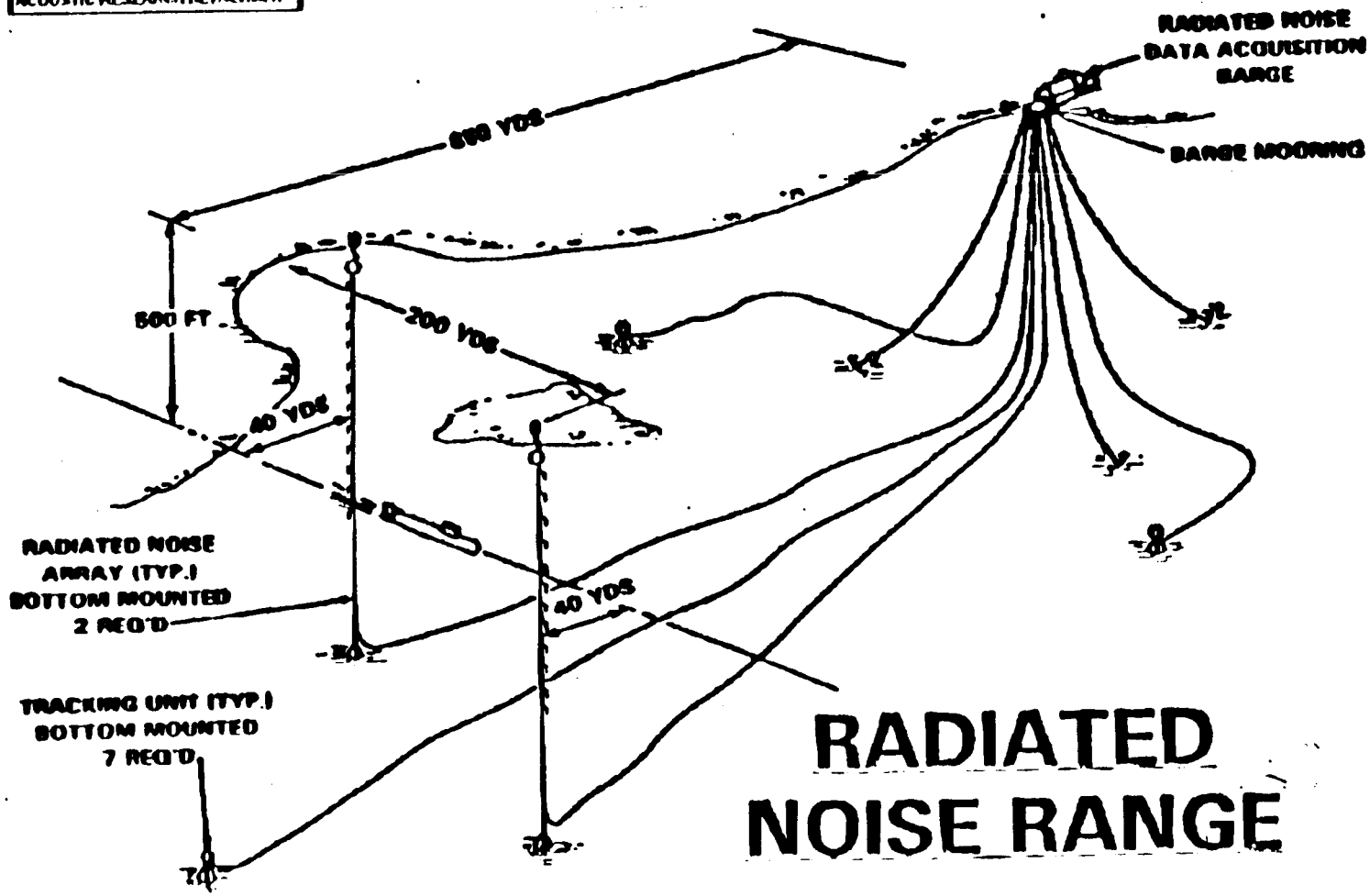
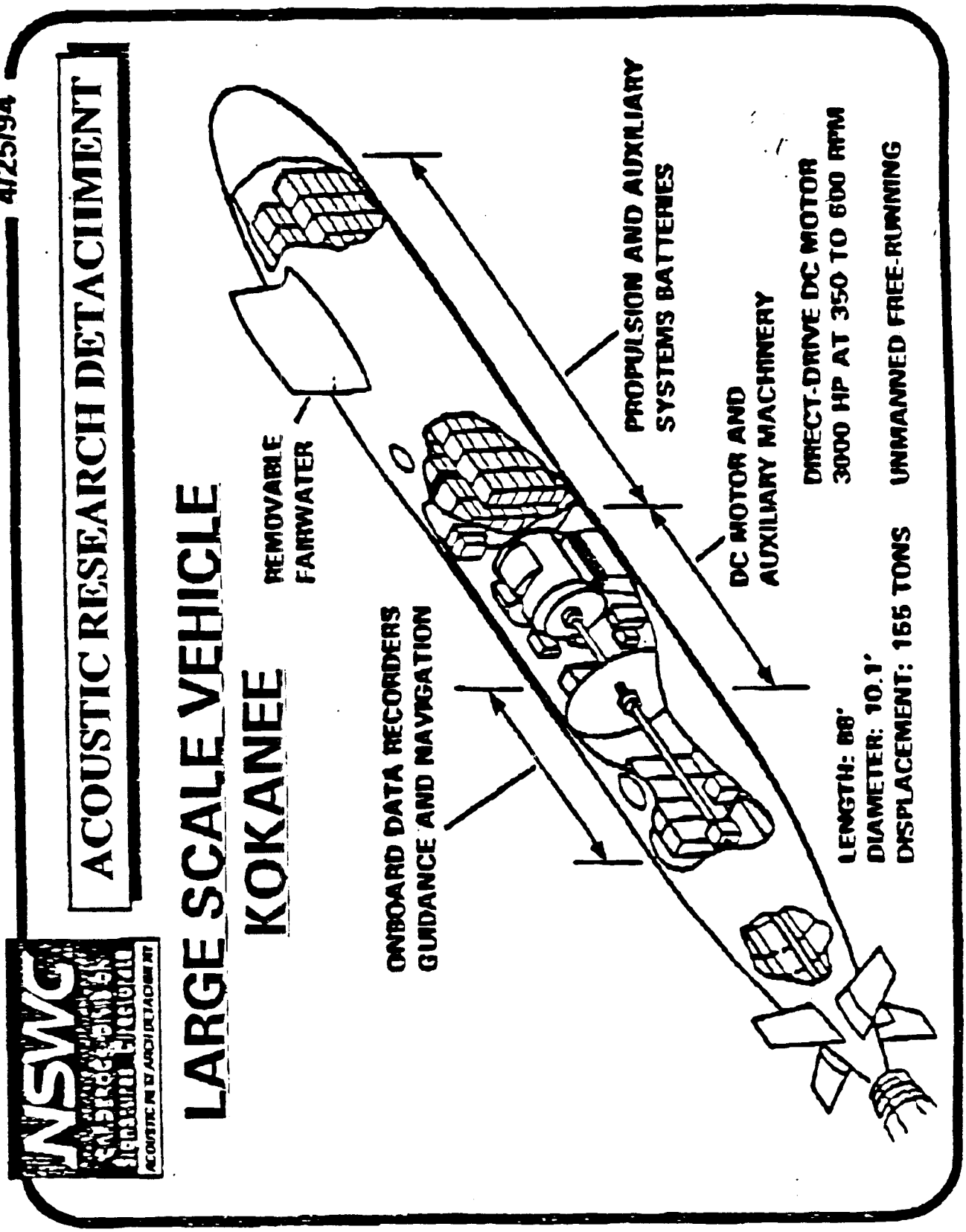
SIGNATURES DIRECTORATE
ACOUSTIC RESEARCH DETACHMENT

ACOUSTIC RESEARCH DETACHMENT



RADIATED
NOISE RANGE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ACOUSTIC RESEARCH DETACHMENT
LARGE SCALE VEHICLE
KOKANEE
REMOVABLE FAIRWATER
ONBOARD DATA RECORDERS
GUIDANCE AND NAVIGATION
PROPULSION AND AUXILIARY
SYSTEMS BATTERIES
DC MOTOR AND
AUXILIARY MACHINERY
DIRECT-DRIVE DC MOTOR
3000 HP AT 350 TO 600 RPM
UNMANNED FREE-RUNNING
LENGTH: 88'
DIAMETER: 10.1'
DISPLACEMENT: 165 TONS

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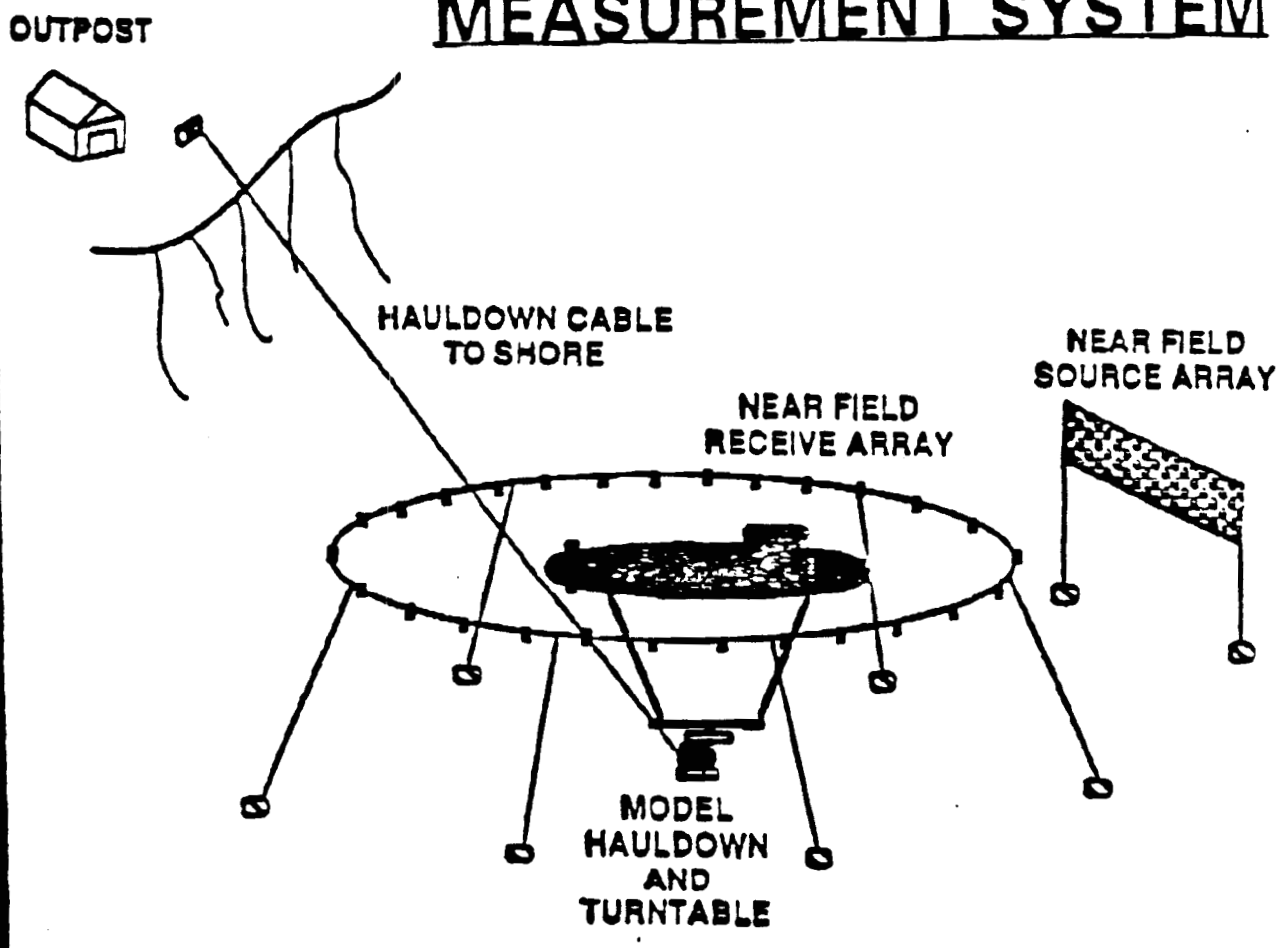
CARDEROCK DIVISION
ACOUSTIC RESEARCH DETACHMENT

ACOUSTIC RESEARCH DETACHMENT

INTERMEDIATE SCALE MEASUREMENT SYSTEM



A precision measurement system for the development of submarine structural acoustic technologies.

Figure 4.12

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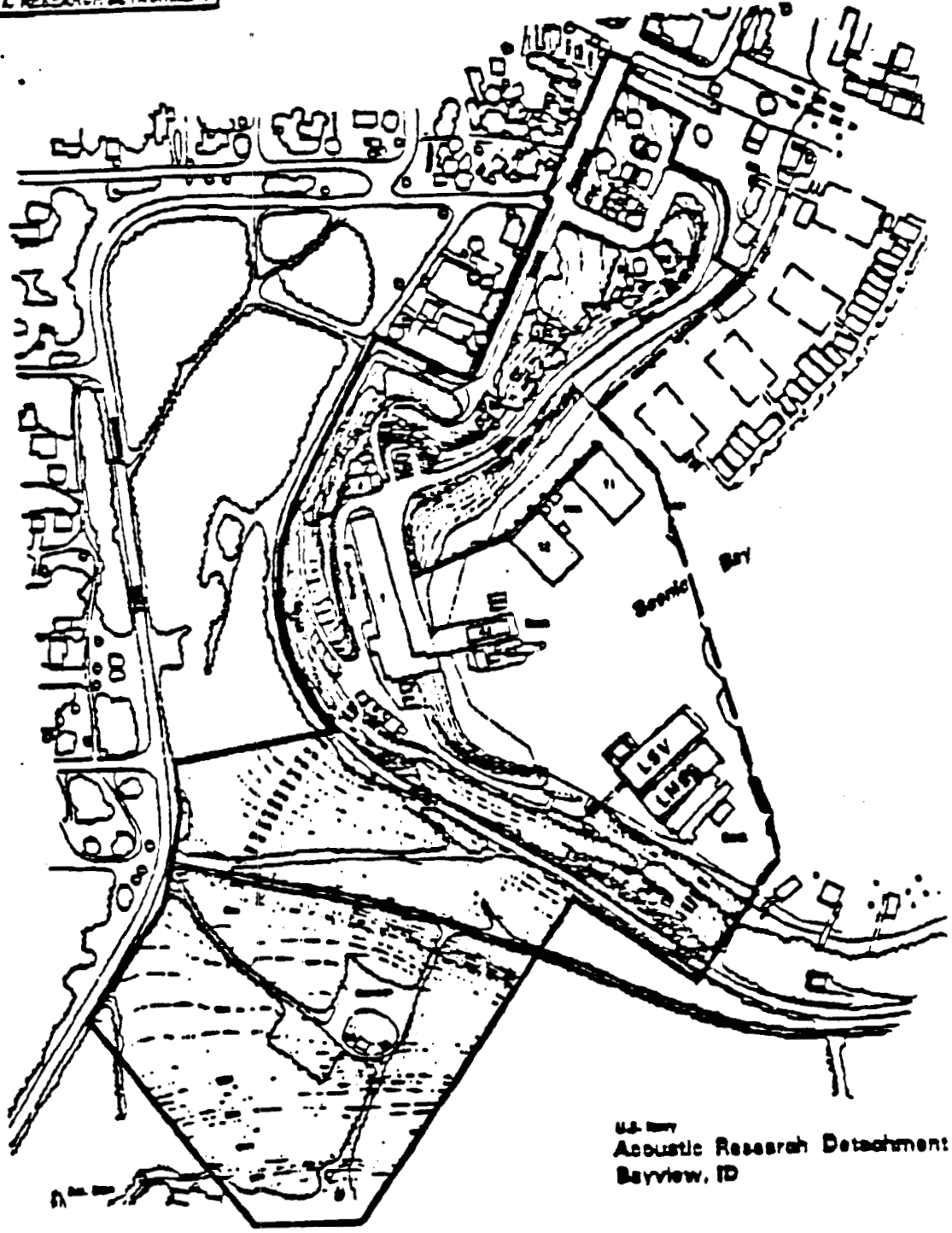
Signatures Directorate

ACOUSTIC RESEARCH DETACHMENT

ACOUSTIC RESEARCH DETACHMENT



UIC: N62182

Table 4.1, General Support Resources for (Activity: NSWC Carderock Division, Acoustic Research Detachment, Bayview, Idaho) (UIC: 62182)

Function	Space allo-cated (Gross SQFT)	Work Years	Civil-ian Persnel On-board	Con-tract Work Years	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/TD/etc.)	343	2	1	0	1	0
Comptroller	0	0	0	0	0	0
Admin	314	3	3	0	0	0
Human Resources	0	0	0	0	0	0
OPERATIONS SUPPORT						
Supply Management	3209	2	2	0	0	0
Consolidated Computational Computer Support	0	0	0	0	0	0
Information Systems and Communications	0	0	0	0	0	0
Safety/OSH/Environmen tal	565	1	1	0	0	0
INFRASTRUCTURE						
Physical Security	1590	3	3	12.6	0	0
Public Works/Staff	75	1	1	0	0	0
Fire Protection	0	0	0	0	0	0
Medical/Dental	0	0	0	0	0	0
Military Support	0	0	0	0	0	0
Air/Waterfront Operations	0	0	0	0	0	0
Other	0	0	0	0	0	0
TECHNICAL STAFF						
Technical Operations			37	55.2	0	0
Totals	6096	12	48	67.8	1	0

Note:
Headquarters at Carderock supplies other administrative support.

Table 4.2, General Support Resources for all Detachments

NOT APPLICABLE

Table 4.3 Previous BRAC Impact to General Support Resources

NOT APPLICABLE

5. Technical Staff Qualifications.

a.

Table 5.1, Technical Staff Education Level for (Activity:_BAYVIEW SITE) (UIC: 62182)

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	1	2	5	1	5	14
B.A./B.S	0	8	3	1	4	16
M.A./M.S	0	5	1	1	0	7
Ph.D./ M.D.	0	0	0	0	0	0
Total	1	15	9	3	9	37

NOTE: Data provided is based on a local survey conducted at the facility on 21 April 1994.

Table 5.2, Technical Staff Education Level for all Detachments

NOT APPLICABLE

5b.

Table 5.3, Technical Staff Academic Fields for (Activity:BAYVIEW SITE) (UIC: 62182)

Academic field	Number
Physics	1
Chemistry	
Biology	
Mathematics/Statistics/ Operations Research	
Engineering	4
Medical	
Dental	
Computer Science	
Social Science	
Other Science (Acoustics)	2
Non-Science	
Total	7

NOTE: Data provided is based on a local survey conducted at the facility on 21 April 1994. Personnel with Masters or Ph.D.

Table 5.4, Technical Staff Academic Fields for all Detachments

NOT APPLICABLE

c. Unique aspects of the activity's location that help or hinder in the hiring of qualified personnel:

The facility can hire people from qualified engineering schools from Washington and Idaho. It is attractive to personnel who are outdoor enthusiasts.

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

Dean E. Capone	(Pub.Pending)	Calculation of Turbulent Boundary Layer WallPressure Spectra Journal of Acoustical Society of America
William P. Clarke	1990	A Thermodynamic Property Formulation for Air. I. Single-Phase Equation of State from 60 K to 873 K at Pressure to 70 MPa Int. Journal of Thermophysics, 11 (1)
William P. Clarke	1990	A Thermodynamic Property Formulation for Air. II. Thermodynamic Properties on the Dew and Bubbles Int. Journal of Thermophysics, 11 (1)
William P. Clarke	1993	An Extended Corresponding States Model for Predicting Thermodynamic Properties of Ar-O2 MixturesFluid Phase Equilibria, 88:13
William P. Clarke	1994	A Revised and Extended Corresponding States Model for Predicting Thermodynamic Properties of N2-Ar-O2Mixtures Including Vapor-Liquid Equilibrium States Int. Journal of Thermophysics
Toby D. McNeal	(Pub.Pending)	Acoustic Intensity Measurements in the Presence ofLow Mach Number Flow Journal of Acoustical Society of America
Doug Odell	1991	A Versatile Integrated Acoustic Beamforming on Communications, Computers and Signal Processing IEEE Pacific Rim Conference

NOTE: The Bayview personnel work in a synergistic manner with personnel at Carderock. Most of the scientific work that would be published in journals emanates from Carderock. Testing to validate scientific work is done at Bayview.

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

NONE

f. Identify any Nobel laureates employed at this activity.

NONE

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

NONE

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

John D. Cranney	1992	Certificate of Achievement Commander, DTRC
Henry J. Netzer	1990	Meritorious Civil Service Award, COMSUBDEVRON 12

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

Doug Odell	1993	Digital Beamforming and NUWC Keyport Filtering Circuit

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

NONE

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

NONE

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

NONE

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

NONE

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

NONE

o. End item prototypes:

1. SEAWOLF CLASS SUBMARINE STEALTH TECHNOLOGY TEST & EVALUATION

a. SSN 21 Propulsor Evaluation: The test and evaluation of quarter scale SSN 21 Propulsor at the Bayview Detachment has allowed multiple propulsor configurations to be tested on the Large Scale Vehicle (a quarter scale SSN 21 autonomous vehicle (see TAB B(10)) model. While monitoring Broad Band and Narrow Band radiated acoutic noise, powering, and cavitation inception design changes are made to meet strict radiated noise/performance requirements and has resulted in significant cost savings through prototyping on a quarter scale model to determine the optimum configuration prior to building a full scale unit and conducting trials when the first SSN 21 goes to builders trials in FY 95/96. Based on the success of the SSN 21 propulsor testing, a low cost variant of the SEAWOLF's propulsor is currently undergoing testing to support the New SSN program. Test configuration is incorporated in SEAWOLF propulsor specification.

b. SSN 21 Propulsion Machinery and Foundation Piping Resonance Avoidance: The test and evaluation of a quarter scale SSN 21 machinery room model (the S6W model (see TAB B(12)) has allowed piping and foundation resonances due to rotating machinery vibration isolation configuration to be tested and re-engineered to alleviate vibrational resonances in piping and rotating machinery on the full scale design. REFERENCE: Report, Warwick, et. al, "S6W Resonance Avoidance", DTRC E 88 60 371 C, 15 February 1988

c. SSN 21 Bow Area Flow Noise Reduction: The test and evaluation on a quarter scale SSN 21 buoyant propeller model (see TAB B(9)) has allowed the evaluation of flow noise in relation to sonar self noise to evaluate both individually and collectively the effects of bow area features such as Bow Planes, Main Ballast Tank Flood Grates, Torpedo Tube Shutter Doors, Ejection Pump Doors, WLR-9 Sonar Hydrophone Fairing, Dome Attachment Techniques and various topside discontinuities, on the overall sonar self noise levels and allow modifications to the engineering design prior to installation on the first SSN 21 which has an expected IOC of FY 95/96. These tests have provided significant cost and engineering design savings in determining the geometries and location of these features to ensure SEAWOLF meets the required noise baseline. REFERENCE: "Acoustic Evaluation of Modeled SSN 21 Lead-Ship Bow Design: Results of KAMLOOPS SSN 21 Full-Up Acoustic Test, Summer 1990 and Spring 1991 (TASK 11A03) (U) (In preparation).

2. SUBMARINE MACHINERY SILENCING TEST & EVALUATION

a. SSN 688 Improved Performance Machinery/SSTG constrained Frame Foundation Evaluation : The test and evaluation utilizing a quarter scale model (see TAB B(13)) of the SSN 688 class submarine engineroom provided improved structural designs in this class of subamrine's machinery silencing program and has provided a more indepth understanding of structural acoutics in the design of the SSN 21 at a significantly reduced cost. This testing identified acoustic resonances and radiated noise paths and allowed for the re-engineering of SSN 688 machinery and SSTG foundation which was introduced into the fleet in 1986.
REFERENCE: Report, Cole, et. al., "Improved Performance Machinery (IPMP) Structural Acoustic Evaluation", DTRC E 88 60 188 C, 1 February 1988.

3. SUBMARINE SONAR BOW DOME TEST & EVALUATION

a. Submarine Glass Reinforced Plastic (GRP) Sonar Dome: The test and evaluation on quarter scale buoyant models provided identification of the mechanisms of flow induced sonar self noise on existing steel bow domes and led to the development and testing of the GRP bow dome which significantly reduced flow induced noise and was introduced into the fleet in 1972. REFERENCE: Report, Smith, G.A., Wasserman, R, and Granum, P, "Final Results of Project D/S 547 - Glass Reinforced Plastic Dome Evaluation (U)," NSRDC Ship Acoustics Department Resarch and Development Report C-4376 (Apr 74).

b. Submarine Composite Sonar Dome: The test and evaluation on quarter scale buoyant models provided significant cost savings for composite sonar domes prior to full scale design and construction. The composite sonar domes were introduced into the fleet in 1976. REFERENCE: Report, Lewis, K.A., "Evaluation of Flow-Induced Platform-Noise Fields Inside Two Model Composite Bow Domes on KAMLOOPS (U), " DTNSRDC Ship Acoustics Department Evaluation Report SAD-C223E-1942 (Nov 78).

c. Submarine Booted GRP Sonar Dome: The test and evaluation results on flow noise reduction for rubber booted GRP sonar domes on quarter scale buoyant models demonstrated a significant reduction in sonar self noise. Fleet introduction occured in 1981.
REFERENCE: Model Report, Lewis, K.A., "Evaluation of Model Dome Boots on KAMLOOPS (U)," DTNSRDC Ship Acoustics Department Evaluation Report SAD-C83/49E-1933 (Aug 83).

d. SSN 21 Flow-noise rsearch at the ARD led to incorporation of the following silencing features in the prototype ship now under construction. REFERENCE: Full-Scale Report, Cozzens, David W., Gates, Timithy, and Lewis, Kenneth A., "Results of Special TRIDENT Dome Evaluation Conducted on USS HENRY M. JACKSON (SSBN 730) During March 1990 (SSN 21 Deliverable 12C01a7) (U)," DTRC Ship Acoustics Department Research and Development Report DTRC-SAD-S91/1E-1993 (Oct 1990).

4. HULL COATING TARGET STRENGTH REDUCTION TEST & EVALUATION

"A KAMLOOPS test was conducted at the Center's Lake Pend Oreille test facility in the summer of 1981 to demonstrate the performance of Special Hull Treatment tiles. This data was used as an aid in the eval;uation of target strength data taken during tests of the first Special Hull Treatment installation installed in the fleet. REFERENCE: An analysis of the data is presented in Hydronautics, Inc. report "Report on KAMLOOPS Experiment Data Reduction Analysis (U) of 26 February 1982.

FACILITIES AND EQUIPMENT

6. Special Facilities/Equipment Resources.

TAB-B's are included after the main body of the submission.

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.

No.

b. What MILCON projects are currently programmed to be completed by the end of FY1995?

There are no MILCON projects in execution or to be completed by end of FY95.

c. What MILCON projects are currently programmed to be executed/completed after FY1995?

(1) Description:

P-0210 (Ship Model Engineering & Support Facility) - This project is a land level two story concrete masonry building with 36,500 sq. ft. of floor, office, and lab space. The building will be outfitted with fire protection, air conditioning, and special model handling equipment, to support outfitting/storage and reconfigured quarter and fifth scale models.

(2) Functional support area(s) the new facility will support:

MILCON P-0210 will support FSA/LCWA 1.1/3&4 for large and intermediate scale model testing at the Bayview Detachment (Lake Pend Oreille, Id). It will provide the necessary facilities for supporting multiple large and intermediate scale submarine models schedule to be delibered by FY97-FY98. The facilities will provide a secure platform for their outfitting classified components, and environmentally controlled environment for the preparation and retrieval of the classified electronic data from the test platforms, and for simultaneous pre/post operations of the various models.

(3) Installed equipment to be provided:

Installed overhead bridge crane costs < $500,000.

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

The building squre footage will be 36,500 and will provide functional support area 1. Platforms 1.1. Undersea.

(5) CWE & planned BOD:

The current working estimate is $6.5 million and planned beneficial occupancy is October 1996.

d. What is the distance (in miles) to the nearest military airfield and/or pier not located at your site?

Fairchild Air Force is located 75 miles from the Acoustic Research Detachment, Bayview, ID.

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?

This activity has no explosives storage magazines.

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!

The imperative that requires the test facilities in Bayview to remain at their present location is primarily associated with the geological, climatic and other environmental characteristics of Lake Pend Oreille. Lake Pend Oreille's depth, exceptionally low ambient noise, large and unobstructed operating areas, isothermal temperature profile, favorable bottom contour and still waters are a unique combination of attributes essential for current and future progress in submarine stealth. These environmental attributes are at the core of the highly cost-effective techniques used at this facility for developing and refining new technologies and validating their performance before incorporation into the Fleet or into new ship designs. The most important hydroacoustic advances in design of U.S. nuclear submarines have all been tested at Lake Pend Oreille.

The facility can not be duplicated elsewhere since no other site exists with the required environmental attributes. No known U.S. facility, and certainly no other current DoD facility, provides the needed combination of depth, still water, flat bottom contour, isothermal temperature profile, low ambient noise, very low encroachment potential, large and unobstructed operating areas, etc. which are provided by Lake Pend Oreille. Specific environmental parameters include:

(1) Quiet: Sea State Zero or less 25% of the time
Sea State Zero or less 50% of the time at night
Nighttime levels as much as 15 dB below Sea State Zero
3-5 dB lower ambient than open ocean for same wind condition
(2) Isothermal at 39.5 degrees F below the surface layer
(3) Current less that 1/10 knot below 100 feet with 0.02 knot average
(4) Transmission loss fluctuations std deviation = 0.3 dB at 10kHz and 1kYd
(5) Very low volume reverberation of -39 dB dropping to -53 dB in 0.3 seconds
(6) Deep with over 26 square miles greater than 1000 feet
(7) Flat bottom with large areas at a depth of 1150 feet $\pm$ 5 feet

Past experience has demonstrated that submarine models large enough to represent

accurately the essential hydroacoustic and structural features of full scale ships are cost-effective tools for developing new technologies and validating their performance. The models used for testing in Lake Pend Oreille are typically one-fifth to one-quarter scale of the full design. It has been shown that this scale is large enough to accommodate sufficient structural detail and to allow accurate scaling of important hydrodynamic parameters, yet small enough to make testing economically feasible. The translation of measurement data to full scale performance can be reliably achieved, with tests that are less costly than full scale work by almost two orders of magnitude. Some examples of technology areas which have been extensively tested in Bayview include the following:

(1) GRP sonar domes
(2) Neoprene dome boots
(3) Wide aperture sonar arrays
(4) Advanced submarine propulsors
(5) Hull treatments for radiated noise and target strength reduction
(6) Hull vibration transfer functions for monitoring transients and own ship's radiated noise
(7) Development of applications for exploiting phenomena such as those related to low frequency active acoustics

Unpowered, buoyantly propelled, models of SSN637, SSN688 and SSN21 class submarines have provided essential design data for sonar self-noise control at high ship speeds. A quarter scale, powered model of SSN21, called the Large Scale Vehicle (LSV), has been instrumental in developing a new propulsor of exceptional performance. Currently, LSV is supporting development of a propulsor for the New Attack Submarine (NAS) that will meet SSN21 goals at less than half the cost. The Intermediate Scale Measurement System (ISMS), currently in the final stages of installation, will provide new technologies leading to integrated hull and internal structural arrangements which combine low cost with an intrinsically effective reduction in reflected and radiated acoustic energy. The size of the lake enables active emissions to be reflected from a model and reach the receiver before reflections from the surface, bottom and sides of the lake contaminate the data.

Stealth is the defining characteristic of submarine designs. The capability to test and evaluate new technologies on large scale models at Lake Pend Oreille prior to making design commitments is critical for ensuring the stealth of all future U.S. submarine designs. Lake Pend Oreille is the only facility that provides the required environment. The Navy must, therefore, maintain this unique site, including the base property and waterfront facilities at Bayview, as well as the in-water ranges and large submarine models, for as long as it envisions a need for investment in improved submarines.

Bayview is located approximately 60 miles from Spokane International Airport. Two

major rail lines serve the Couer d'Alene and Sandpoint areas. Large models can be brought to the lake via rail, launced at Sandpoint and floated to Bayview. The area is also serviced by major trucking routes.

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

The importance of the present location to the customers supported is related to the environmental attributes described above. The success of all customer supported programs at Bayview is dependent on the highly cost-effective techniques used at this facility for developing and refining new technologies and validating their performance. The most important hydroacoustic advances in design of U.S. nuclear submarines have all been validated through testing at Lake Pend Oreille.

FEATURES AND CAPABILITIES

9. Computational Facilities.

a. Descriptions:

ISMS

The data acquisition and processing system for ISMS consists of dedicated, distributed components including A/D conversion, MUX, fiber optic data transmission lines, array processors, workstations, and disk/tape storage media. The system workstations and storage media are integrated as a network but are not connected to any general purpose networks outside the ISMS facility.

NETWORK

The ARD is equipped with a 10 mbit/sec Ethernet Network. Buildings and major support platform are interconnected using a fiber-optic cable backbone, with engineering and administrative workstations connected using 10BaseT wiring. Network assets include file/email servers, communications servers providing modem dial-in and dial-out support, CD-ROM reader servers and planned 56Kbps DDS switched services to Carderock. Network services include E-Mail, File Sharing, cross-platform connectivity between DOS based PC's, MacIntosh, OS/2 and UNIX based computers.

VIDEO TELECONFERENCING

The ARD is planned to be part of the NSWC VTC network by the end of July 1994. A tele-video conferencing studio will be located in our main conference room and

connected to Carderock with dual 56Kbps (112Kbps) DDS switched services using a T-1 link. Once connected, we will be capable of VTC with NSWC, Carderock, Bethesda, Annapolis, Philadelphia, and Bremerton.

RADIATED NOISE BARGE (RNB) PRIMARY PURPOSE

The primary purpose of the Radiated Noise Barge (RNB) is to acquire and process radiated noise data from scale models on Pend Oreille Lake. Additionally, the RNB is used to maintain the database of all LSV radiated noise data. This facility also houses the computer system for radiated noise data analysis and reporting. The RNB also contains the interface and communication computer for the LSV Acoustic Track and Control System (ATACS).

RNB COMPUTATIONAL CAPABILITY

The RNB computational resources include six Hewlett Packard workstations. These systems run custom software for the acquisition, processing, and analysis of radiated noise data. The work load is distributed throughout the workstations and ethernet IEEE 802.3 is utilized for network connectivity. In addition, these systems provide the I/O for instrumentation control. The majority of the RNB instrumentation (amplifiers, filters, analyzers, matrix switches, etc.) are controlled by IEEE 488. Commercial narrowband and one-third octave analyzers provide FFT computations for data reduction. Custom analog and digital beamformers provide an additional computational capability.

BUOYANT TEST VEHICLE DATA ACQUISITION AND ANALYSIS SYSTEM

The buoyant test vehicle data acquisition and analysis system is a specialized Hewlett Packard (HP) based system for the acquisition and analysis of hydroacoustic data. The acquisition system, located on the test vehicle, consists of a HP 9836 computer controlling a HP 3852 data acquisition unit. The HP 9836/3852 in turn controls the signal acquisition equipment, including programmable amplifiers/filters and up to four twenty eight track analog tape recorders.

The data reduction and analysis system is run by two HP 9836 computers. The computers are used to control data playback and reduction. The data is processed into one third octave format and archived for future use.

DATA PROCESSING SYSTEM (DPS) LAB PRIMARY PURPOSE

The primary purpose of the Data Processing System (DPS) Laboratory is to process and support the analysis of on-board Large Scale Vehicle (LSV) data. This data is in the form of time history and frequency domain data for hydrophones, accelerometers,

load cells, strain gauges, and other miscellaneous sensors throughout the LSV.

DPS Lab Computational Capability

The Data Processing System consists of five SUN computers (4 Workstations and a Network Server) networked together with two ethernet networks -- a regular speed ethernet (10 Mbits/sec) and a high speed CDDI ethernet (100 Mbits/sec) -- using a TCP/IP protocol. The heart of this network is a SUB SPARCserver 670. It contains 17 GBytes of hard disk storage, 256 MBytes of RAM, a vector processor That operates at 200 Gflops, and a 32 channel A/D card with 100 Ksamples/channel. This server is controlled by a RISC SuperSPARC processor. Of the four workstations on the network, two are SPARCstation LXs and two are SPARCstation 10s. The LXs have 424 MBytes of disk storage, 16 MBytes of RAM and a 50 MHZ MicroSPARC processor. The 10s have 424 MBytes of disk storage, 32 MBytes of RAM, graphic accelerators, and a 36MHz SuperSPARC processor. All four SPARCstations are routinely used to parallel process LSV data. The Data Processing System has custom software to playback, display, and reduce both analog and digitally recorded data. The digital signal processing routines available to analysts are Auto Spectra, Cross Spectra, Coherence and Phase, Digital Filtering, Hilbert Transforms, Frequency Response Function, and Audio Output.

Large Scale Vehicle Software Maintenance Facility

The Large Scale Vehicle (LSV) Software Maintenance (SMF) is used to analyze, design, develop and accomplish configuration changes to the LSV Autonomous Control Software (ACS) and other LSV real-time software programs. These software control real-time autonomous operation of the Large Scale Vehicle and subsystems in Lake Pend Oreille, Idaho. The SMF consists of the following facilities in a 250 square foot laboratory, qualified for processing confidential data:

- Ship Control Computer (SCC)
- Rolm Disk and Disk Controller
- Silicon Graphics RISC 4400
- Prom Reader/Burner
- Advanced control Systems Language (ACSL)

10. Mobilization Responsibility and Capability.

No mobilization plan required for this site.

11. Range Resources.

TAB-C's are included after the main body of the submission.

QUALITY OF LIFE

12. Military Housing

(a) Family Housing:

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

NO for Acoustic Research Detachment , Bayview only.

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

Data obtained from Fairchild Air Force Base.

Type of Quarters	Number of Bedrooms	Total number of units	Number Adequate	Number Substandard	Number Inadequate
Officer	4+	25	25	0	0
Officer	3	136	136	0	0
Officer	1 or 2	18	18	0	0
Enlisted	4+	79	79	0	0
Enlisted	3	658	658	0	0
Enlisted	1 or 2	507	507	0	0
Mobile Homes	0	0	0	0	0
Mobile Home lots	0	0	0	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:

No inadequate housing exists at Fairchild Air Force Base.

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

Pay Grade	Number of Bedrooms	Number on List[1]	Average Wait
O-6/7/8/9	1		-
	2		
	3		
	4+	1	3 months
O-4/5	1		
	2		
	3	5	12 months
	4+	5	16 months
O-1/2/3/CWO	1		
	2	35	20 months
	3	7	20 months
	4+	14	24 months
E7-E9	1		
	2		
	3	47	20 months
	4+	12	24 months
E1-E6	1		
	2	363	12 months
	3	98	12 months
	4+	68	24 months

NOTE: Data obtained from Fairchild Air Force Base.

[1]As of 31 March 1994.

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

Top five factors reported by Fairchild Air Force Base as not being grade-dependent:

	Top Five Factors Driving the Demand for Base Housing
1	Local Area Housing Costs
2	Availability of Local Housing
3	Convenience of Services
4	Security & Safety
5	Quality of Life

(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% per Fairchild Air Force Base requirements.

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

Type of Quarters	Utilization Rate
Adequate	98.6%
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?

Occupancy has been consistent for the last year.

(b) BEQ:

NOTE: Data obtained from Fairchild Air Force Base.

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

Type of Quarters	Utilization Rate
Adequate	93%
Substandard	0%
Inadequate	0%

(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?

Both due to downsizing of forces and change of mission.

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

AOB = (# Geographic Bachelors x average number of days in barracks) / 365)

13

(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.)	13	100%	
Spouse Employment (non-military)			
Other			
TOTAL	13	100	

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

Fairchild Air Force Base does not maintain data for off-base geographic bachelors. (not required by Air Force).

(c) BOQ:

Fairchild Air Force Base does not have separate BOQ (see (d) next page) but has permanent and temporary housing for officer and enlisted personnel.

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

Type of Quarters	Utilization Rate
Adequate	0
Substandard	0
Inadequate	0

(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?

Fairchild Air Force Base does not have separate BOQ facilities.

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

N/A

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

N/A

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

Fairchild Air Force Base does not maintain records for geographic bachelors that live off-base.

(d) BOQ/BEQ Housing and Messing.

Note: This data obtained from Fairchild Air Force Base

(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.

Not Applicable to Bayview Site.

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

(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.

Not Applicable to Bayview Site.

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

(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.

Not Applicable to Bayview Site.

Facility Type, CCN and Bldg. #	Total Sq. Ft.	Adequate		Substandard				InadequateAvg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	

(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:

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

Not Applicable to Bayview Site.

Facility Type, CCN and Bldg. #	Total Sq. Ft.	Adequate		Substandard				InadequateAvg # Noon Meals Served
		Seats	Sq Ft	Seats	Sq Ft	Seats	Sq Ft	

(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:

13. MWR Facilities. For on-base MWR facilities[2] 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 Fairchild Air Force Base DISTANCE 75 miles

Facility	Unit of Measure	Total	Profitable (Y,N,N/A)
Auto Hobby (Skills Center)	Indoor Bays	20	Y
	Outdoor Bays	0	N/A
Arts/Crafts	SF	6,321	N
Wood Hobby	SF	7,900	N
Bowling	Lanes	12	Y
Enlisted Club (co-located with Officer's Club)*	SF	38,815	Y
Officer's Club*	SF	*	Y
Library	SF	7,700	N/A
Library	Books	38,000	N/A
Theater	Seats	500	N/A
ITT	SF	300	Y
Museum/Memorial	SF	18,408	N/A
Pool (indoor)	Lanes	6	N
Pool (outdoor)	Lanes	40X60	N
Beach	LF	80X60	N/A
Swimming Ponds	Each	0	N/A
Tennis CT	Each	10	N/A

[2]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	1	N/A
Basketball CT (outdoor)	Each	3	N/A
Racquetball CT	Each	4	N/A
Golf Course	Holes	0	N/A
Driving Range	Tee Boxes	6	N
Gymnasium	SF	0	N/A
Fitness Center	SF	53,711	N/A
Marina	Berths	14	Y
Stables	Stalls	0	N/A
Softball Fld	Each	4	N/A
Football Fld	Each	1	N/A
Soccer Fld	Each	0	N/A
Youth Center	SF	12,100	N

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

The Fairchild Air Force Base lilbrary is part of the regional inter-library loan program.

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.

NONE - Acoustic Research Detachment, Bayview has no child care services on base.

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:

NONE exists on base.

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.

NONE exists on base.

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

NONE exists on base.

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).

NONE. Closest military installation is Fairchild Air Force Base which is 75 miles and approximately 70 minutes from the Acoustics Research Detachment, Bayview.

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

(Data obtained from Fairchild Air Force Base)

Service	Unit of Measure	Qty
Exchange	SF	65,730
Gas Station	SF	3,409
Auto Repair (co-located with Auto Parts Store)*	SF	3,919
Auto Parts Store*	SF	3,919
Commissary	SF	83,200
Mini-Mart	SF	700
Package Store	SF	600
Fast Food Restaurants	Each	1
Bank/Credit Union	Each	1
Family Service Center	SF	1442
Laundromat	SF	800
Dry Cleaners	Each	1
ARC	PN	0
Chapel	PN	400
FSC Classrm/Auditorium	PN	0

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

City	Distance (Miles)
Spokane	58
Coeur d'Alene	28
Post Falls	35
Sandpoint	33

16. Standard Rate VHA Data for Cost of Living: (Data obtained from Fairchild Air Force Base)

Paygrade	With Dependents	Without Dependents
E1	58.35	32.65
E2	58.35	36.79
E3	54.97	40.51
E4	72.69	50.73
E5	80.39	56.13
E6	114.33	77.83
E7	106.19	73.76
E8	116.19	88.07
E9	149.93	113.81
W1	0	0
W2	0	0
W3	0	0
W4	0	0
O1E	72.96	54.12
O2E	76.47	60.97
O3E	114.41	96.79
O1	41.12	30.30
O2	58.58	45.79
O3	126.78	106.74
O4	94.66	82.32
O5	45.74	37.83
O6	76.16	63.04
O7	0	0

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	$250	$175	$50
Apartment (1-2 Bedroom)	$480	$250	$75
Apartment (3+ Bedroom)	$575	$500	$150
Single Family Home (3 Bedroom)	$900	$460	$175
Single Family Home (4+ Bedroom)	$1050	$560	$200
Town House (2 Bedroom)	N/A	N/A	N/A
Town House (3+ Bedroom)	N/A	N/A	N/A
Condominium (2 Bedroom)	$700	$525	$75
Condominium (3+ Bedroom)	$750	$600	$150

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

Type Rental	Percent Occupancy Rate
Efficiency	98%
Apartment (1-2 Bedroom)	94%
Apartment (3+ Bedroom)	98%
Single Family Home (3 Bedroom)	94%
Single Family Home (4+ Bedroom)	99%
Town House (2 Bedroom)	98%
Town House (3+ Bedroom)	98%
Condominium (2 Bedroom)	99%
Condominium (3+ Bedroom)	90%

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

Type of Home	Median Cost
Single Family Home (3 Bedroom)	102,400
Single Family Home (4+ Bedroom)	$120,900
Town House (2 Bedroom)	$59,500
Town House (3+ Bedroom)	$74,800
Condominium (2 Bedroom)	$82,600
Condominium (3+ Bedroom)	$130,800

(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	33	56	21
February	44	76	31
March	46	99	52
April	56	113	69
May	59	150	91
June	71	170	91
July	74	170	82
August	83	135	93
September	82	133	72
October	62	107	46
November	53	69	36
December	43	70	23

NOTE: Actuals were obtained for Bonner County; however, estimates for Kootenai County were all that was available given the lack of time to extract data per Acuff Northwest and Centruy 21 reality agencies.

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

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

Not applicable to this facility.

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)
Coeur d' Alene	23%	28	37
Bayview	19%	1	3
Athol	15%	8	10
Hayden Lake	13%	23	28
Sagle/Sandpoint	12%	30	40

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)

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
Head Start Center	Priv.	Pre-School	Yes	None	N/A	N/A	Verna Gable, Prin.
Ironwood Day Care & Pre-School	Priv.	Pre-School	No	$1,200	N/A	N/A	Tina Ziesmer, Dir.
Lakeland Head Start	Pub.	Pre-School	Yes	None	N/A	N/A	Nadine Miller, Family Svcs. Coord.
Lakeland Pre-School	Pub.	Pre-School	Yes	None	N/A	N/A	"
Falls Christain Academy	Priv.	K-12	None	$1,800	463	75%	Robbie, School Sec.
N. Idaho Christian School	Priv.	1 & 5-12	None	$1,500	1,180	25%	Larry Kay, Prin.
LAKELAND SCHOOL DISTRICT # 272							
Athol Elementary	Pub.	K-6	Yes	None	N/A	N/A	R. Schmidt Super.
Garwood Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
John Brown Elementary	Pub.	K-4	Yes	None	N/A	N/A	"
Spirit Lake Elementary	Pub.	Pre-School thru 6	Yes	None	N/A	N/A	"

Lakeland Jr. High School	Pub.	7-9	Yes	None	N/A	N/A	"
Lakeland Sr. High School	Pub.	10-12	Yes	None	21.3	70%	"
POST FALLS SCHOOL DISTRICT # 273							
Post Falls Pre-School	Pub.	Pre-School	Yes	None	N/A	N/A	Post Falls District Office
Ponderosa Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Prairie View Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Seltice Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Post Falls Jr. High School	Pub.	7-8	Yes	None	N/A	N/A	"
Post Falls Sr. High School	Pub.	9-12	Yes	None	com-posite 21.5	60%	"
Post Falls Alternative H.S.	Pub.	9-12	Yes	None	N/A	N/A	"
COEUR D' ALENE SCHOOL DISTRICT #271							
Borah Elementary	Pub.	K-5	Yes	None	N/A	N/A	J. Anderson, Finance Dept.
Bryan Elementary	Pub.	K-5	Yes	None	N/A	N/A	"
Dalton Elementary	Pub.	K-5	Yes	None	N/A	N/A	"
Fernan Elementary	Pub.	K-5	Yes	None	N/A	N/A	"
Hayden Elementary	Pub.	K-5	Yes	None	N/A	N/A	"
Hayden Meadows Elementary	Pub.	K-5	Yes	None	N/A	N/A	"
Ramsey Elementary	Pub.	K-5	Yes	None	N/A	N/A	"

Sorensen Elementary	Pub.	K-5	Yes	None	N/A	N/A	"
Winton Elementary	Pub.	K-5	Yes	None	N/A	N/A	"
Canfield Middle School	Pub.	6-8	Yes	None	N/A	N/A	"
Lakes Middle Schoole	Pub.	6-8	Yes	None	N/A	N/A	"
Coeur d'Alene High School	Pub.	9-12	Yes	None	V-439 M-48 7	approx. 50%	"
Project Coeur d'Alene Alternative School	Pub.	8-12	Yes	None			"
BONNER COUNTY SCHOOL DISTRICT #82							
Clark Fork Junior/Senior High School	Pub.	7-12	Yes	None	503/ 22.87	59%	J. Fisher, Assist. Sup.
Farmin Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Hope Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Idaho Hill Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Lake Pend Oreille High School	Pub.	9-12	Yes	None	o/o	9%	"
Northside Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Priest Lake Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Priest River Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Priest Lamanna High School	Pub.	9-12	Yes	None	437/ 21.47	39%	"
Sagle Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Sandpoint Middle School	Pub.	7-8	Yes	None	N/A	N/A	"
Sandpoint High School	Pub.	9-12	Yes	None	N/A/ 22	52%	"

Southside Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Stidwell Elementary	Pub.	K-6	Yes	None	N/A	N/A	"
Washington Elementary	Pub.	K-6	Yes	None	N/A	N/A	"

(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	
Lewis-Clark State College	Day	NO	NO	YES	YES	NO
	Night	NO	NO	YES	YES	NO
North Idaho College	Day	YES	YES	YES	YES	NO
	Night	YES	YES	YES	YES	NO
Univeristy of Idaho	Day	NO	NO	YES	YES	YES
	Night	NO	YES	YES	YES	YES
Travel Institue	Day	NO	YES	NO	NO	NO
	Night	NO	NO	NO	NO	NO

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

Institution	Type Classes	Program Type(s)				
		Adult High School	Vocational/ Technical	Undergraduate		Graduate
				Courses only	Degree Program	
The Pennsylvania State Unversity	Day	NO	NO	YES	YES	YES
	Night	NO	NO	YES	YES	YES
	Correspon dence	NO	NO	NO	NO	NO
University of Idaho "Corres-ponden ce" Study in Idaho"	Day	NO	NO	NO	NO	NO
	Night	NO	NO	NO	NO	NO
	Correspon dence	YES	YES	YES	NO	NO
National Independent Study Center U.S. OPM	Day	NO	NO	NO	NO	NO
	Night	NO	NO	NO	NO	NO
	Correspon dence	NO	YES	NO	NO	NO
In general, any satellite courses can be obtained.	Day					
	Night					
	Correspon dence					

21. Spousal Employment Opportunities.

Provide the following data on spousal employment opportunities.

Not applicable to this facility due to no family service center located at this Detachment.

Skill Level	Number of Military Spouses Serviced by Family Service Center Spouse Employment Assistance			Local Community Unemployment Rate
	1991	1992	1993	
Professional	None	None	None	*
Manufacturing	None	None	None	*
Clerical	None	None	None	*
Service	None	None	None	*
Other	None	None	None	*

* NOTE: Overall unemployment rate for all levels equals 7%.

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 difficulties have been identified to date.

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 difficulties have been identified to date.

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.

R

CLARIFICATION FOR BRAC 95 Data Call #5 Question #23

To clarify ambiguties in response to the above question, please provide the CRIME RATES for your surrounding community or county/township/parrish/city in these three categories:

VIOLENT CRIME RATIO
PROPERTY CRIME RATIO
DRUG CRIME RATIO

RESPONSE: (for Calendar Year 1993)

CATEGORY	1993 CRIME RATIO (data in rate per 100,000)
Violent Crime Ratio (includes: *Murder, Rape, Robbery, Aggravated Assault*)	382.2
Property Crime Ratio (includes: *Burgerly, Larceny, Motor Vehicle Theft, Arson, Counterfiet/Forgery, Vandalism, Embezzelment, Fraud, Stolen Property)*	6569.4
Drug Crime Ratio (includes: *Drugs and Alcohol*)	490.0

NOTES:
#1: Crime Rates for Kootenai County
#2: Data provided by the Idaho Criminal Bureau of Investigation
#3: 1993 Population of Kootenai County was 77,550

Crime Definitions	FY 1991[A]	FY 1992[A]	FY 1993[A]
1. Arson (6A)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	33	38	NOTE 2
2. Blackmarket (6C)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3
3. Counterfeiting (6G)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	57	131	NOTE 2
4. Postal (6L)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3

NOTE: 1 - denotes Off Base military and civilitan statistics are not maintained separately.
2 - denotes 1993 statistics are not made available before June 1994.
3 - denotes data not maintained.
A. - Crime data represents actual number of occurrences.

SOURCE: Crime Rate information obtained from the Idaho Bureau of Criminal Identification at Meridian, Idaho.

Crime Definitions	FY 1991[A]	FY 1992[A]	FY 1993[A]
5. Customs (6M)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3
6. Burglary (6N)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	1	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	1180	1125	NOTE 2
7. Larceny - Ordnance (6R)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3
8. Larceny - Government (6S)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	1	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3

NOTE: 1 - denotes Off Base military and civilitan statistics are not maintained separately.
2 - denotes 1993 statistics are not made available before June 1994.
3 - denotes data not maintained.
A.- Crime data represents actual number of occurrences.

SOURCE: Crime Rate information obtained from the Idaho Bureau of Criminal Identification at Meridian, Idaho.

Crime Definitions	FY 1991[A]	FY 1992[A]	FY 1993[A]
9. Larceny - Personal (6T)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	1	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	3779	4138	NOTE 2
10. Wrongful Destruction (6U)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	329	1056	NOTE 2
11. Larceny - Vehicle (6V)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	196	212	NOTE 2
12. Bomb Threat (7B)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3

NOTE: 1 - denotes Off Base military and civilitan statistics are not maintained separately.
2 - denotes 1993 statistics are not made available before June 1994.
3 - denotes data not maintained.
A. - Crime data represents actual number of occurrences.

SOURCE: Crime Rate information obtained from the Idaho Bureau of Criminal Identification at Meridian, Idaho.

Crime Definitions	FY 1991[A]	FY 1992[A]	FY 1993[A]
13. Extortion (7E)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NONE	NONE	NOTE 2
14. Assault (7G)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	1 (1)	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	287	318	NOTE 2
15. Death (7H)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	3 (2)	4 (2)	NOTE 2
16. Kidnapping (7K)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	1	3	NOTE 2

NOTE: 1 - denotes Off Base military and civilitan statistics are not maintained separately.
2 - denotes 1993 statistics are not made available before June 1994.
3 - denotes data not maintained.

NOTE: (1) - denotes intimidation
(2) - denotes murder
A. - Crime data represents actual number of occurrences.

SOURCE: Crime Rate information obtained from the Idaho Bureau of Criminal Identification at Meridian, Idaho.

Crime Definitions	FY 1991[A]	FY 1992[A]	FY 1993[A]
18. Narcotics (7N)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	2	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	65	239	NOTE 2
19. Perjury (7P)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3
20. Robbery (7R)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	39	27	NOTE 2
21. Traffic Accident (7T)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	3	2	1
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3

NOTE: 1 - denotes Off Base military and civilitan statistics are not maintained separately.
2 - denotes 1993 statistics are not made available before June 1994.
3 - denotes data not maintained.
A. - Crime data represents actual number of occurrences.

SOURCE: Crime Rate information obtained from the Idaho Bureau of Criminal Identification at Meridian, Idaho.

Crime Definitions	FY 1991[A]	FY 1992[A]	FY 1993[A]
22. Sex Abuse - Child (8B)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3
23. Indecent Assault (8D)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	1 *	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 3	NOTE 3	NOTE 3
24. Rape (8F)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	58	41	NOTE 2
25. Sodomy (8G)			
Base Personnel - military	NONE	NONE	NONE
Base Personnel - civilian	NONE	NONE	NONE
Off Base Personnel - military	NOTE 1	NOTE 1	NOTE 1
Off Base Personnel - civilian	NOTE 4	12	NOTE 2

NOTE: 1 - denotes Off Base military and civilitan statistics are not maintained separately.
2 - denotes 1993 statistics are not made available before June 1994.
3 - denotes data not maintained.
A. - Crime data represents actual number of occurrences.

* - denotes obsene phone call

SOURCE: Crime Rate information obtained from the Idaho Bureau of Criminal Identification at Meridian, Idaho.

CDNSWC BAYVIEW SITE

TAB A

TECHNICAL OPERATIONS

FUNCTIONAL SUPPORT AREA - LIFE CYCLE WORK AREA FORM

SUMMARY OF FUNCTIONAL SUPPORT AREA/LIFE CYCLE WORK AREA

Functional Support Area	LCWA	Direct WkYrs	$$ (K)			
			In-House Expenditures	Out of House Expenditures	Total	Direct Cite
Platform/Undersea	2	1.1	177	60	237	0
Platform/Undersea	3	20	3,796	5,140	8,936	2613
Platform/Undersea	4	16	2964	60	3,024	0
Sensors/Surveillence	2	0.3	35	0	35	0
Sensors/Surveillence	3	0.5	53	0	53	0
Sensors/Surveillence	4	0.4	53	0	53	0
Sensors/Surveillence	10	1.5	208	0	208	0
		39.8	7286	5260	12546	2613

TECHNICAL FUNCTIONS

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Functional Support Area	1. PLATFORMS 1.1 UNDERSEA
Life Cycle Work Area	2. EXPLORATORY DEVELOPMENT

Carderock Division is the sole activity with the mission for Hull, Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures, by providing test facilities to support scientific base development through definition of technologies to translate to military use. The facilities, located on the only 43 mile long, 1100 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. These conditions are essential to the development of radiated noise, sonar self noise and target strength mitigation technologies, and towed array technologies. Numerous test ranges have been consolidated at one site to minimize infrastructure costs and maximize efficiencies of scale. Due to the huge capital investment required, industry has no comparable facility.

1. **In-House Work Years.** 1.1 WY

2. **Expenditures.**

   a. **In-House Expenditures.** $ .177 M

   b. **Out-of-House Expenditures.** $ .060 M

   c. **Direct Cites.** $ .000 M

3. **Special Facilities and Equipment.**

a. Special Facilities/Equipment and Technical Capabilities which are described in TAB B to this data call which are utilized by/related to this Functional Support Area/Life Cycle Work Area.

O PSP 5 (Float Hoist)
O Project Support Platform
O MSP (Barge)
O LSV (Barge)
O Radiated Noise Barge
O KAMLOOPS Model
O LSV (Large Scale Vehicle)
O IPMP
O Wigwam
o TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Silencing Systems

b. The following Special Facilities/Equipment located at other Carderock Division Sites are utilized by/related to this Functional Support Area/Life Cycle Work Area.

Site	Special Facility/Equipment
Carderock	Anechoic Flow Facility

4. **ARD Bayview Ranges Supported.**

a. The following ranges described in TAB C to this data call are utilized in this functional support/Life Cycle Work Area.

Buoyant Vehicle Range
LSV Range

b. The following Ranges located at other Carderock Division Sites are utilized in this functional support/Life Cycle Work Area.

Site	Special Facility/Equipment
Carderock (Bremerton	Fox Island Acoustic Laboratory (FIAL)

Detachment)
TECHNICAL FUNCTIONS

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Functional Support Area	1. PLATFORMS 1.1 UNDERSEA
Life Cycle Work Area	3. ADVANCED DEVELOPMENT

Carderock Division is the sole activity with the mission for Hull, Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures, by providing test facilities to support the Navy core function of smart buyer through definition of technologies to translate to military use, development of the scientific base, translating military requirements to ship specifications and ensuring that designs developed by suppliers meet system definition. The facilities, located on the only 43 mile long, 1100 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. These conditions are essential to the development of submarine radiated noise, sonar self noise and target strength mitigation technologies, and towed array technologies. Numerous test ranges have been consolidated at one site to minimize infrastructure costs and maximize efficiencies of scale. Due to the huge capital investment required, industry has no comparable facility.

1. **In-House Work Years.** 20.0 WY

2. **Expenditures.**

   a. **In-House Expenditures.** $ 3.796 M

   b. **Out-of-House Expenditures.** $ 5.140 M

c. **Direct Cites.** $ 2.613 M

3. **Special Facilities and Equipment.**

a. Special Facilities/Equipment and Technical Capabilities which are described in TAB B to this data call which are utilized by/related to this Functional Support Area/Life Cycle Work Area.

O Project Support Platform (for Kamloops Model)
O PSP 5 (Float Hoist)
O PSP 4 (Drydock)
O MSP (Barge)
O LSV (Barge)
O Experimental Support Platform (LSV)
O Radiated Noise Barge
O Kamloops Model
O Dolly Varden
O LSV (Large SCale Vehicle)
O Steelhead
O S6W
O IPMP
O Outpost
O Wigwam
o TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Silencing Systems

b. The following Special Facilities/Equipment located at other Carderock Division Sites are utilized by/related to this Functional Support Area/Life Cycle Work Area.

Site	Special Facility/Equipment
Carderock	Anechoic Flow Facility
Carderock (Memphis)	Large Cavitation Channel
Annapolis	Machinery Acoustic Silencing Lab

4. ARD Bayview Ranges Supported.

a. The following ranges described in TAB C to this data call are utilized in this functional support/Life Cycle Work Area.

o LSV Range
o Buoyant Vehicle Range
o ISMS Range

b. The following Ranges located at other Carderock Division Sites are utilized in this functional support/Life Cycle Work Area.

Site	Special Facility/Equipment
Carderock (Cape Canaveral Detach.)	USNS HAYES (T-AG 195)

TECHNICAL FUNCTIONS

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Functional Support Area	1. PLATFORMS 1.1 UNDERSEA
Life Cycle Work Area	4. ENGINEERING AND MANUFACTURING DEVELOPMENT

Carderock Division is the sole activity with the mission for Hull, Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures, by providing test facilities to support the Navy core function of smart buyer through definition of technologies to translate to military use, development of the scientific base, translating military requirements to ship specifications and ensuring that designs developed by suppliers meet system definition. The facilities, located on the only 43 mile long, 1100 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. These conditions are essential to the development of submarine radiated noise, sonar self noise and target strength mitigation technologies, and towed array technologies. Numerous test ranges have been consolidated at one site to minimize infrastructure costs and maximize efficiencies of scale. Due to the huge capital investment required, industry has no comparable facility.

1. **In-House Work Years.** 16.0 WY

2. **Expenditures.**
   - a. **In-House Expenditures.** $ 2.964 M
   - b. **Out-of-House Expenditures.** $ .060 M
   - c. **Direct Cites.** $ .000 M

3. Special Facilities and Equipment.

a. Special Facilities/Equipment and Technical Capabilities which are described in TAB B to this data call which are utilized by/related to this Functional Support Area/Life Cycle Work Area.

O Project Support Platform (for Kamloops Model)
O PSP 5 (Float Hoist)
O PSP 4 (Drydock)
O MSP (Barge)
O LSV (Barge)
O Radiated Noise Barge
O Kamloops Model
O Dolly Varden
O LSV (Large SCale Vehicle)
O Steelhear
O S6W
O IPMP
O Wigwam

o TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Silencing Systems

b. The following Special Facilities/Equipment located at other Carderock Division Sites are utilized by/related to this Functional Support Area/Life Cycle Work Area.

Site	Special Facility/Equipment
Carderock	Anechoic Flow Facility

4. ARD Bayview Ranges Supported.

a. The following ranges described in TAB C to this data call are utilized in this functional support/Life Cycle Work Area.

o LSV Range
o Buoyant Vehicle Range

b. The following Ranges located at other Carderock Division Sites are utilized in this functional support/Life Cycle Work Area.

Site	Special Facility/Equipment
Carderock (Cape Canaveral Detach.)	USNS HAYES (T-AG 195)

TECHNICAL FUNCTIONS

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Functional Support Area	5. SENSORS & SURVEILLANCE SYSTEMS 5.1 SONAR SYSTEMS
Life Cycle Work Area	2. EXPLORATORY DEVELOPMENT

Carderock Division is the sole activity with the mission for Hull, Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures, by providing test facilities to support scientific base development through definition of technologies to translate to military use. The facilities, located on the only 43 mile long, 1100 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. These conditions are essential to the development of radiated noise, sonar self noise and target strength mitigation technologies, and towed array technologies. Numerous test ranges have been consolidated at one site to minimize infrastructure costs and maximize efficiencies of scale. Due to the huge capital investment required, industry has no comparable facility.

1. **In-House Work Years.** .3 WY

2. **Expenditures.**

   a. **In-House Expenditures.** $ .035 M

   b. **Out-of-House Expenditures.** $ .000 M

   c. **Direct Cites.** $ .000 M

3. **Special Facilities and Equipment.**

a. Special Facilities/Equipment and Technical Capabilities which are described in TAB B to this data call which are utilized by/related to this Functional Support Area/Life Cycle Work Area.

O Chinook

o TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Silencing Systems

b. The following Special Facilities/Equipment located at other Carderock Division Sites are utilized by/related to this Functional Support Area/Life Cycle Work Area.

Site	Special Facility/Equipment
	None.

4. **ARD Bayview Ranges Supported.**

a. The following ranges described in TAB C to this data call are utilized in this functional support/Life Cycle Work Area.

o Towed Array Range

b. The following Ranges located at other Carderock Division Sites are utilized in this functional support/Life Cycle Work Area.

Site	Special Facility/Equipment
	None.

TECHNICAL FUNCTIONS

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Functional Support Area	5. SENSORS & SURVEILLANCE SYSTEMS 5.1 SONAR SYSTEMS
Life Cycle Work Area	3. ADVANCED DEVELOPMENT

Carderock Division is the sole activity with the mission for Hull, Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures, by providing test facilities to support the Navy core function of smart buyer through definition of technologies to translate to military use, development of the scientific base, translating military requirements to ship specifications and ensuring that designs developed by suppliers meet system definition. The facilities, located on the only 43 mile long, 1100 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. These conditions are essential to the development of submarine radiated noise, sonar self noise and target strength mitigation technologies, and towed array technologies. Numerous test ranges have been consolidated at one site to minimize infrastructure costs and maximize efficiencies of scale. Due to the huge capital investment required, industry has no comparable facility.

1. **In-House Work Years.** .5 WY
2. **Expenditures.**

   a. **In-House Expenditures.** $ .053 M

   b. **Out-of-House Expenditures.** $ .000 M

   c. **Direct Cites.** $.000 M

3. **Special Facilities and Equipment.**

a. Special Facilities/Equipment and Technical Capabilities which are described in TAB B to this data call which are utilized by/related to this Functional Support Area/Life Cycle Work Area.

O Chinook

o TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Silencing Systems

b. The following Special Facilities/Equipment located at other Carderock Division Sites are utilized by/related to this Functional Support Area/Life Cycle Work Area.

Site	Special Facility/Equipment
	None.

4. **ARD Bayview Ranges Supported.**

a. The following ranges described in TAB C to this data call are utilized in this functional support/Life Cycle Work Area.

o Towed Array Range

b. The following Ranges located at other Carderock Division Sites are utilized in this functional support/Life Cycle Work Area.

Site	Special Facility/Equipment
	None.

TECHNICAL FUNCTIONS

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Functional Support Area	5. SENSORS & SURVEILLANCE SYSTEMS, 5.1 SONAR SYSTEMS
Life Cycle Work Area	4. ENGINEERING AND MANUFACTURING DEVELOPMENT

Carderock Division is the sole activity with the mission for Hull, Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures, by providing test facilities to support the Navy core function of smart buyer through definition of technologies to translate to military use, development of the scientific base, translating military requirements to ship specifications and ensuring that designs developed by suppliers meet system definition. The facilities, located on the only 43 mile long, 1100 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. These conditions are essential to the development of submarine radiated noise, sonar self noise and target strength mitigation technologies, and towed array technologies. Numerous test ranges have been consolidated at one site to minimize infrastructure costs and maximize efficiencies of scale. Due to the huge capital investment required, industry has no comparable facility.

1. **In-House Work Years.** .4 WY
2. **Expenditures.**

   a. **In-House Expenditures.** $ .053 M

   b. **Out-of-House Expenditures.** $ .000 M

   c. **Direct Cites.** $ .000 M

3. Special Facilities and Equipment.

a. Special Facilities/Equipment and Technical Capabilities which are described in TAB B to this data call which are utilized by/related to this Functional Support Area/Life Cycle Work Area.

O Chinook

o TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Silencing Systems

b. The following Special Facilities/Equipment located at other Carderock Division Sites are utilized by/related to this Functional Support Area/Life Cycle Work Area.

Site	Special Facility/Equipment
	None.

4. ARD Bayview Ranges Supported.

a. The following ranges described in TAB C to this data call are utilized in this functional support/Life Cycle Work Area.

o LSV Range
o Buoyant Vehicle Range
o ISMS Range
o Towed Array Range

b. The following Ranges located at other Carderock Division Sites are utilized in this functional support/Life Cycle Work Area.

Site	Special Facility/Equipment
	None.

TECHNICAL FUNCTIONS

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Functional Support Area	5. SENSORS & SURVEILLANCE SYSTEMS 5.1 SONAR SYSTEMS
Life Cycle Work Area	10. ACQUISITION PROGRAM SUPPORT

Carderock Division is the sole activity with the mission for Hull, Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures, by providing test facilities to support the Navy core function of smart buyer through definition of technologies to translate to military use, development of the scientific base, translating military requirements to ship specifications and ensuring that designs developed by suppliers meet system definition. The facilities, located on the only 43 mile long, 1100 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. These conditions are essential to the development of submarine radiated noise, sonar self noise and target strength mitigation technologies, and towed array technologies. Numerous test ranges have been consolidated at one site to minimize infrastructure costs and maximize efficiencies of scale. Due to the huge capital investment required, industry has no comparable facility.

1. **In-House Work Years.** 1.5 WY
2. **Expenditures.**

   a. **In-House Expenditures.** $ .208 M

   b. **Out-of-House Expenditures.** $ .000 M

   c. **Direct Cites.** $ .000 M

3. Special Facilities and Equipment.

a. Special Facilities/Equipment and Technical Capabilities which are described in TAB B to this data call which are utilized by/related to this Functional Support Area/Life Cycle Work Area.

O Chinook

o TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Silencing Systems

b. The following Special Facilities/Equipment located at other Carderock Division Sites are utilized by/related to this Functional Support Area/Life Cycle Work Area.

Site	Special Facility/Equipment
	None.

4. ARD Bayview Ranges Supported.

a. The following ranges described in TAB C to this data call are utilized in this functional support/Life Cycle Work Area.

o Towed Array Range

b. The following Ranges located at other Carderock Division Sites are utilized in this functional support/Life Cycle Work Area.

Site	Special Facility/Equipment
	None.

TAB B

SPECIAL FACILITIES AND EQUIPMENT

FACILITIES/EQUIPMENT CAPABILITY FORM

SUMMARY OF SPECIAL FACILITIES AND EQUIPMENT
BAYVIEW SITE
CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER

Funtional Support Area

Platform
Undersea

Technical Capability

RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems

Special Facilities and Equipment

o CHINOOK
o PSP-4/DRY DOCK
o DOLLY VARDEN MODEL
o IPMP MODEL (MACKINAW)
o KAMLOOPS MODEL
o PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)
o MODEL SUPPORT PLATFORM (MSP)
o S6W MODEL
o STEELHEAD MODEL
o WIGWAM
o PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)
o LARGE SCALE VEHICLE (LSV)
o LARGE SCALE VEHICLE SUPPORT BARGE
o EXPERIMENTAL SUPPORT PLATFORM (ESP)
o OUTPOST
o RADIATED NOISE BARGE (RNB)

SPECIAL FACILITIES AND EQUIPMENT

Technical Center Site	Bayview Site, Carderock Division, Naval Surface Warfare Center
Facility/Equipment Nomenclature or Title	3. Technical Facilities for RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems

1. Primary purposes of the facility/equipment.

Summary Description.

CDNSWC has the mission to ensure the stealth of current and future Navy ships through the development of active and passive signature control technologies. Personnel in this technical area contribute to the development of Operational and Top Level Requirements and respond to such requirements through the conception and development of signature and silencing products. As a result of measurements conducted on operational units, the ships are provided their complete acoustic posture, along with tactical guidance relevant to specific missions. Such guidance enhances overall operations either singularly or during joint operations with other units.

Critical engineering capabilities are the conduct of full spectrum model and at-sea tests, and the ability to develop to develop signature control methodology, techniques, hardware and ship system concepts. In conjunction with TC 4 (Non-acoustic stealth), CDNSWC provides for the full spectrum stealth of Navy ships. As a result of this in house capability, CDNSWC acts as the Navy's "smart buyer" to provide design guidance for concept and contract design. CDNSWC provides in-service engineering and fleet support of ship signature and silencing systems for IOC throughout its life cycle. These systems include: signature measurement, analysis and interpretation of active and passive acoustic signatures; development of engineering "fixes", development and optimization of signature reducing coating systems, and the development of operation guidance and tactics intended to reduce ship vulnerability to detection, classification and targeting.

Signature control development uses analytical, computational and physical models within the disciplines of hydro-acoustics and structural acoustics. These technical specialties require specialized scholastic training and extensive on the job

development. There are numerous world class experts actively involved in this Technical Capability.

Products developed from this capability include low signature ship hull, and propulsor designs; signature reducing materials; signature measurements facilities, equipment and techniques; and, design guidance for concept and contract design efforts.

Mission.

This technical capability directly support the CDNSWC mission for active and passive signature control. Quiet ships, undetectable by current and projected threats, are a firm Navy requirement in order to provide deterrence via the Trident fleet, to provide intelligence collection, to covert troop insertion, full battle force inter-operations. CDNSWC is the lead activity and technical agent for the Submarine and Surface Ship Silencing Programs to ensure that all ships maintain an acoustic advantage over current and projected threats. In-house ship knowledge and expertise derived from fleet support activities to pursue an aggressive R&D program for cost effective silencing concepts, hardware, and approaches for future ship design. In fulfilling this mission the Division supports ship training, readiness and deployments; it measures, analyzes and reports ship signature and sonar self noise information; identifying noise problems that interfere with detection of threats and lead to own ship detection.

Pre-deployment acoustic profiles are provided ships and such information is included in a ships mission tactics. Tests leading to acoustic posture are conducted for all deployers with special emphasis on ships entering crisis areas. The facilities used in support of this capability are specialized and unique. If they were to be abandoned, reconstitution in an emergency would require long lead times and could prove prohibitively expensive.

Jointness.

This technical capability contributes to joint operations by ensuring that the acoustic signatures of participating US Navy ships are such that they will not be the first or primary means of detection by threat targets. Low acoustic signatures contribute to better communications and inter-operability. Stealth allows for covert force insertion, and intelligence collection. Stealth is the principal tactical attribute of the Trident fleet, the primary nuclear deterrent of the US arsenal.

The TC is utilized by non-DoD activities such as Ford Motor Company, NOAA, NASA and several fishery consortiums.

Technical Functions/Core Functions/Goods and Services.

CDNSWC provides full spectrum facilities and technical expertise to: (a) measure, characterize and recommend changes to the passive and active signatures, and sonar self noise of ships and submarines; (b) develop acoustic measurement facilities, equipment and measurement techniques; (c) conduct RDT&E of silencing, approaches, materials, hardware and machinery to reduce ships signatures; (d) conduct research in radiated noise, structureborne noise, structural acoustics, sonar self noise, propulsor noise, acoustic materials, active noise control and synergistic concept integration for future quiet ships and submarines; (e) make precision active acoustic measurements of full scale and large models, and reduce, analyze and interpret the results; (f) perform RDT&E on target strength mechanisms, the relationship of marine structures to target echo structure, the mitigation of target echo by passive means through structural design and echo reducing materials suitable for marine applications; (g) conduct measurements of radiated, structureborne, and sonar self noise; (h) provide training to forces afloat on use of own ship monitoring equipment and the maintenance of silencing systems, and, (i) integrate structural and material echo reduction concepts into the design of future quiet ships. These functions encompass the life cycle of the signature control systems.

During the conduct of research programs and full scale measurements information is derived that leads to prioritization of programs and design alternatives. The technical expertise allows the Navy to be a "smart buyer", knowing the practicality and feasibility of design alternatives in order to procure the most capable, cost effective ships.

No other concerns have the technical facilities to support this technical capability. Private parties contract with CDNSWC for use of this facilities. Because of the complexity of such facilities, the cost to develop such facilities is prohibitive to private parties.

This technical capability is ongoing. New mission areas defined in "From the Sea" require ships to operate in joint battle groups and littoral waters necessitating increased concern for their acoustic posture. It supports other product areas which include the following technical capabilities: T 4 (Non-Acoustic Silencing); T 5 (Propulsion Machinery Systems and Components); T 6 (Auxiliary Machinery Systems and Components); and, T 11 (Hull Forms and Propulsors). It also supports foreign weapons evaluations and FMS sales. Under FMS numerous signature measurements have been made on foreign ships including French, Italian, German, Australian and British units.

Facilities.

OVERVIEW: Carderock Division is the sole activity with the mission for Hull,

Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures. The facilities, located on the only 43 mile long, 1100 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. Test facilities and personnel at Bayview contribute to the translation of military requirements into ship specifications and ensure that shipyard designs will meet specifications.

Facility Descriptions for the Carderock Site and Remote Sites Not Reported Elsewhere. These are:

- o CHINOOK
- o PSP-4/DRY DOCK
- o DOLLY VARDEN MODEL
- o IPMP MODEL (MACKINAW)
- o KAMLOOPS MODEL
- o PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)
- o MODEL SUPPORT PLATFORM (MSP)
- o S6W MODEL
- o STEELHEAD MODEL
- o WIGWAM
- o PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)
- o LARGE SCALE VEHICLE (LSV)
- o LARGE SCALE VEHICLE SUPPORT BARGE
- o EXPERIMENTAL SUPPORT PLATFORM (ESP)
- o OUTPOST
- o RADIATED NOISE BARGE (RNB)

o <u>CHINOOK</u>

The primary purpose of this vessel is to provide a cold-water towing platform with sufficient horsepower to tow various experimental and production arrays up to 20 knots for research and shakedown testing purposes. It also provides sufficient on board lab space to acquire and analyze data.

o <u>PSP-4/DRY DOCK</u>

Sonar-self noise and target strength programs are supported by these cost effective platforms. Together they provide for a covered drydock area in which buoyant test vehicles and/or ISMS models are removed from the water and reconfigured/repaired or maintained to support on-lake testing. Inaddition, 3200 square feet of lab space is provided by this platform.

o *DOLLY VARDEN MODEL*

This large scale buoyantly propelled model is used to evaluate advanced concepts for sonar self noise reduction before incorporation into full-scale design. Large scale (0.25) models provide a cost-effective means of assessing the effectiveness of innovative HM&E designs focused on signature reduction. The value of this unique capability is greatly reduced cost compared to full scale trials, and the ability to perform dynamic measurements in the absence of propulsor noise. The latter advantage is essential in understanding the relative contribution of multiple sources. For example, DOLLY VARDEN, with the SSN 688 bow area closely scaled, was used to assess the impact of vertical launch system installations on sonar self noise.

o IPMP MODEL (MACKINAW)

The IPMP model is a 1/4 scale section of a Los Angeles (SSN688) class pressure hull, main engine room and turbine generator platform. It is used to conduct machinery noise transmission path and hull acoustic radiation tests. Results from test on this model were used to develop preliminary design criteria and ship design specifications for the amount of noise isolation required for Los Angeles class to meet in acoustic operational goals. The model is being used investigate alternate engine room configurations in support of technical base expansion and certifying industry supplied mounting arrangements.

o KAMLOOPS MODEL

This large scale buoyantly propelled model is used to evaluate advanced concepts for sonar self noise reduction before incorporation into full-scale design. Large scale (1/5 to 1/4) models provide a cost-effective means of assessing the effectiveness of innovative HM&E designs focused on signature reduction. The value of this unique capability is greatly reduced cost compared to full scale trials, and the ability to perform dynamic measurements in the absence of propulsor noise. The latter advantage is essential in understanding the relative contribution of multiple sources. For example, as an accurately scaled model of the SSN 637, KAMLOOPS was the principal R&D tool utilized to evaluate the GRP dome and rubber boot concepts.

Currently its bow is configured to support SSN 21 self noise tests. It has been used extensively in support of the SEAWOLF program.

o *PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)*

The cost effective evaluation of advanced submarine signature reduction technology is enabled by the capability of this unique facility to transport and deploy large models to remote deep-water ranges. For example, buoyantly propelled models evaluating sonar self noise reduction measures undergo final outfitting and calibration in the open well of this platform moored adjacent to the test range. Models are deployed, evaluations conducted, and scientists and engineers aboard the platform evaluate the results and plan the next test event while the model is recovered and returned to the platform for incorporation of the next test variant. Key unique capabilities are mobility, ability to lower and accurately position 50-ton models to depths of 1000 feet, and onboard laboratory space. In addition hydrophone calibrations, echo return and other static tests are supported by this platform.

o *MODEL SUPPORT PLATFORM (MSP)*

This unique completely enclosed floating facility provides a combination of laboratory and industrial support capabilities for large buoyantly propelled models, and other marine craft and experimental hardware. A 200-ton capacity shiplift system can raise large components from the water into heated, ventilated, and well equipped working environment. For example, the platform was recently used as the staging and assembly area for a large riser module that became part of a new measurement range. Because of its size, the assembled component could not be launched from shore after erection, but required an industrial environment for assembly. This facility provided both the environment for construction, and the means to launch the completed unit.

o *S6W MODEL*

The S6W model is a 1/4 scale section of the Seawolf pressure hull, engine room and reactor compartment. It is used to conduct machinery noise transmission path and hull acoustic radiation tests. As an example, results from such testing are used to develop preliminary design criteria and ship design specifications for the amount of noise isolation required for Seawolf to meet in acoustic operational goals.

o *STEELHEAD MODEL*

The steelhead model is used to conduct large conformal array flow induced noise reduction and propulsor/aft section target strength tests. Results from such testing are

used to develop ship design specifications and modifications for such submarine classes as Sturgeon (637), Los Angeles (688), Seawolf (21) and New Attack Submarine (NAS).

o *WIGWAM*

The Buoyant Vehicle Range (Tab C, Item 3) is used to test concepts and ship designs for sonar noise reduction. The WIGWAM supports the Buoyant Vehicle Range. It houses 3 winches that haul models to the bottom of the lake. It also provides limited laboratory space for remote on lake tests, and houses main power disconnects for the buoyant vehicle and ISMS ranges.

o *PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)*

The cost effective evaluation of the structural response properties of submarine hull components is enabled by the capability of this unique facility to position very large models (up to 200 tons) at deep water test sites. For example, large, accurately scaled engine room models are precisely positioned in deep water and various internal machinery components are excited in order to evaluate resonance avoidance and radiation reduction measures. Onboard and deployed sensors gather data describing how acoustic and vibrational energy propagates in the structure and is radiated to the surrounding medium. Models are configured and calibrated, lowered to depth, evaluated and returned to the surface for the next test configuration. Scientists and engineers on the platform analyze data in real time and plan subsequent tests based on results obtained. In addition, target strenght testing of small scale models and calibrations of transducers is done from this platform. Key unique capabilities are high lift capacity, large well-equiped measurement laboratory, self-contained utilities, onboard machine shop

o *LARGE SCALE VEHICLE (LSV)*

The LSV is the largest automously controlled self propelled submarine model in the world, and is considered to be a national asset in terms of the capability to evaluate advanced propulsor concepts. This unique capability has been eminently successful in providing data on which to base the design of the SEAWOLF propulsor. For example, the LSV accomplished in two years what would have taken ten years to accomplish using full scale trials at a more than ten times the cost. The ability to test propulsor models at 0.25 scale allows for components sufficiently large to include meaningful detail that is lost at small (water tunnel) scale, but small enough to be manufactured economically.

o *LARGE SCALE VEHICLE SUPPORT BARGE*

This specially fitted platform provides the capability to launch and recover the 150-ton Large Scale Vehicle, and support all activities needed to fully utilize LSV in support of advanced propulsor development. In addition to a 200-ton shiplift for bringing the model out of the water, the platform has special equipment to accurately position and install complex advanced propulsors, to charge the 500-cell battery, and to charge the 3000psi high pressure air system. The platform has supported more than 232 successful underway operations of the LSV in the past 5 years in developing new propulsors for both SEAWOLF and NSSN.

o EXPERIMENTAL SUPPORT PLATFORM (ESP)

This unique platform supports the installation and maintenance of submerged components of a complex research and development facility called the Intermediate Scale Measurement System. This platform has the capability to deploy and recover, from water in excess of 1000 feet deep, electrical and electronic systems, measurement arrays, positioning rigging, and other sensitive high-value equipment. A critical function is to achieve and maintain a fixed position on the range in wind and waves while various installation and checkout operations are in progress. For example, the platform was recently used to locate very precisely a series of bottom mounted moorings, to hold measurement arrays to within one foot of a planned location.

o OUTPOST

The OUTPOST is an up-lake shore support facility for the in-water systems of the ISMS, it is only assessable by water. It serves three primary functions; 1) It supports the transmit projector sources of the Transmit Array with conditioned/controlled amplified power and provides transformed power to the Target Model Handing System (TMHS) and Target Model, 2) It serves as the communication node for all the in water systems connected through electro/mechanical and fiber optic cables with the Range Operations Center (ROC) that conducts testing operations at the ARD base, and 3) It provides a shore base winch station used to deploy the TMHS and Target Model at test depth.

o RADIATED NOISE BARGE (RNB)

The purpose of this versatile, platform is to acquire and process test vehicle radiated noise data from a bottom-mounted acoustic range. The platform has

onboard all electronic systems to completely record and process in real time the data from two independent acoustic arrays of 18 elements each. The unit is self propelled, an has two sound isolated generators to provide primary and backup power to onboard systems. For example, the RNB is moored on range during operations when data is acquired, and returns to the base to provide the capability for additional data processing between mission days. The RNB has been the primary data processing facility for the acoustic data on which the selection of the SEAWOLF propulsor was based.

Other Carderock Division Facilities Reported Elsewhere.

Site Name	TC # and Name	Facility Name
Annapolis	3. RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems	Machinery Acoustic Silencing Lab
Annapolis	3. (Same Title)	Submarine Fluid Dynamics Lab
Carderock	3. (Same Title)	Acoustic Data Analysis Center
Carderock	3. (Same Title)	Acoustic Data Processing Ctr
Carderock	3. (Same Title)	Acoustic Flow Facility

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

o *CHINOOK*
Equipment is moveable.

o *PSP-4/DRY DOCK*
The PSP-4 platform and dry dock could not be moved without extensive demolition and reconstruction; therefore, as defined, it is considered fixed.

o *DOLLY VARDEN MODEL*
This operational model is moveable. However, it cannot be used in a salt water environment.

o *IPMP MODEL (MACKINAW)*
This model is moveable. Due to construction materials it cannot be used in salt water.

o *KAMLOOPS MODEL*
This model is moveable. However, it cannot be used in a salt water environment.

o *PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)*
The PSP #6 Support Platform could not be moved without extensive demolition and reconstruction; therefore, as defined, it is considered fixed.

o *MODEL SUPPORT PLATFORM (MSP)*
The MSP platform could not be moved without extensive demolition and reconstruction; therefore, as defined, it is considered fixed.

o *S6W MODEL*
This model is moveable.

o *STEELHEAD MODEL*
This model is moveable.

o *WIGWAM*
The facility is fixed.

o *PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)*
The PSP -5 Support Platform could not be moved without extensive demolition and reconstruction; therefore, as defined, it is considered fixed.

o *LARGE SCALE VEHICLE (LSV)*
The Large Scale Vehicle, KOKANEE, is considered a FIXED asset. While, technically, the KOKANEE was transported to Lake Pend Oreille, Idaho on a specially configured rail car, major construction would be required to relocate the support system and range in order to make the KOKANEE a productive asset again.

o *LARGE SCALE VEHICLE SUPPORT BARGE*
The Large Scale Vehicle Support Barge is a FIXED asset. It is permanently moored at Lake Pend Oreille.

o *EXPERIMENTAL SUPPORT PLATFORM (ESP)*
The ESP could not be moved without extensive demolition and construction; thus, as defined, it is fixed.

o *OUTPOST*

The facility could not be moved without extensive demolition and construction; thus, as defined, it is fixed.

o *RADIATED NOISE BARGE (RNB)*

The Radiated Noise Barge would be considered moveable (Class 2) as defined. The equipment could be relocated, however, extensive re-assembly of computer systems and peripherals would be required. The system electronics aren't ruggedized and much care would be required to protect the equipment. The RNB acquires data from two bottom mounted acoustic arrays in Pend Oreille Lake which are considered fixed assets.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Facility Name	Replacement Cost ($M)
o CHINOOK	.8
o PSP-4/DRY DOCK	1.2
o DOLLY VARDEN MODEL	9.0
o IPMP MODEL (MACKINAW)	4.0
o KAMLOOPS MODEL	12.0
o PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)	2.0
o MODEL SUPPORT PLATFORM (MSP)	2.8
o S6W MODEL	12.0
o STEELHEAD MODEL	12.0
o WIGWAM	1.0
o PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)	4.5
o LARGE SCALE VEHICLE (LSV)	150.7
o LARGE SCALE VEHICLE SUPPORT BARGE	5.2
o EXPERIMENTAL SUPPORT PLATFORM (ESP)	3.5
o OUTPOST	4.0
o RADIATED NOISE BARGE (RNB)	3.8
TOTAL	228.5

4. Provide the gross weight and cube of the facility/equipment.

Facility Name	Weight (Tons)	Volume (FT3)
o CHINOOK	37	5,120
o PSP-4/DRY DOCK	230	384,000
o DOLLY VARDEN MODEL	35	4,000
o IPMP MODEL (MACKINAW)	30	2,500
o KAMLOOPS MODEL	55	4,500
o PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)	100	148,000
o MODEL SUPPORT PLATFORM (MSP)	350	380,000
o S6W MODEL	100	4,000
o STEELHEAD MODE	100	8,600
o WIGWAM	55	3,000
o PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)	200	450,000
o LARGE SCALE VEHICLE (LSV)	150	2,800
o LARGE SCALE VEHICLE SUPPORT BARGE	800	500,000
o EXPERIMENTAL SUPPORT PLATFORM (ESP)	360	39,000
o OUTPOST	45	2,000
o RADIATED NOISE BARGE (RNB)	200	15,120
TOTALs	2,847	1,972,640

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

o CHINOOK
No special utility support required.

o PSP-4/DRY DOCK
No special utility support required.

o DOLLY VARDEN MODEL
No special utility support required.

o IPMP MODEL (MACKINAW)
No special utility support required.

o *KAMLOOPS MODEL*
No special utility support required.

o *PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)*
No special utility support required.

o *MODEL SUPPORT PLATFORM (MSP)*
No special utility support required.

o *S6W MODEL*
No special utility support required.

o *STEELHEAD MODEL*
No special utility support required.

o *WIGWAM*
No special utility support required.

o *PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)*
This platform is in a fixed mooring. If it needs to be moved to a pier or wharf for maintenance or repair it would need a floating crane to unhook its mooring lines and several tugboats to transport it to the pier.

o *LARGE SCALE VEHICLE (LSV)*
The Large Scale Vehicle, KOKANEE, requires a support facility with full industrial capability. This includes:

High pressure (3000 PSI) and Low pressure (150 PSI) air
Ventilation for special chemical use
Welding
Heating for year round environment control
Special purpose battery chargers
Specially designed lift platform
Unique handling fixtures for propulsor components
Computer data analysis for vehicle condition assessment

o *LARGE SCALE VEHICLE SUPPORT BARGE*
The Large Scale Vehicle Support Barge provides utility support for the test model, KOKANEE. The LSVSB has the following equipment or provides the following resources:

Emergency diesel generator for 440VAC power
High Pressure (3000 PSI) and Low Pressure (150 PSI) air service
Fire main and fire pump

Heating and ventilation--environment control
welding connection
Special lift platform for LSV
Overhead and door cranes
Special fixtures for handling heavy components

o *EXPERIMENTAL SUPPORT PLATFORM (ESP)*
When the ESP is on range, power for the ESP is provided by generators requiring diesel fuel. When shore-side power is supplied by electrical hook-up to base power. The ESP is an un-propelled support platform and requires a 600 - 700 horsepower tugboat to transit from base to the test site.

o *OUTPOST*
Emergency generators are used at the OUTPOST in the event of power outages and require diesel fuel.

o *RADIATED NOISE BARGE (RNB)*
a) Three-phase shore power with disconnect (220-volt).
b) Generator power, three-phase, 220-volt, sound-isolated from hull of barge.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

o *CHINOOK*
No special budget requirements.

o *PSP-4/DRY DOCK*
No special budget requirements.

o *DOLLY VARDEN MODEL*
No special budget requirements.

o *IPMP MODEL (MACKINAW)*
No special budget requirements.

o *KAMLOOPS MODEL*
No special budget requirements.

o *PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)*
No special budget requirements.

o *MODEL SUPPORT PLATFORM (MSP)*
No special budget requirements.

o *S6W MODEL*
No special budget requirements.

o *STEELHEAD MODEL*
No special budget requirements.

o *WIGWAM*
No special budget requirements.

o *PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)*
No special budget requirements.

o *LARGE SCALE VEHICLE (LSV)*
No special budget requirements.

o *LARGE SCALE VEHICLE SUPPORT BARGE*
The LSVSB requires mooring capability to prevent movement during heavy weather. The Large Scale Vehicle Support Barge supplies the specially constructed lift platform for the test model, KOKANEE.

o *EXPERIMENTAL SUPPORT PLATFORM (ESP)*
No special budget requirements.

o *OUTPOST*
No special budget requirements.

o *RADIATED NOISE BARGE (RNB)*
No special budget requirements.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

o *CHINOOK*
This vessel requires shore power when docked.

o *PSP-4/DRY DOCK*
During sub freezing temperatures indoor spaces are required to be heated.

o *DOLLY VARDEN MODEL*
None.

o *IPMP MODEL (MACKINAW)*
None.

o *KAMLOOPS MODEL*
None.

o *PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)*
During sub freezing temperatures indoor spaces are required to be heated.

o *MODEL SUPPORT PLATFORM (MSP)*
During sub freezing temperatures indoor spaces are required to be heated.

o *S6W MODEL*
None.

o *STEELHEAD MODEL*
None.

o *WIGWAM*
During sub freezing temperatures indoor spaces, hydraulic reservoir tanks are required to be heated.

o *PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)*
During sub-freezing temperatures indoor spaces are required to be heated.

o *LARGE SCALE VEHICLE (LSV)*
The Large Scale Vehicle, KOKANEE, requires a year round indoor work environment with heating, ventilation, management support office space, special electrical and mechanical support requirements.

o *LARGE SCALE VEHICLE SUPPORT BARGE*
The Large Scale Vehicle Support Barge supplies a year round indoor work environment with heating, ventilation, management support office space, special electrical and mechanical support requirements.

o EXPERIMENTAL SUPPORT PLATFORM (ESP)
The ESP is self contained and requires electrical power from either diesel generators or shore hook-up to maintain operational compartment, holding tanks, fuel tanks, oil and hydraulic reservoirs at operational temperatures above freezing.

o OUTPOST
The OUTPOST requires electrical power from either diesel generators or utility power to maintain operational temperatures above freezing.

o RADIATED NOISE BARGE (RNB)
a) Air conditioning and heat for electronic equipment temperature control.
b) Electrostatic air filtration.
c) Power conditioning.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Replication/Relocation Considerations.

o CHINOOK
This craft could be relocated to another inland naval water facility with a minimum of 1000' water depth and maximum 39 degree Fahrenheit water temperature. It could not be relocated to an ocean facility because it does not have the certifications for off shore use. If the Chinook vessel were lost the Navy would lose a vital cost effective testing platform for its Towed Array programs, as well as the capability to conduct deep, cold water tow testing in sheltered, quiet water.

o PSP-4/DRY DOCK
The PSP-4 Platform is a dedicated support platform for use on Lake Pend Oreille and the various test programs it supports. Considering this equipment's age it would not be cost effective to attempt to relocate it to another inland lake facility. The dry dock could be relocated at a substantial cost to another facility. The loss of this facility would eliminate the capability to test (2) buoyant vehicles and (1) ISMS model simultaneously at the ARD, and severely handicap the testing of more than (1) model at a time.

o *DOLLY VARDEN MODEL*
It would be possible to relocate this model to another naval facility, however, the facility would require 1100'+ of water depth, a Buoyant Vehicle Range and extremely low ambient noise to perform testing. Due to construction materials it cannot be used in salt water. The loss of this model would mean that the Navy would lose the capability to conduct bow-area flow-noise or target strength improvements for SSN688 class submarines as well as any testing for NAS bow-area flow-noise or target strength.

o *IPMP MODEL (MACKINAW)*
It would be possible to relocate this model at another facility, however, the facility would require a minimum of 200' of water depth as well as a barge with a minimum hoisting capacity of 30 tons. If the IPMP model were scrapped, the Navy would lose the capability to conduct any fundamental research in problem-solving or improvements to the machinery noise control program on the SSN-688.

o *KAMLOOPS MODEL*
It would be possible to relocate this model to another naval facility, however, the facility would require 1100'+ of water depth, a Buoyant Vehicle Range and extremely low ambient noise to perform testing. Fresh Water would be required since the model cannot be protected from corrosion in sea water. The loss of this model would mean that the Navy would lose the capability to conduct bow-area flow-noise or target strength improvements for SSN-21 class submarines as well as the potential to modify the model to replicate future submarine classes.

o *PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)*
The PSP-6 Platform is a dedicated support platform for use on Lake Pend Oreille and the test ranges it utilizes. At extreme cost could it be relocated to another inland lake facility. It could not be used in an ocean environment. Without this equipment the Navy could not support suspended tests requiring 1100' water depth and quiet ambient, and would lose the capability to support nighttime buoyant vehicle testing.

o *MODEL SUPPORT PLATFORM (MSP)*
The MSP Platform is a dedicated support platform for use on Lake Pend Oreille and the various test programs it supports. At extreme cost the MSP could be demolished and moved to another inland lake facility. It could not be used in an ocean environment. Without this equipment the Navy could not support the test programs it presently supports at the ARD.

o *S6W MODEL*
It would be possible to relocate this model at another facility, however, the facility would require a minimum of 600' of water depth as well as a barge with a minimum

hoisting capacity of 100 tons. If this model was scrapped, the Navy would lose the capability to conduct fundamental research in problem-solving or improvements to the machinery noise control program on the SSN-21.

o *STEELHEAD MODEL*
It would be possible to relocate this model to another naval facility, however, the facility would require 1100'+ of water depth, a Buoyant Vehicle Range and extremely low ambient noise to perform testing. The loss of this model would mean that the Navy would lose the capability to conduct flow-noise testing on advanced planar arrays as well as a convenient platform to conduct propulsor target strength testing.

o *WIGWAM*
The Wigwam is a dedicated facility / equipment for the operation of the buoyant vehicle range. It cannot be replicated or relocated to another site. If the buoyant vehicle range was relocated the Wigwam site would have to be redesigned and reconstructed. With out the Wigwam site the Navy could not conduct low ambient buoyant vehicle tests.

o *PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)*
The PSP-5 Platform is a dedicated support platform for use on Lake Pend Oreille and the test ranges it utilizes. At extreme cost could it be relocated to another inland lake facility. It could not be used in an ocean environment. The loss of PSP-5 would mean the Navy would lose the capability to conduct a variety of acoustic testing in exceptionally low ambient conditions, in 600' water depth, in a modern, instrumented facility.

o *LARGE SCALE VEHICLE (LSV)*
Relocation of KOKANEE to another location would be extremely difficult. Transportation of the vehicle would require special transportation equipment (specifically a heavy lift rail car) A new tracking and noise measurement range would need to be installed and surveyed. Support facilities (i.e. the LSV Support Barge) would also need relocation. Past data would need to be compared to the new range for the affect of ambient noise.

Peplication of services provided by KOKANEE would be virtually impossible without construction another test vehicle. Propulsor Development Program has constructed numerous (about 50) 1/4 scale components specifically for use on KOKANEE. These componentat require a powered model of the correct scale in order to perform properly. No other equipment or facility exists to test these components.

If KOKANEE were lost, the ability to develop, test and compare results of future propulsors would increase approximately ten fold. This is due to the need to develop full scale test propulsors (greater expense), the longer time to change components and the low availability of operational submarines for test purposes.

o LARGE SCALE VEHICLE SUPPORT BARGE

The Support Barge would need to be dis-assembled to transport off Lake Pend Oreille. The barge, the model (KOKANEE) and the tracking range are a system. All would have to be moved in order to continue to use the model as a propulsor development test platform.

o EXPERIMENTAL SUPPORT PLATFORM (ESP)

The ESP is a dedicated platform for the installation, operation and maintenance of the in-water systems of the ISMS. If the ISMS was relocated, the ESP would most likely be redesigned/reconstructed. Without the ESP the Department of the Navy would not be able to maintain the ISMS in-water systems as presently installed.

o OUTPOST

The OUTPOST is a dedicated facility/equipment for the operation of the ISMS. It cannot be replicated or relocated to another site. If the ISMS was relocated, the OUTPOST would most likely be redesigned/reconstructed. Without the OUTPOST the Department of the Navy would not be able to operate the ISMS in-water systems as presently installed.

o RADIATED NOISE BARGE (RNB)

The Radiated Noise Barge is the sole platform for acquisition and processing of radiated noise data from model test vehicles (Large Scale Vehicle in particular) on Pend Oreille Lake. The ties the RNB has with the in-water acoustic arrays and LSV test vehicle make this facility one-of-a-kind. The Navy has other radiated noise acquisition and processing facilities for measuring full-scale submarines. These facilities would replicate some of the fundamental data processing capabilities also found in the Radiated Noise Barge, but not all capabilities. The RNB houses some equipment which is specific to measuring model-scale submarines and unique to the LSV range's acoustic array formation (beamforming capabilities). The RNB is used to collect and process on-line in near real time the data from each LSV test. The on-line capability is essential to defining subsequent test runs.

The RNB also contains the interface and communication computer for the LSV Acoustic Track and Control System (ATACS). This system is used to send and receive communications to/from the LSV. If this facility were lost, a platform wouldn't be available for communicating with the LSV and the vehicle.

Loss Impact.

This technical capability is an intrinsically in-house Navy function because of statutorily mandated security controls, because quick turn-around solutions to urgent Fleet problems are required for national security (strategic systems), and because the nature of the work and requirements are such that in-house performance is most cost-effective for government. The capability was developed by the Navy in the absence of a full spectrum private business base and continues to provide the Navy with "smart buyer" independent assessments of the specific performance of systems and services acquired by the Navy. Loss of this capability would adversely impact the Navy's ability to maintain its strategic and tactical acoustic advantage over threat systems.

The Navy has made recent attempts to broaden its base of providers to include more outside the government participation, with mixed results. The private sector has been unwilling to make the capital and training investment necessary to perform at acceptable levels, without a long term commitment on the part of the government. Often the Navy's required technical expertise is so specialized that it resides in one or two people with years of Navy-specific training. Consequently, expertise in this area is highly mobile and may be easily lost, leaving the Navy to deal with a new contractor and greater costs to ensure mission performance.

The Division is the international leader in Structural Acoustics, Hydro-acoustics, and full scale ship noise measurements. There is no other organization with the required assembly of experienced technical experts that could possibly replace this functional capability for many years. A number of technical advances developed at this technical center have resulted in quiet shipboard hardware components which have been incorporated into the fleet. Advances that have been incorporated into procurement and shipbuilding specifications include: special submarine sonar domes, special acoustic hull treatments, sonar area quieting systems, sonar baffles, and quiet submarine propulsors.

The loss of the Technical Capability residing at this center would severely impact the Navy's ability to maintain and control the acoustic signatures of its surface ships, submarine and UUVs. In service monitoring of the noise posture of a ship is essential to maintaining operational readiness. This Division provides noise monitoring manuals and training to forces afloat in use of own ship measurement systems. The ability to develop the measurement techniques and training is a direct result of conducting the noise measurement trials. The Division also conducts in service acoustic condition based monitoring that supports physical maintenance and acoustic posture.

9.Indicate how and when the facility/equipment was transported and or constructed at the site.

o *CHINOOK*
This vessel was constructed by Gladding Hearn Shipbuilding in Somerset Mass. in 1991, and trucked in two pieces across country to lake Pend Oreille.

o *PSP-4/DRY DOCK*
PSP-4 was constructed in place on Lake Pend Oreille in 1954. The Drydock was constructed in place on Lake Pend Oreille in 1980.

o *DOLLY VARDEN MODEL*
This model was constructed by HITCO Corp., LA, California and transported by truck to Bayview, Idaho in 1977.

o *IPMP MODEL (MACKINAW)*
This model was constructed by Newport News Ship building in 1983 and delivered by truck to Bayview, Id.

o *KAMLOOPS MODEL*
This model was constructed at Vickers LTD., Canada in 1966, and was transported by railroad to Athol, Id. then transported by truck to Bayview, Id.

o *PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)*
PSP-6 was constructed in place on Lake Pend Oreille in 1967.

o *MODEL SUPPORT PLATFORM (MSP)*
MSP was constructed in place on Lake Pend Oreille in 1988.

o *S6W MODEL*
The S6W model was constructed by Electric Boat in 1986 and was transported by railroad to the north end of lake Pend Oreille where it was launched into the lake via a marine railway then transported to Bayview by tug boat.

o *STEELHEAD MODEL*
This model was constructed by Oak Ridge National Laboratory in Oak Ridge, Tenn. in 1988 and transported to Hauser Lake, Id. by railroad, then transported by truck to Bayview, Idaho.

o *WIGWAM*
WIGWAM was constructed on Lake Pend Oreille in 1959.

o *PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)*
PSP-5 was constructed in-place on Lake Pend Oreille in 1972.

o *LARGE SCALE VEHICLE (LSV)*
The Large Scale Vehicle, KOKANEE, was transported from Austin, Texas to Lake Pend Oreille, Idaho on a specially configured rail car in 1987. This was a one-of-a-kind rail car specially designed for heavy lift, large object transportation. Final outfitting, grooming of systems, acceptance tests, guidance system installation and preparations for operations took place at the lake. Support platforms, small craft, and the tracking and radiated noise range were constructed at or installed in Lake Pend Oreille from 1987-1988.

o *LARGE SCALE VEHICLE SUPPORT BARGE*
The Support Barge was constructed on-site in 1986.

o *EXPERIMENTAL SUPPORT PLATFORM (ESP)*
The tri-meran hull/floatation compartments were fabricated in a construction yard and trucked to the North end of Lake Pend Oreille. The assembled hulls were launched into Lake Pend Oreille and floated to the ARD where outfitting of platform superstructures, cranes, winches and support systems were completed from the base wharf.

o *OUTPOST*
The OUTPOST was developed on 1/4 acre of US Forest Service land from 1992 - 1994, under a Special Use Land Permit granted by the Forest Service. The facilities of the OUTPOST were constructed over a period of three years. The equipment located at the OUTPOST was procured and/or developed under Navy contracts for material and service. All materials were delivered to the site on barges where construction and installations were accomplished.

o *RADIATED NOISE BARGE (RNB)*
The barge was transported from Sandpoint, ID in 1985-86. Electronic measurement equipment was purchased and installed at Bayview, ID in 1986.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support.

Functional Support Area	Life Cycle Work Area	Direct Labor (WYs)	InHouse Expend. ($M)	OutHouse Expend. ($M)
1.1 PLATFORM/ Undersea	02-Exploratory Devel.	1.1	.177	.060
	03-Advanced Devel.	20.0	3.796	5.140
	04-Engineering & Manufacturing Devel.	16.0	2.964	.060
		---	---	---
		47.2	6.937	5.260
5.1 SENSORS AND SURVEILLANCE SYSTEMS / Sonar Systems	02-Exploratory Devel.	.3	.035	.000
	03-Advanced Devel.	.5	.053	.000
	04-Engineering & Manufacturing Devel.	.4	.053	.000
	10-Acquisition Pgm Supt	1.5	.208	.000
		---	---	---
		2.7	1.618	.000
	TOTAL	39.9	8.555	5.260

Customers and Business Base.

The funding in this technical area has been stable over the past five years. The continued interest in stealth R&D, the development of New Attack Submarine and new surface ship design and the continued need for operational readiness ensures that the funding base will continue at a healthy level. Private sector involvement is decreasing because of shortage of funds and the need for large capital investments, particularly in facilities.

There are numerous customers including continued support for foreign governments. The principal customers are: PEO-SUB; NAVSEA; SUBLANT/PAC, SURFLANT/PAC, ONR, ONI 721. In FY 93 approximately 370 WYs in this TC at Carderock.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Facility Name	FY89	FY90	FY91	FY92	FY93
o CHINOOK	--	--	2%	20%	31%
o PSP-4/DRY DOCK	100%	81%	13%	8%	25%
o DOLLY VARDEN MODEL	100%	100%	32%	15%	11%
o IPMP MODEL (MACKINAW)	0%	0%	4%	0%	0%
o KAMLOOPS MODEL	100%	100%	91%	33%	57%
o PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)	73%	50%	54%	23%	69%
o MODEL SUPPORT PLATFORM (MSP)	31%	80%	87%	41%	82%
o S6W MODEL	0%	0%	0%	0%	0%
o STEELHEAD MODEL	0%	2%	0%	0%	0%
o WIGWAM	92%	69%	33%	33%	29%
o PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)	15%	23%	33%	61%	93%
o LARGE SCALE VEHICLE (LSV)	92%	92%	77%	92%	92%
o LARGE SCALE VEHICLE SUPPORT BARGE	100%	100%	100%	100%	100%
o EXPERIMENTAL SUPPORT PLATFORM (ESP)	--	--	--	--	44%
o OUTPOST	--	--	--	--	--
o RADIATED NOISE BARGE (RNB)	100%	100%	100%	100%	100%
(Simple) AVERAGES	61%	61%	43%	37%	49%

12. Provide the projected utilization data out to FY1997.

Facility Name	FY94	FY95	FY96	FY97
o CHINOOK	21%	25%	23%	19%
o PSP-4/DRY DOCK	50%	50%	39%	39%
o DOLLY VARDEN MODEL	41%	75%	50%	50%
o IPMP MODEL (MACKINAW)	0%	8%	4%	8%
o KAMLOOPS MODEL	12%	21%	39%	39%
o PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)	19%	32%	31%	29%
o MODEL SUPPORT PLATFORM (MSP)	92%	87%	82%	82%

o S6W MODEL	0%	9%	7%	7%
o STEELHEAD MODEL	7%	9%	7%	6%
o WIGWAM	15%	25%	31%	25%
o PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)	81%	53%	50%	50%
o LARGE SCALE VEHICLE (LSV)	81%	81%	86%	90%
o LARGE SCALE VEHICLE SUPPORT BARGE	100%	100%	100%	100%
o EXPERIMENTAL SUPPORT PLATFORM (ESP)	48%	61%	25%	25%
o OUTPOST	61%	50%	50%	50%
o RADIATED NOISE BARGE (RNB)	100%	100%	100%	100%
(Simple) AVEARGES	46%	49%	46%	45%

13. What is the approximate number of personnel used to operate the facility/equipment?

Expertise.

The personnel expertise commanded in this area require special skills and knowledge developed from advanced training in acoustics and extensive, long term on the job development. There are seven world renowned experts involved including three STs. The technical expertise required to support this capability includes a detailed knowledge of ships, ship systems, and ship operating procedures which is not readily available in academia. CDNSWC is considered the Navy's expert on acoustic silencing of ships.

The technical disciplines involved include target strength material science, structural acoustics science, hydroacoustics noise science, active acoustics science, ship noise reduction engineering, passive and active acoustic signal analysis, surface ship and submarines systems engineering, hardware and instrumentation specialists and measurement technology and diagnostic techniques.

Facility Operations Personnel.

Facility Name	Number
o CHINOOK	.6
o PSP-4/DRY DOCK	1.2
o DOLLY VARDEN MODEL	3.4
o IPMP MODEL (MACKINAW)	* 0.0
o KAMLOOPS MODEL	3.4
o PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)	.7
o MODEL SUPPORT PLATFORM (MSP)	1.6
o S6W MODEL	* 0.0
o STEELHEAD MODEL	** 0.0
o WIGWAM	.3
o PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)	.7
o LARGE SCALE VEHICLE (LSV)	39.0
o LARGE SCALE VEHICLE SUPPORT BARGE	1.8
o EXPERIMENTAL SUPPORT PLATFORM (ESP)	2.5
o OUTPOST	1.0
o RADIATED NOISE BARGE (RNB)	7.0
Aggregate Personnel Needed:	63.2

* Two people are required when (if) testing occurs.
** Six people are required when (if) testing occurs.

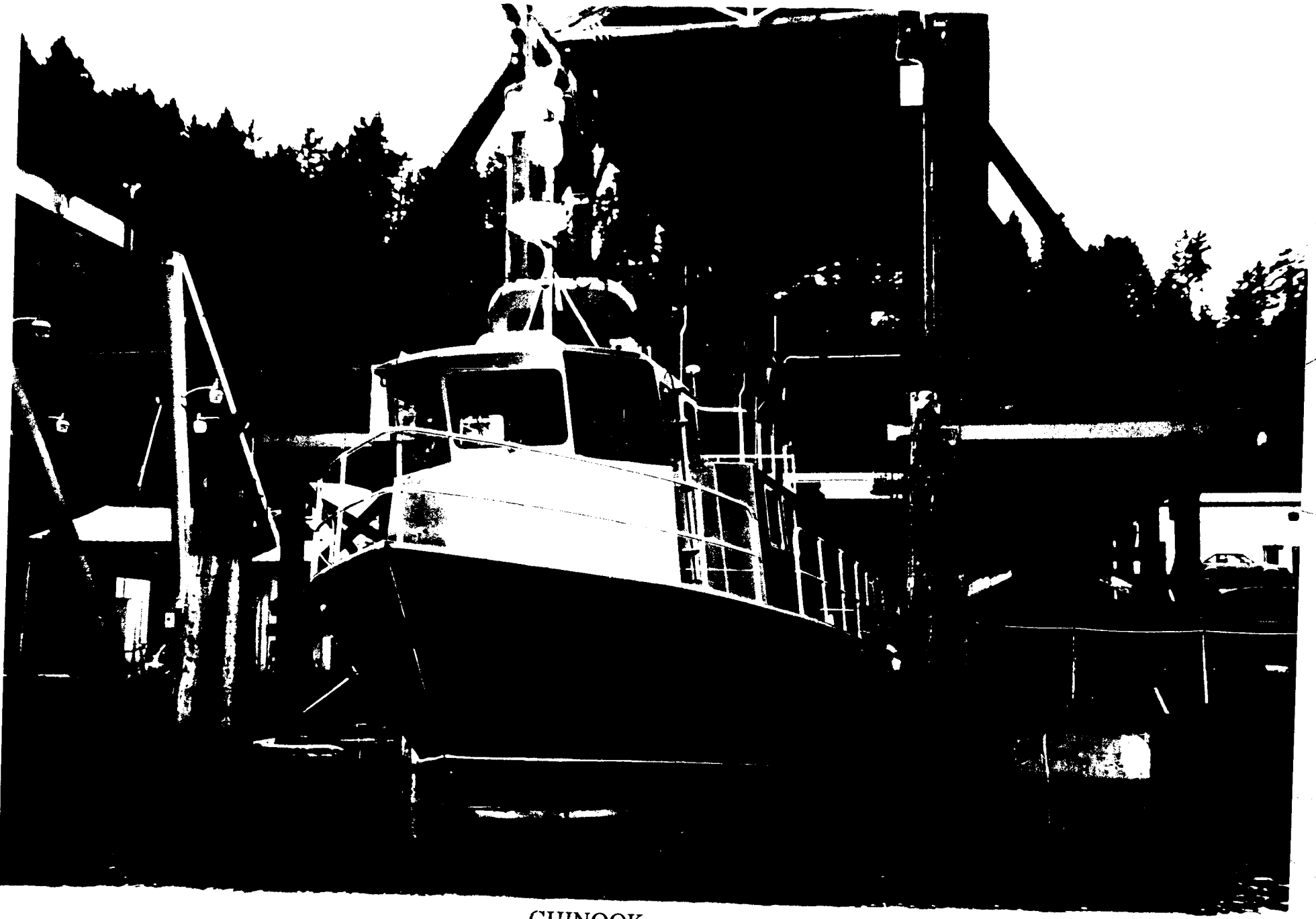
14. What is the approximate number of personnel needed to maintain the equipment?

Facility Name	Number
o CHINOOK	.3
o PSP-4/DRY DOCK	.4
o DOLLY VARDEN MODEL	* 0.0
o IPMP MODEL (MACKINAW)	* 0.0
o KAMLOOPS MODEL	* 0.0
o PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)	* 0.0
o MODEL SUPPORT PLATFORM (MSP)	.4
o S6W MODEL	* 0.0
o STEELHEAD MODEL	* 0.0
o WIGWAM	.1
o PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)	.2
o LARGE SCALE VEHICLE (LSV)	14.0
o LARGE SCALE VEHICLE SUPPORT BARGE	1.8
o EXPERIMENTAL SUPPORT PLATFORM (ESP)	.8
o OUTPOST	.8
o RADIATED NOISE BARGE (RNB)	4.0
Aggregate Personnel Needed:	20.8

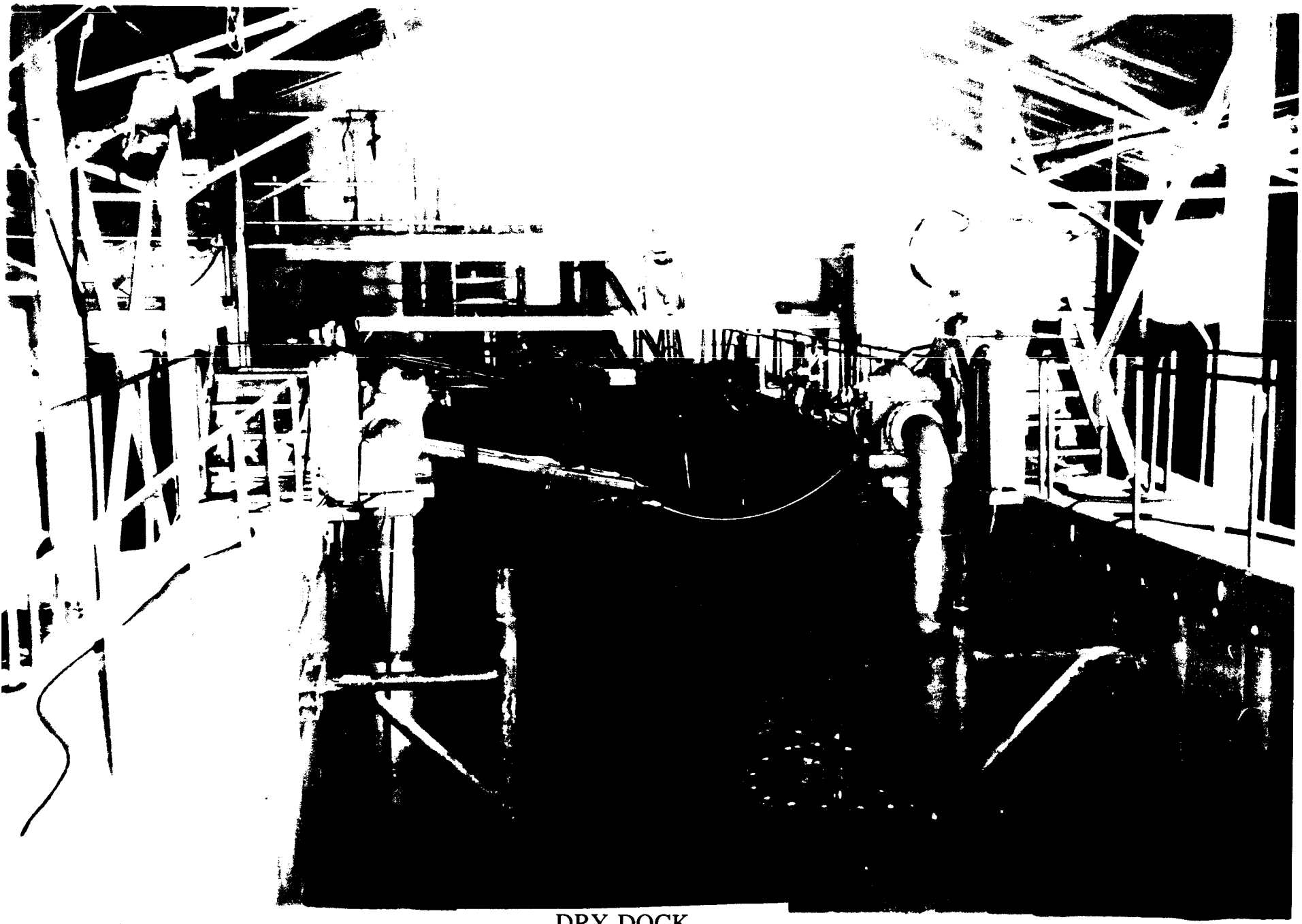
* Maintenance is handles as part of set-up for a test.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

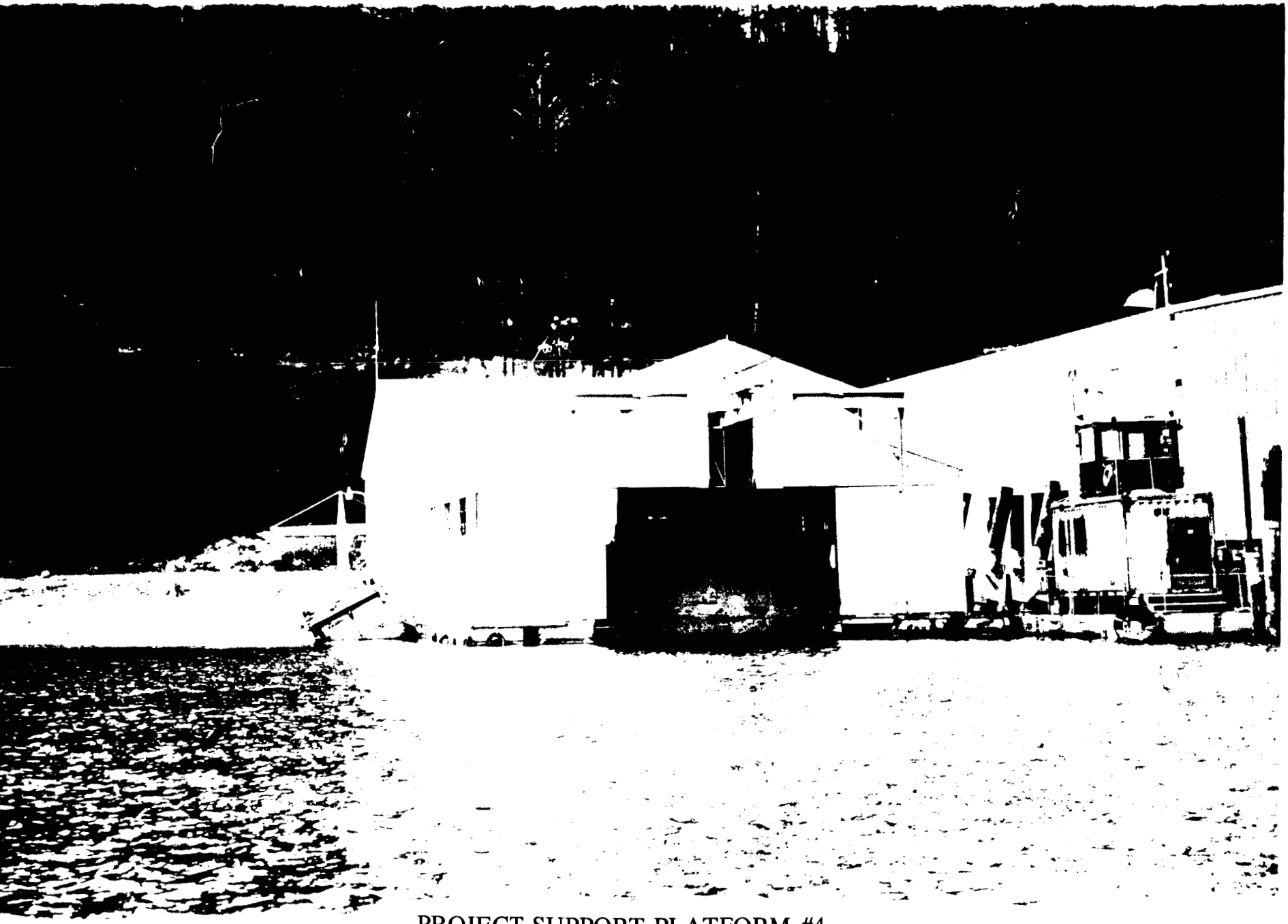
Included.



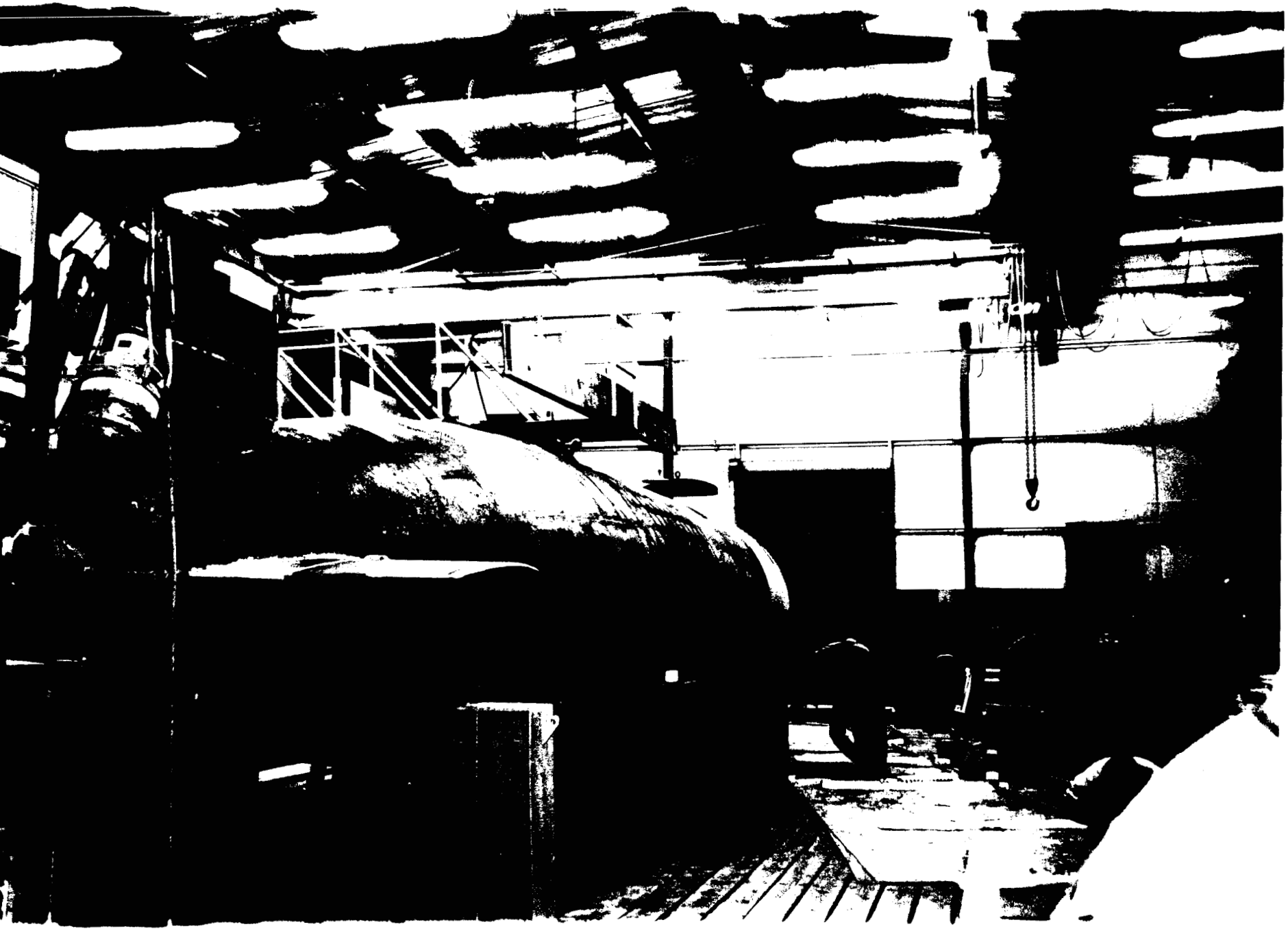
CHINOOK
CDNSWC, ARD, BAYVIEW



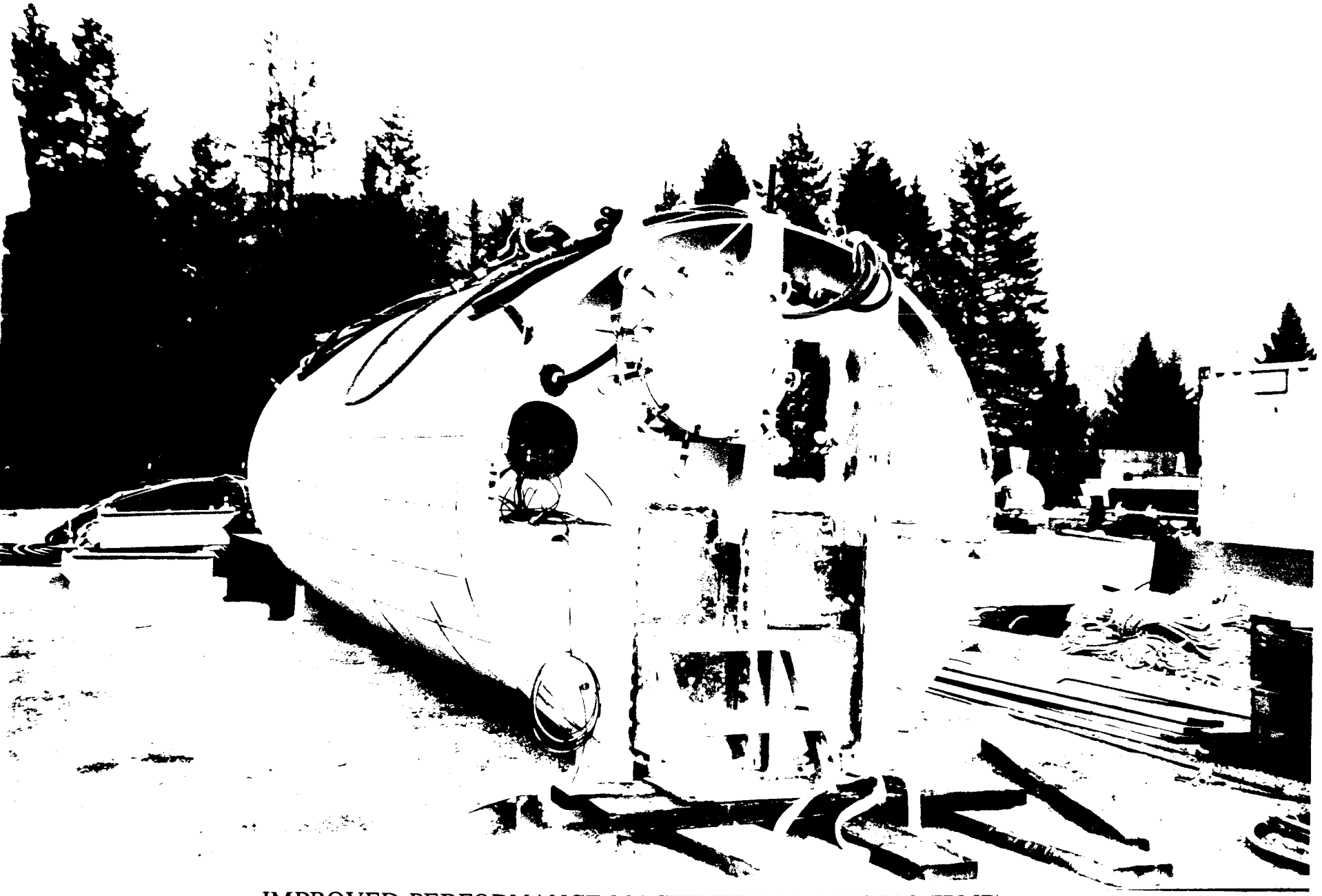
DRY DOCK
CDNSWC, ARD, BAYVIEW



PROJECT SUPPORT PLATFORM #4
CDNSWC, ARD, BAYVIEW

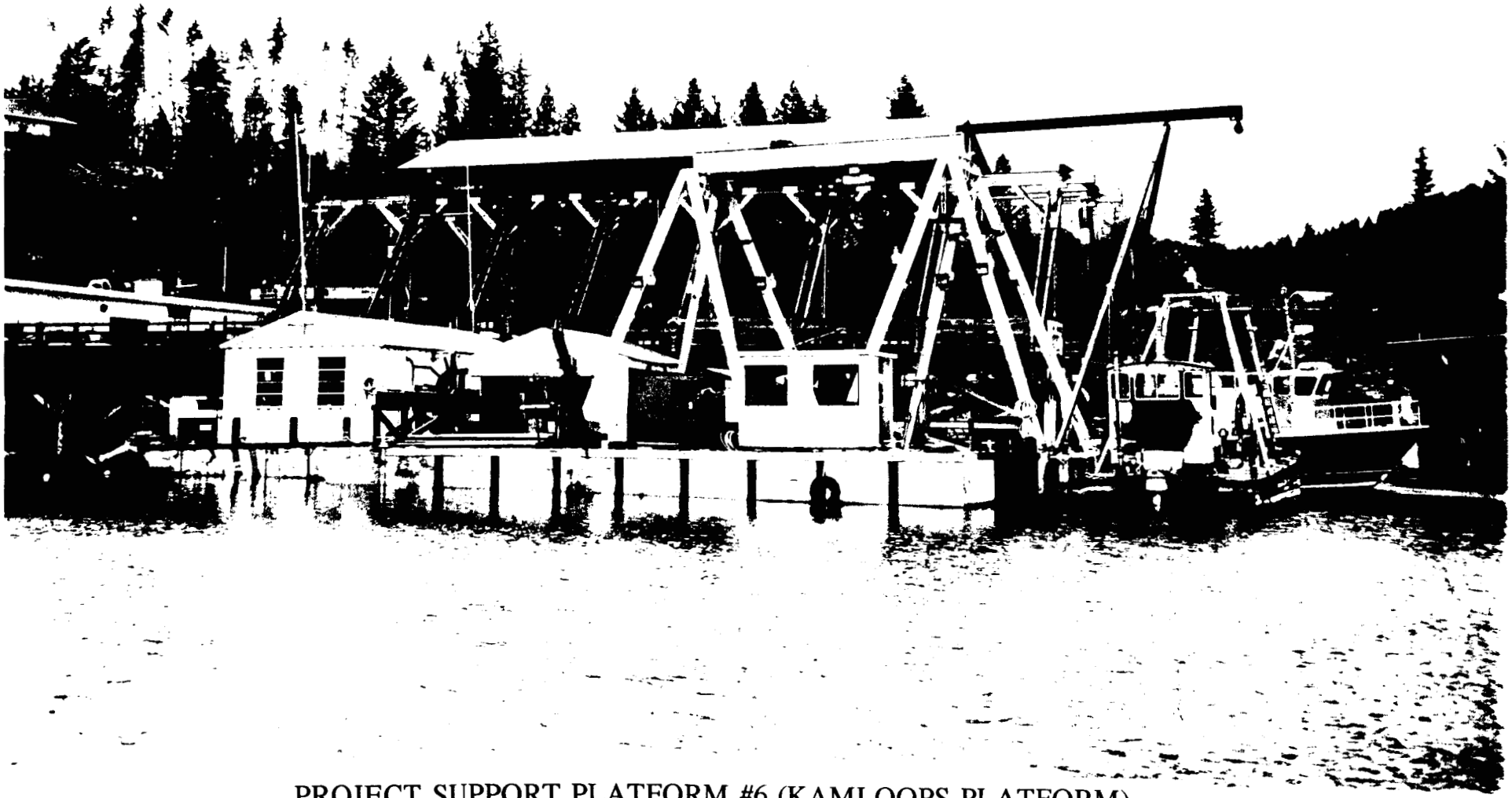


DOLLY VARDEN MODEL
CDNSWC, ARD, BAYVIEW

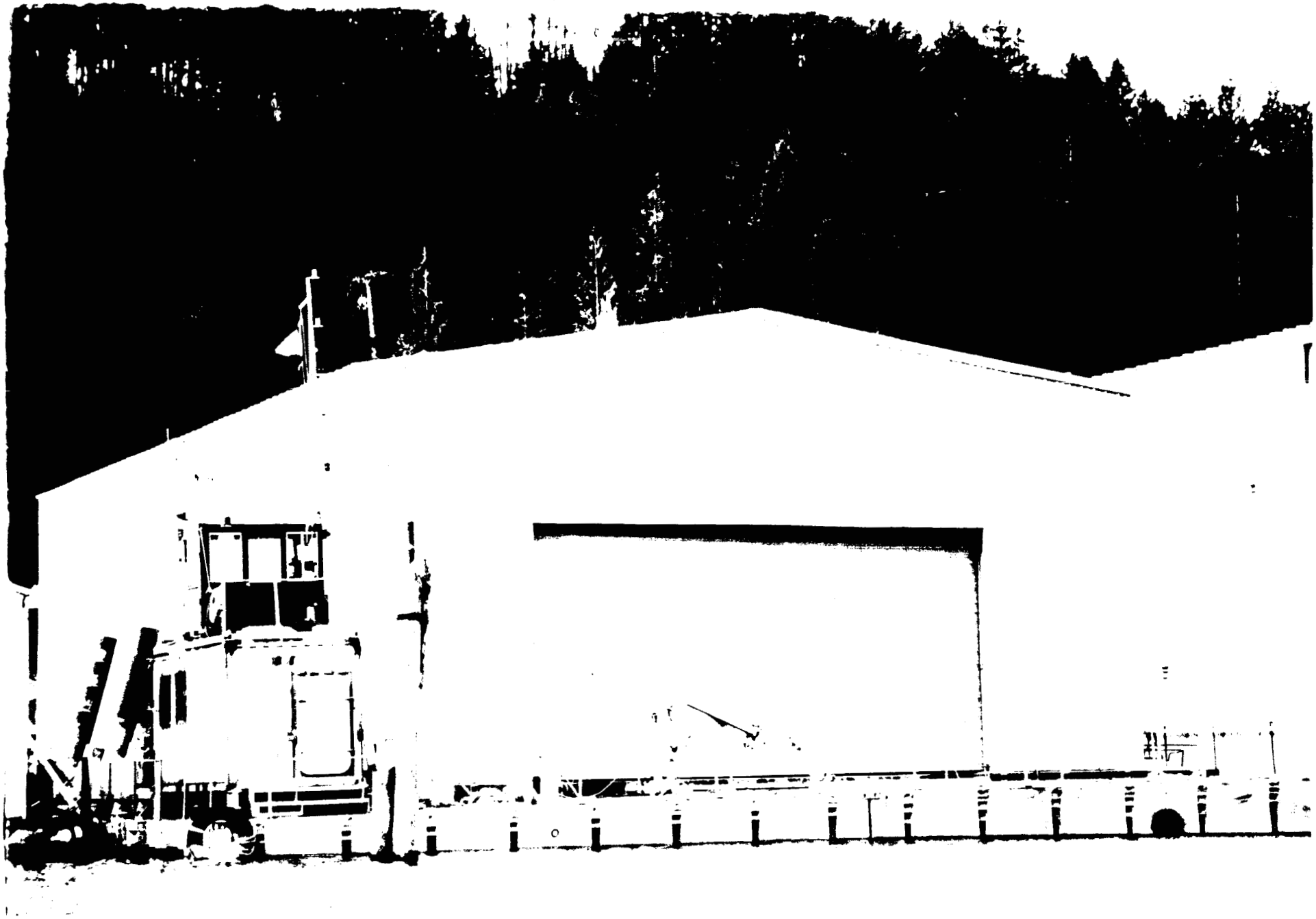


IMPROVED PERFORMANCE MACHINERY PLATFORM (IPMP)
CDNSWC, ARD, BAYVIEW

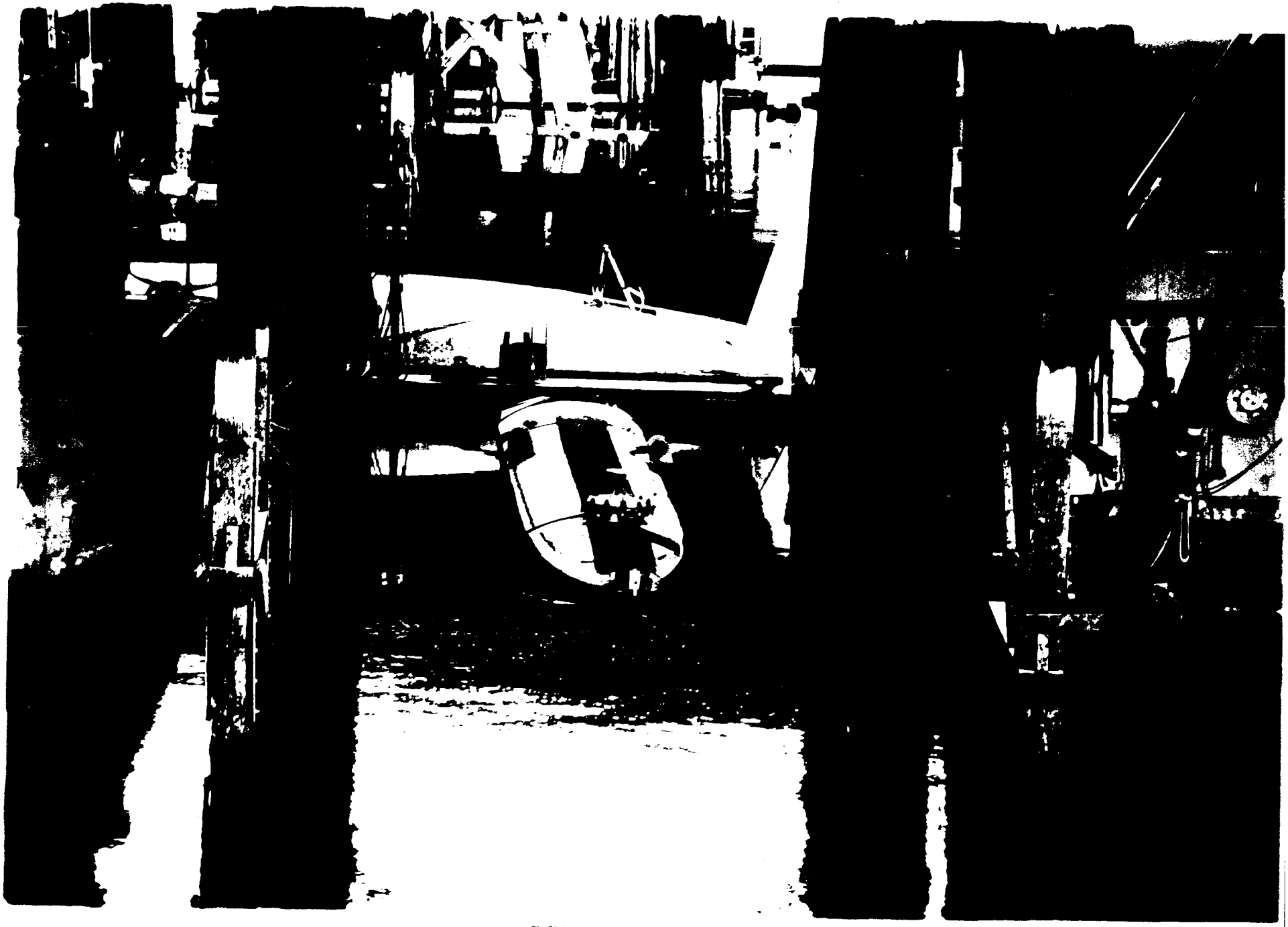
KAMLOOPS MODEL
CDNSWC, ARD, BAYVIEW



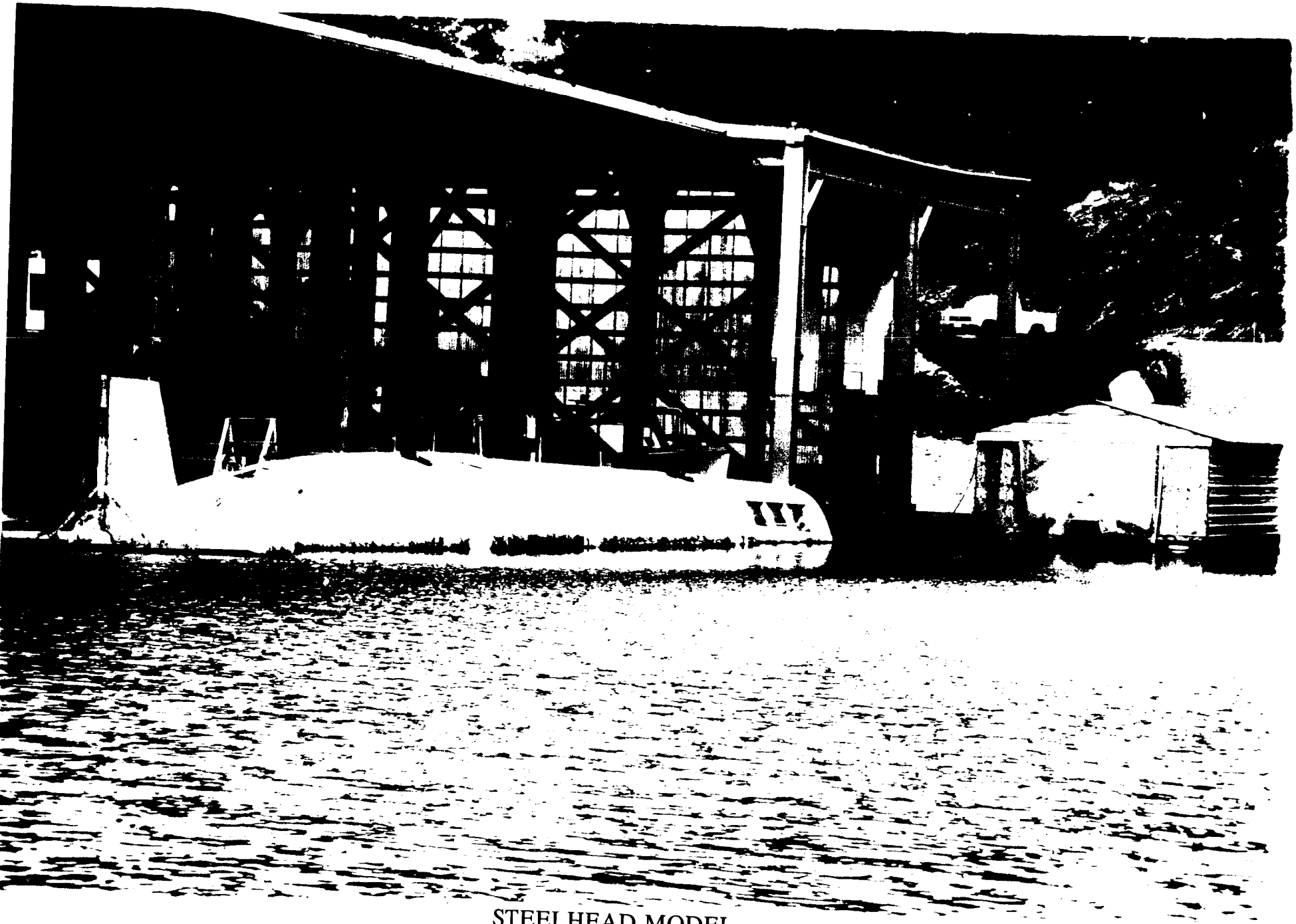
PROJECT SUPPORT PLATFORM #6 (KAMLOOPS PLATFORM)
CDNSWC, ARD, BAYVIEW



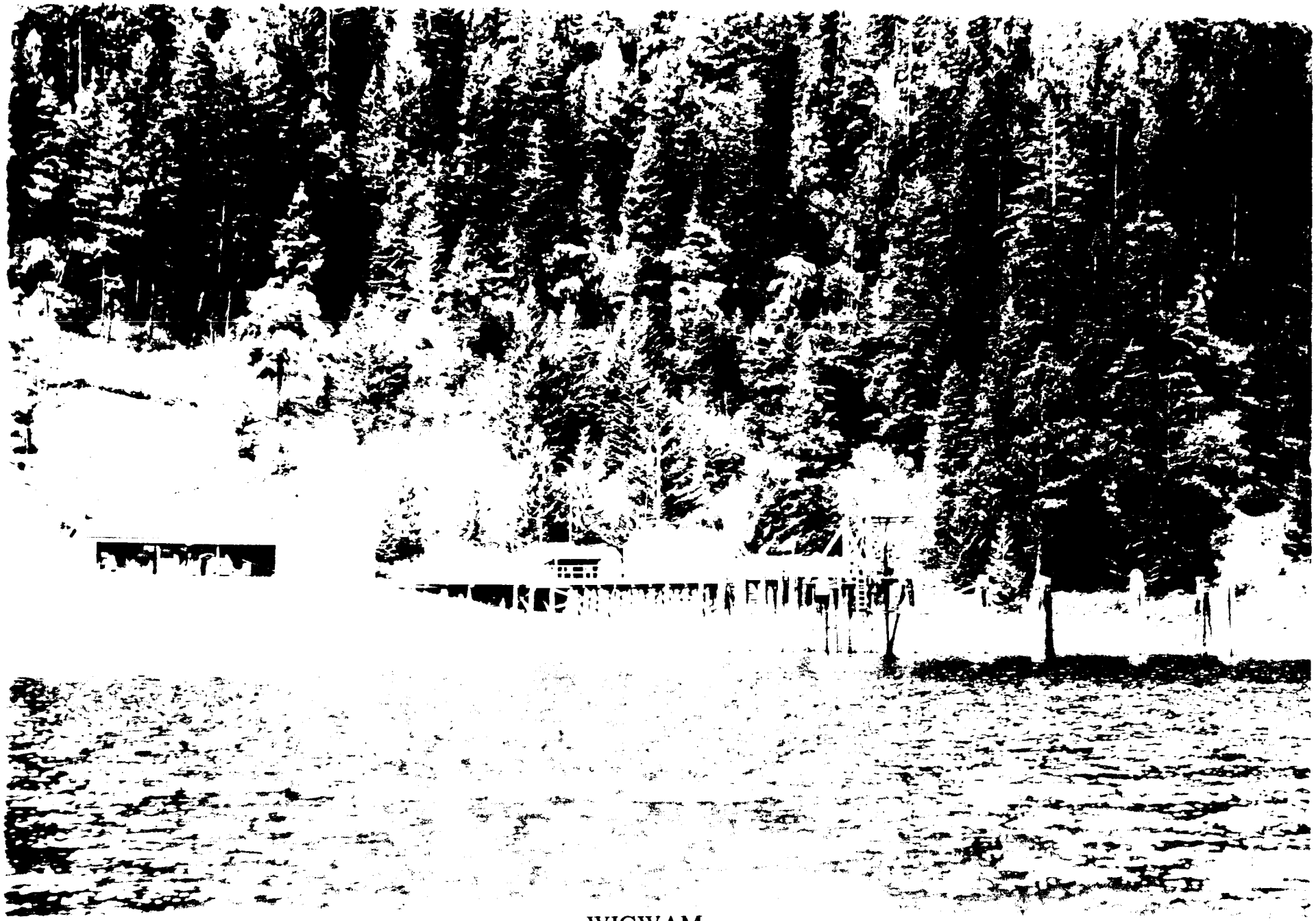
MODEL SUPPORT PLATFORM (MSP)
CDNSWC, ARD, BAYVIEW



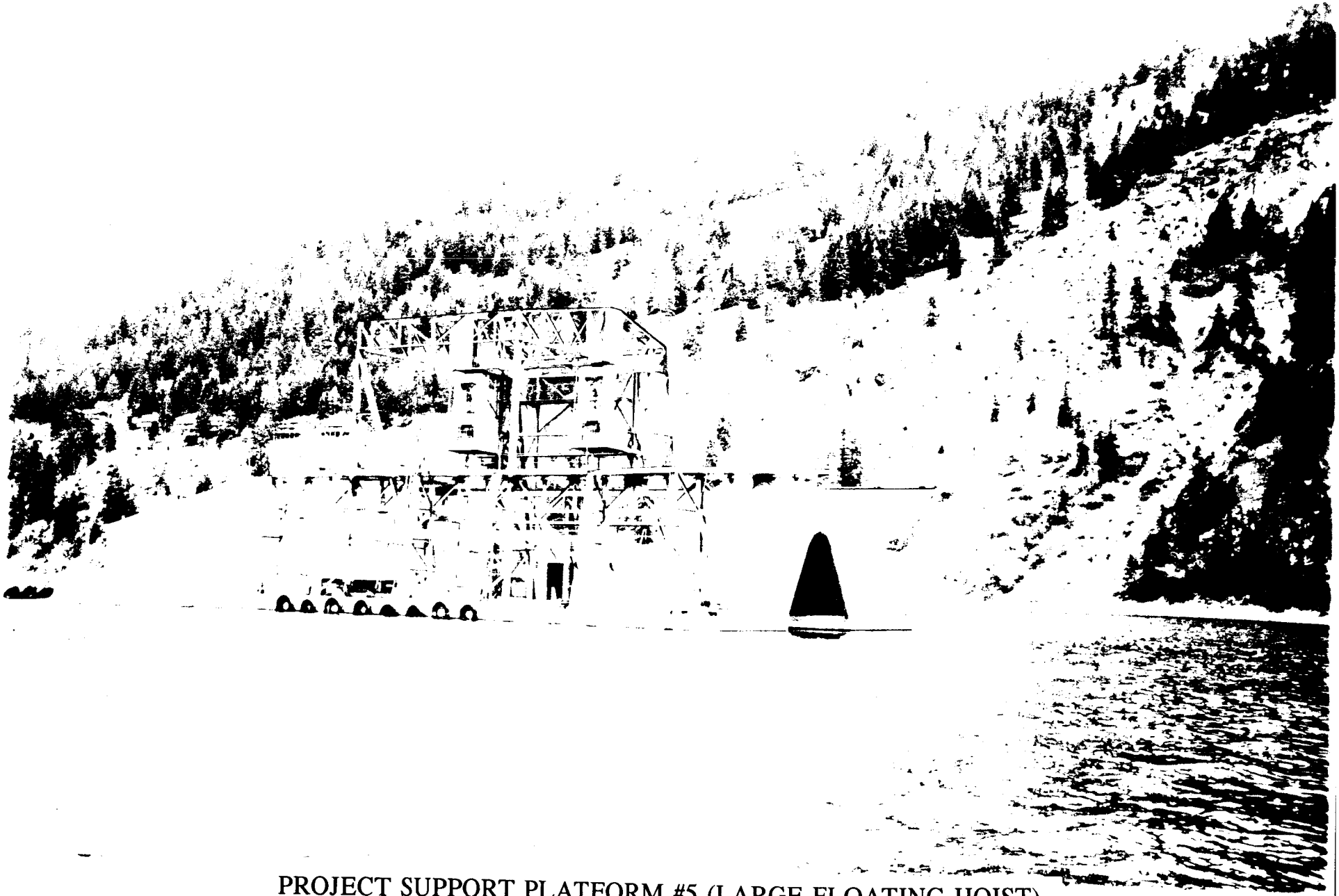
S6W MODEL
CDNSWC, ARD, BAYVIEW



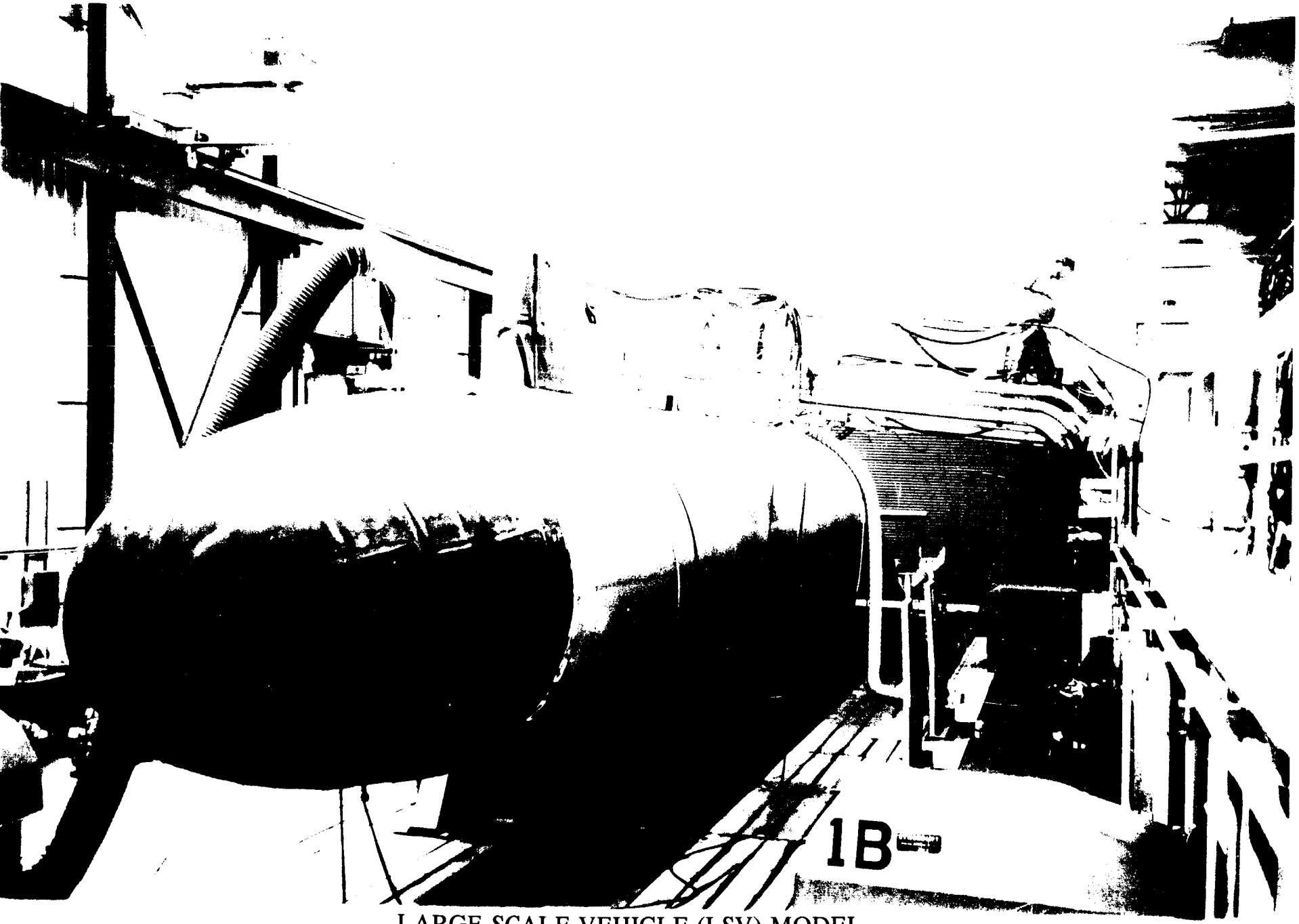
STEELHEAD MODEL
CDNSWC, ARD, BAYVIEW



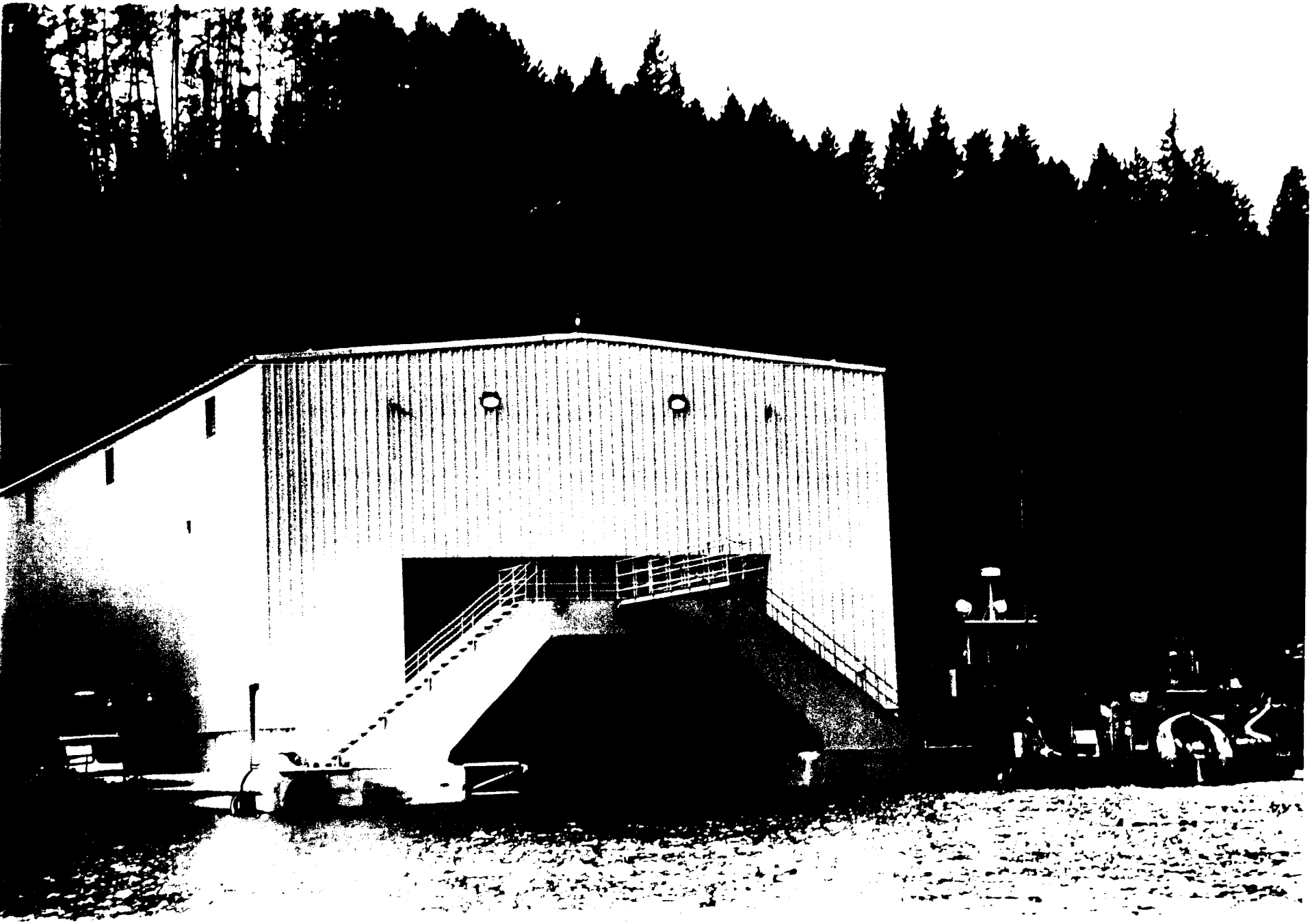
WIGWAM
CDNSWC, ARD, BAYVIEW



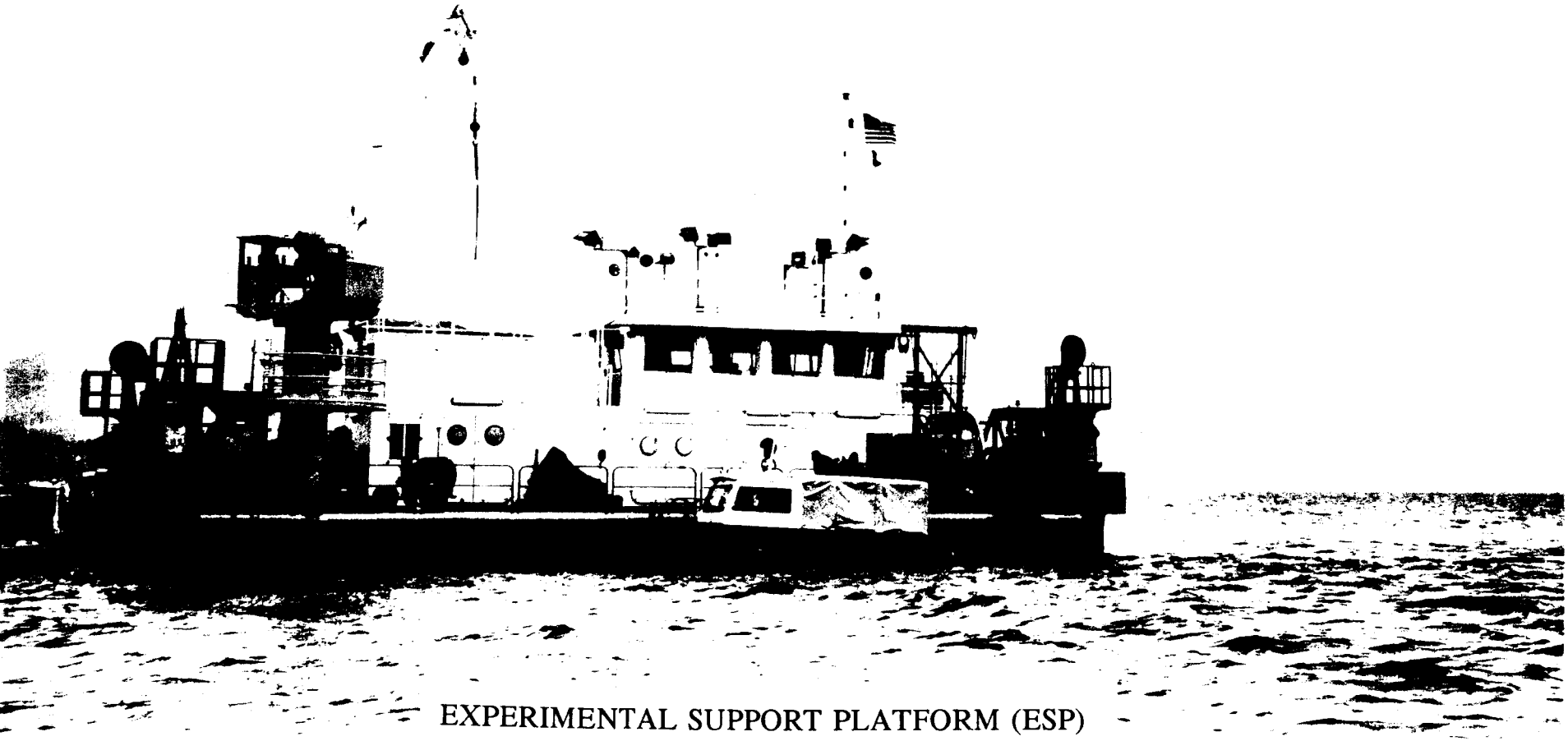
PROJECT SUPPORT PLATFORM #5 (LARGE FLOATING HOIST)
CDNSWC, ARD, BAYVIEW



LARGE SCALE VEHICLE (LSV) MODEL
CDNSWC, ARD, BAYVIEW

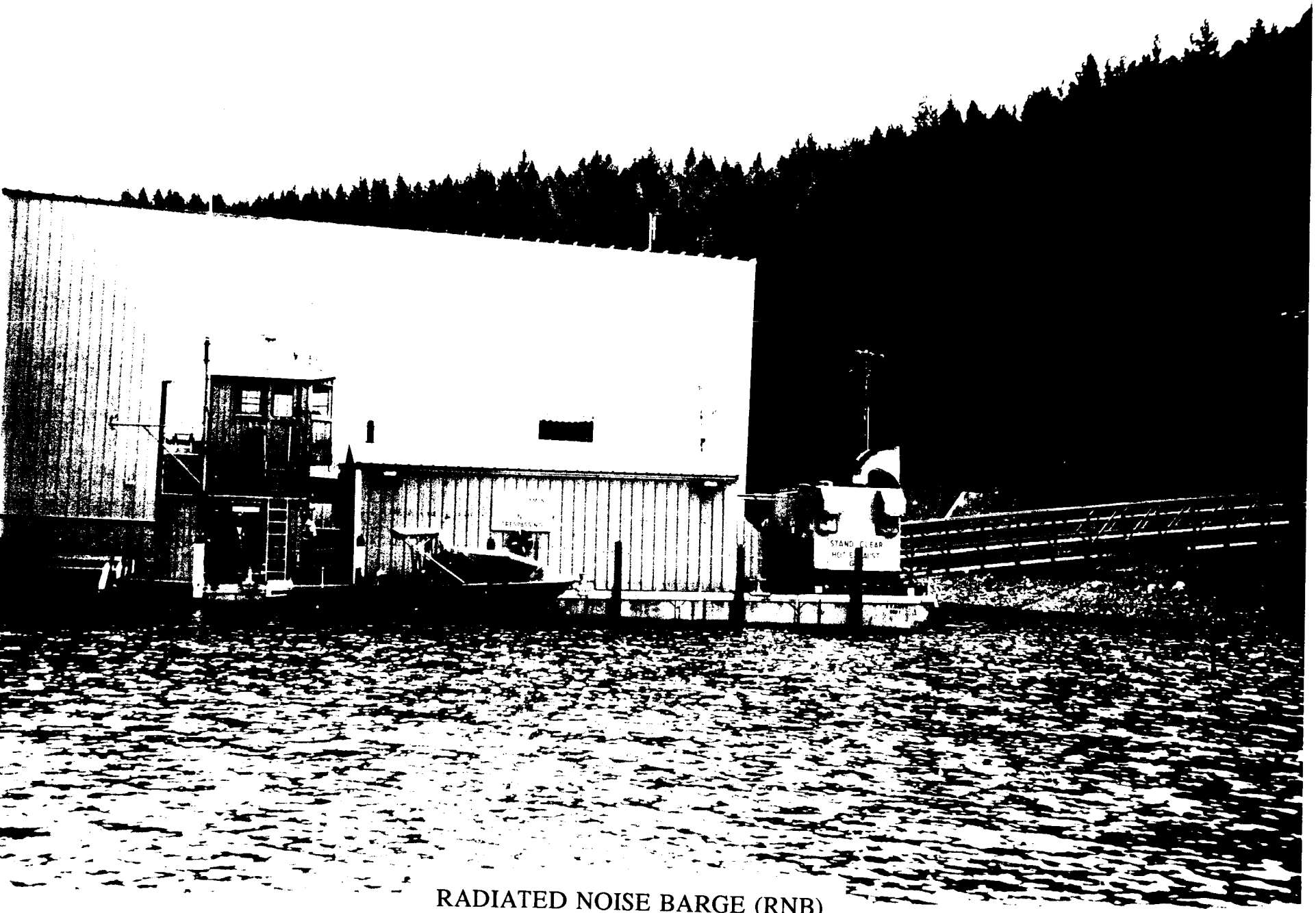


LARGE SCALE VEHICLE (LSV) BARGE
CDNSWC, ARD, BAYVIEW



EXPERIMENTAL SUPPORT PLATFORM (ESP)
CDNSWC, ARD, BAYVIEW

OUTPOST
CDNSWC, ARD, BAYVIEW



RADIATED NOISE BARGE (RNB)
CDNSWC, ARD, BAYVIEW

TAB C
RANGE CAPABILITY FORM
RANGE RESOURCES

SUMMARY OF RANGES
BAYVIEW SITE
CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER

Funtional Support Area

Platform
Undersea

Technical Capability

RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems

Ranges

Buoyant Vehicle Range
Towed Array Range
Large Scale Vehicle Range
Intermediate Scale

RANGE RESOURCES
RANGE CAPABILITY FORM

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Range Nomenclature or Title	BUOYANT VEHICLE RANGE

1. List all the ranges that your activity maintains and operates. Provide the following information on each range:

a. A brief statement of what the range is used for.

The Buoyant Vehicle Range is primarily used to conduct flow-noise testing with buoyant vehicle models. Both 1/4 scale submarine models and full-scale torpedo models are tested, using the (3) hauldowns, 1100' water depth and quiet ambient conditions. The majority of testing is bow-area flow noise, but extensive radiated noise measurements, planar array self-noise measurements and turbulent boundary layer measurements are also done. For example, at terminal velocity vehicle speeds equivalent to full scale speeds can be achieved within a run distance of less than 700 feet from release.

In addition, the Buoyant Vehicle Range is used for target strength testing on the hauldowns and a variety of suspended tests at the shore-power equipped deep moor in 1150' of water on range.

b. Geographic location of the range.

The Buoyant Vehicle Range is located in the western half, towards the southern end of the main North-South channel of Lake Pend Oreille in north Idaho, to the south or west of the other (3) ARD ranges.

c. Distance from the range to the activity's headquarters facility (main site).

The distance from ARD to CDNSWC headquarters is approximately 1800 miles. The distance from the Buoyant Vehicle range to the ARD headquarter facility is approximately 6 miles.

d. Range size in square miles.

The Buoyant Vehicle range is approximately 2.25 square miles in size.

e. Scheduling authority.

Scheduling authority is local with NSWC-ARD.

f. Air space available/restrictions.

None

g. Maximum water depth available / restrictions.

Maximum water depth available is 1150 feet at the north hauldown / minimum operational water depth is 1050 at the south hauldown.

h. Instrumentation capability.

The remote operational controls and monitoring gear for the operation of the buoyant vehicle models exist at the deep moor on the buoyant vehicle range. The buoyant vehicle range is also instrumented with an ambient noise monitoring/ measurement / recording system. . In addition the Kamloops Barge can be moored on range with full lab space and instrumentation. Radiated noise array have been and can be deployed to measure radiated noise from the buoyant vehicle models.

i. Accuracy of tracking.

Tracking is not typically done, except with an onboard flight path system consisting of gyros, accelerometers and digital recorder. However, a tracking system with a pinger on the buoyant vehicle models has and can be done: the accuracy depends on the system used.

j. Data collection / replay capability.

The primary data collection (as many as 140 data channels can be recorded) exists onboard the buoyant vehicle models. The remote control of the onboard recording system is via the deep moor on the Buoyant Vehicle Range. The playback and processing of the data collected is accomplished in lab space at the ARD headquarter facility.

k. What are the maximum hours per year that this range is available to support activities?

Provide the actual hours that the range was up and capable of providing services. Do not count "down time" due to maintenance, reconfiguration, or administrative activities (i.e., Holiday shutdowns). The range is available to support activities 2000 hours per year (250 work days X 8 hrs/day).

l. What were the actual hours this range was utilized per year for the last five years (FYs 1989-1993)?

The actual hours that this range was utilized per year for the last five years is as follows: FY89: 1920 hrs, FY90: 1920 hrs, FY91: 1740 hrs, FY92: 1320 hrs, FY93: 1140 hrs.

m. What were the actual hours that this range was utilized in FY1993?

The Buoyant Vehicle range was utilized for 1140 hrs in FY1993.

n. Who are the customers of the range?

NAVSEA 03TC via CDNSWC, NUWC New London, Admiralty/ Research Establishment (ARE) U.K.

o. Of the actual hours utilized what percentage of utilization time was provided to which customers?

NAVSEA via CDNSWC: 75%, NUWC: 15%, ARE-UK: 10%

p. Provide a sketch, drawing or map of the range.

(see attached)

2. Are any of your ranges part of the DoD Major Range and Test Facility Base (MRTFB)? (yes/no) If yes, which ones?

No.

3. Are there any limiting (current or future) environmental and/or encroachment characteristics that are associated with this range?

No.

4. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Functional Support Area	Life Cycle Work Area
1.1. PLATFORM/Undersea	3. Advanced Development

5. Related Special Facilities/Equipment.

This range supports the following special facilities/equipment and technical capabilities described in TAB B to this data call.

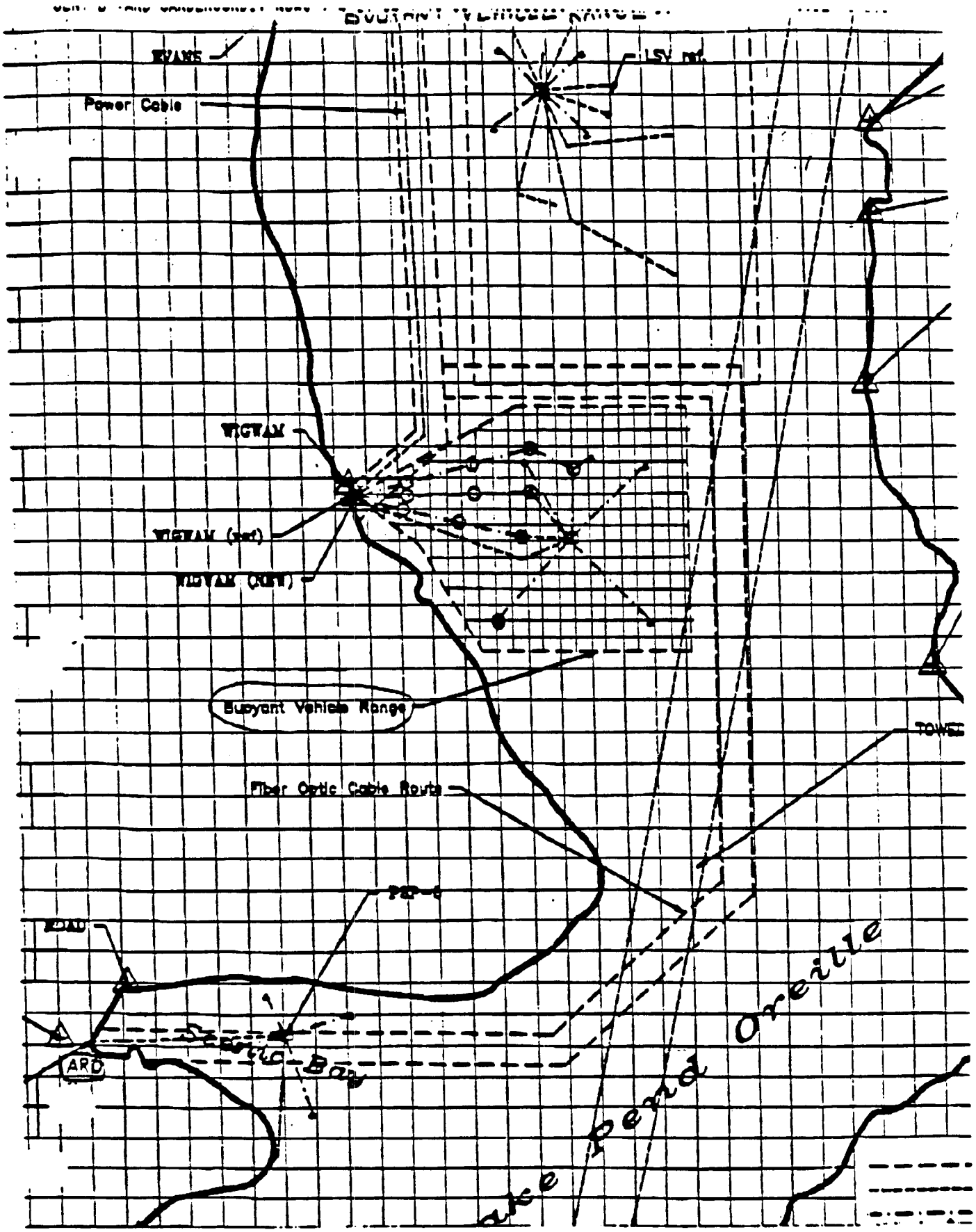
<u>Special Facility/Equipment/Technical Capability</u>

The Wigwam is a critical operational part of the Buoyant Vehicle Range. The Kamloops, Dolly Varden and Steelhead Models are all buoyant vehicle models that are tested on the Buoyant Vehicle Range. PSP-6 (Kamloops Barge), PSP-4 / Drydock and MSP are all platforms that support the buoyant vehicles being tested on the range.

Carderock	TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems

6. The following activities utilize this Range.

CDNSWC
NUWC New London
Admiralty Research Establishment (ARE) U.K.
Litton Guidance and Control Systems
Martin Marietta Energy Systems
Naval Post-Graduate School.



BUOYANT VEHICLE RANGE
AND
LSV RANGE

RANGE RESOURCES
RANGE CAPABILITY FORM

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Range Nomenclature or Title	TOWED ARRAY RANGE

1. List all the ranges that your activity maintains and operates. Provide the following information on each range:

a. A brief statement of what the range is used for.

Carderock Division is the sole activity with the mission for Hull, Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures. The facilities, located on the only 43 mile long, 1100 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. Test facilities and personnel at Bayview contributes to the development of scientific base through test of experimental towed arrays, translation of military requirements into array specifications and ensure that towed array production units meet specifications.

The Towed Array range is used to conduct cold water array noise testing of experimental and production units under simulated tow and arctic/north atlantic conditions. The low ambient noise, the constant cold water temperature, water depth and controlled environment is not available to the Navy at any other location.

b. Geographic location of the range.

The ARD is located approximately 1800 miles from CDNSWC headquarters. The range is located in the main North-South channel of Lake Pend Oreille in north Idaho to the east of the other (3) ARD ranges.

c. Distance from the range to the activity's headquarters facility (main site).

The distance from the range to the ARD headquarter facility varies from 3 miles at the closest point, to 12 miles at the farthest point.

d. Range size in square miles.

The towed array range covers an area of approximately 6.5 square miles. (13 miles long X 1/2 mile wide.

e. Scheduling authority.

Scheduling authority is local with NSWC-ARD.

f. Air space available/restrictions.

N/A

g. Maximum water depth available / restrictions.

Maximum water depth available is 1150 feet / range operational area is all restricted to 800 feet or greater.

h. Instrumentation capability.

The range is instrumented with a Del Norte microwave ranging system, and the tow platform operating on the range is equipped with GPS and radar.

i. Accuracy of tracking.

The maximum tracking accuracy is obtained with the Del Norte system (+/- 1 meter).

j. Data collection / replay capability.

Data collection is only conducted on board the tow platform. It is replayed on board the tow platform and in lab space on shore.

k. What are the maximum hours per year that this range is available to support activities? Provide the actual hours that the range was up and capable of providing services. Do not count "down time" due to maintenance, reconfiguration, or administrative activities (i.e., Holiday shutdowns).

The Towed Array Range is available 3000 hours per year to support activities (250 work days X 12 hrs/day).

l. What were the actual hours this range was utilized per year for the last five years (FYs 1989-1993)?

The actual hours that this range was utilized per year for the last five years is as follows: FY89: 120 hrs, FY90: 540 hrs, FY91: 840 hrs, FY92: 600 hrs, FY93: 960 hrs.

m. What were the actual hours that this range was utilized in FY1993?

The Towed Array Range was utilized for 960 hrs in FY1993.

n. Who are the customers of the range?

NAVSEA PMO425 via NUWC New London Codes 2141, 2142 and 2143; Litton Guidance and Control Systems; Westinghouse Electric; and CDNSWC.

o. Of the actual hours utilized what percentage of utilization time was provided to which customers?

NAVSEA PMO425 via NUWC: 80%, Litton: 10%, Westinghouse: 5%, CDNSWC: 5%.

p. Provide a sketch, drawing or map of the range.

See attached map of range.

2. Are any of your ranges part of the DoD Major Range and Test Facility Base (MRTFB)? (yes/no) If yes, which ones?

No.

3. Are there any limiting (current or future) environmental and/or encroachment characteristics that are associated with this range?

No.

4. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Functional Support Area	Life Cycle Work Area
5.1. SENSORS & SURVEILLANCE SYSTEMS/ Sonar Systems	2. RDT&E Exploratory Devel.
5.1. SENSORS & SURVEILLANCE SYSTEMS/ Sonar Systems	3. RDT&E Advanced Devel.
5.1. SENSORS & SURVEILLANCE SYSTEMS/ Sonar Systems	4. RDT&E Engineering & Manufacturing Devel.
5.1. SENSORS & SURVEILLANCE SYSTEMS/ Sonar Systems	10. Acquisition Program Supt

5. Related Special Facilities/Equipment.

This range supports the following special facilities/equipment and technical capabilities described in TAB B to this data call.

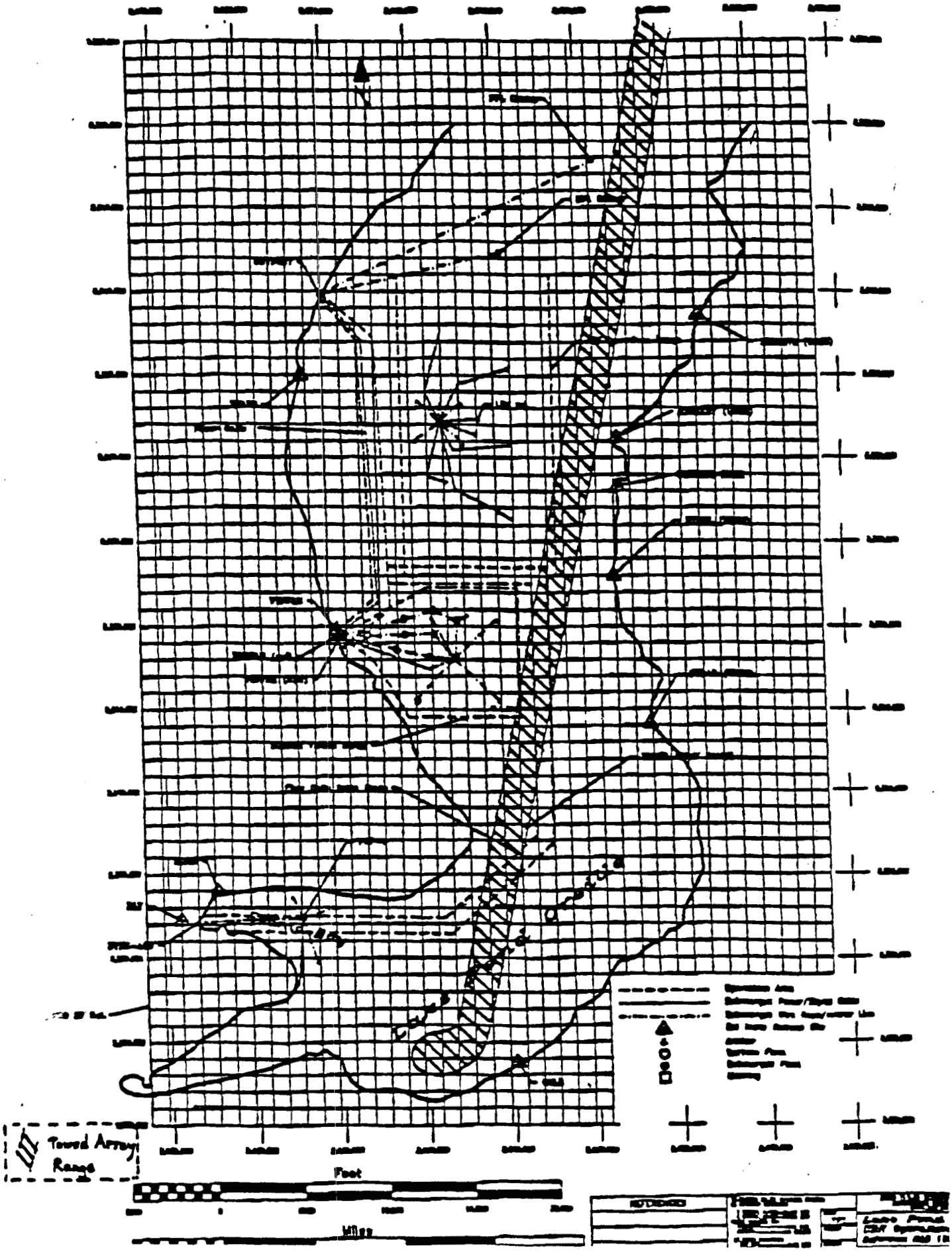
Special Facility/Equipment/Technical Capability

The Chinook Tow Platform is the only TAB B which is related to the Towed Array Range. It is the critical asset for the operation of the range.

Carderock	TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems

6. The following activities utilize this Range.

NUWC Codes 2141, 2142, 2143
Martin Marietta Energy Systems
Bendix Corporation
Litton Guidance and Control Systems
Westinghouse Electric
Applied Measurement Systems Inc.
CDNSWC
John Hopkins University - Applied Physics Laboratory
DDL Omni Engineering, Western Geophysical.



TOWED ARRAY RANGE

ACOUSTIC RESEARCH DETACHMENT

RANGE RESOURCES
RANGE CAPABILITY FORM

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Range Nomenclature or Title	LARGE SCALE VEHICLE TRACKING AND RADIATED NOISE RANGE

1. List all the ranges that your activity maintains and operates. Provide the following information on each range.

a. A brief statement of what the range is used for.

The Large Scale Vehicle (LSV) range provides a unique capability to gather underway acoustic signature data in a highly controlled, low ambient noise environment. In addition, the range provides the capability to communicate with the vehicle during underway operations. For example, after accomplishing an underway run, the vehicle can be interrogated to determine system status while setting up for the next run. The range and tracking system provide a highly reliable and repeatable coursekeeping capability, with tracks by the arrays repeatable to within less than one yard.

b. Geographic location of the range.

The LSV Range is located on Lake Pend Oreille in North Idaho.

c. Distance from the range to the activity's headquarters facility (main site).

About 7 miles.

d. Range size in square miles.

About 8 square miles (2 mile by 4 mile range)

e. Scheduling authority.

CDNSWC-ARD, local.

f. Air space available/restrictions.

NO restrictions.

g. Maximum water depth available/restrictions.

Maximum water depth on the range is about 1150 ft. The entire range is in about 1100 ft of water.

h. Instrumentation capability.

The LSV Range contains two arrays of 18 omni directional hydrophones and three high frequency directive arrays. The frequency response of the sensors is 10Hz to 100 kHz. Hydrophone spacing on the arrays affords analog and digital low frequency beam forming. The Radiated Noise barge has the capability to record all hydrophones and directive array elements and to process data. Instrumentation also includes precision slant range tracking capability for the Large Scale Vehicle to enable accurate range determination.

i. Accuracy of tracking.

The slant range tracking capability is +/- 6 ft.

j. Data collection/replay capability.

The radiated noise barge contains two analog 32 track tape recorders and the ability to digitize data in real time for analysis and storage. Other peripheral devices for real time display of data include 36 channels for strip chart recording and 4 channels of LOFARGRAMS. Data can be replayed and analyzed through one-third-octave and narrowband analysis sub-systems. Analysis workstations are utilized to support detailed analysis and reporting of results.

k. What are the maximum hours per year that this range is available to support activities? Provide the actual hours that the range was up and capable of providing services. Do not count "down time" due to maintenance, reconfiguration, or administrative activities (i.e., Holiday shutdowns).

The LSV Range is available for test operations year round--i.e. 365 days less 13 holidays and 10 days for calibrations and maintenance leaves 342 days x 24 hours or 8208 hours.

The range was utilized by the LSV trails for 60 days in FY 93 (50 data gathering and 10 days when no data was taken--range was powered, checked out and ready to run.)

l. What were the actual hours this range was utilized per year for the last five years (FYs 1989-1993)?

The LSV Range was operated in support of KOKANEE trials. The Range is powered and activated for about 10 hours during an operating day. In addition, to maintain accuracy for KOKANEE operations about 10 days (12 hours per day) per year are required on range.

	FY89	FY90	FY91	FY92	FY93
Range Operating Hours	490	470	330	640	710

m. What were the actual hours that this range was utilized in FY 1993?

The LSV Range was up and powered for 710 hours in FY 93.

n. Who are the customers of the range?

PEO-SUB-R
PEO-SUB-X
NAVSEA 06

o. Of the actual hours utilized what percentage of utilization time was provided to which customers?

PEO-SUB-R	70%
PEO-SUB-X	17%
NAVSEA 06	13%

p. Provide a sketch, drawing or map of the range.

See map attached.

2. Are any of your ranges part of the DOD Major Range and Test Facility Base (MRTFB)? (yes/no) If yes, Which ones?

No

3. Are there any limiting (current or future) environmental and/or encroachment characteristics that are associated with this range.

None

4. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Functional Support Area	Life Cycle Work Area
1.1. PLATFORM/Undersea	3. Advanced Development

5. Related Special Facilities/Equipment.

This range supports the following special facilities/equipment and technical capabilities described in TAB B to this data call.

Special Facility/Equipment/Technical Capability

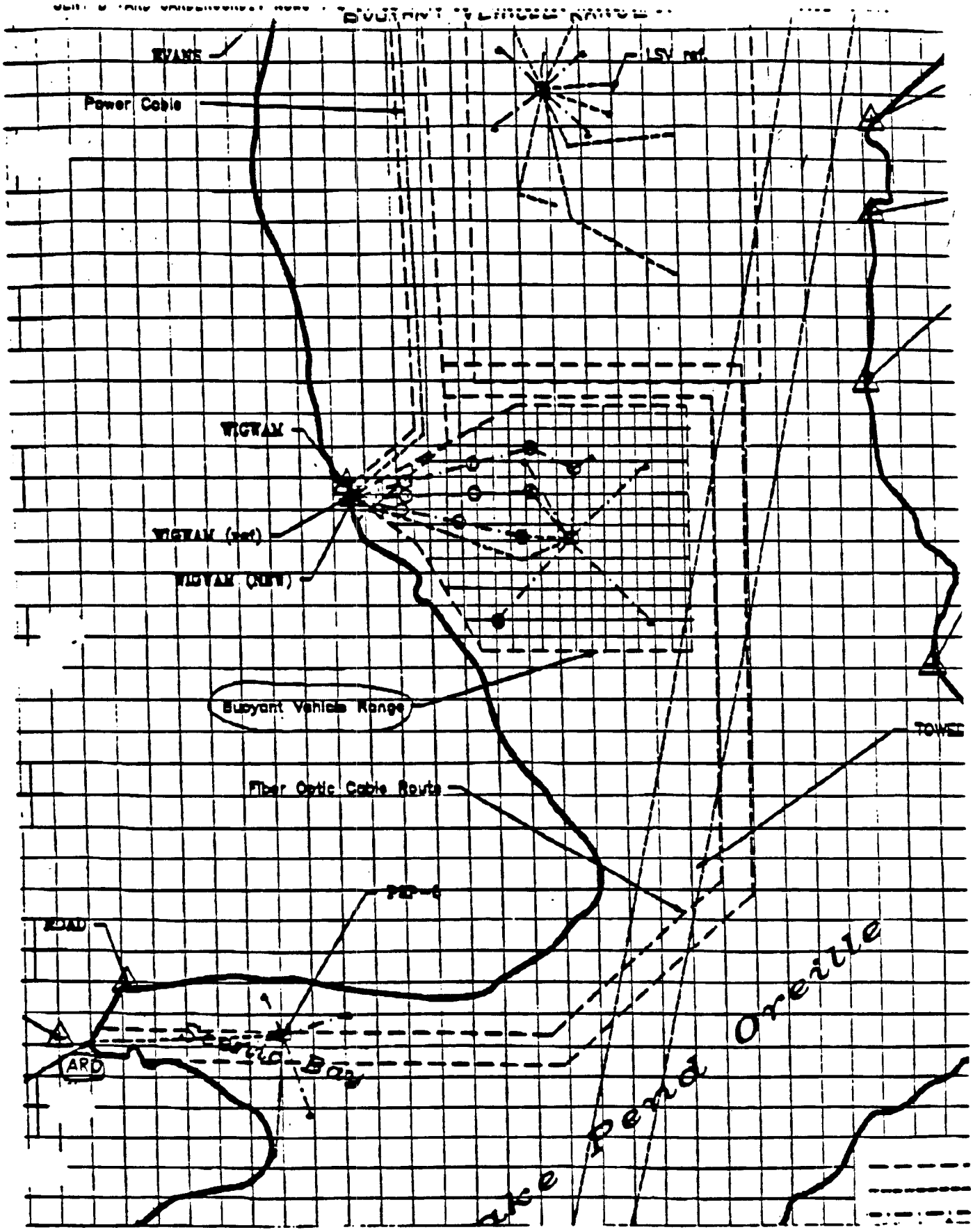
The LSV Range supports the Large Scale Vehicle KOKANEE, and RNB.

Carderock TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems

Carderock TC 4 - RDT&E, Acquisition Support. and In-Service Engineering for Surface and Undersea Vehicle Non-Acoustic Signatures and Silencing Systems

6. The following activities utilize this Range.

None



BUOYANT VEHICLE RANGE
AND
LSV RANGE

RANGE RESOURCES
RANGE CAPABILITY FORM

Technical Center Site	NSWC, CARDEROCK DIVISION, ACOUSTIC RESEARCH DETACHMENT, BAYVIEW
Range Nomenclature or Title	ISMS

1. List all the ranges that your activity maintains and operates. Provide the following information:

a. A brief statement of what the range is used for.

Carderock Division is the sole activity with the mission for Hull, Mechanical and Electrical (HM&E) work in support of submarines and surface ships. The Acoustic Research Detachment at Bayview is an integral participant in the Carderock product area, Ship Active and Passive Signatures. The facilities, located on the only 25 mile long, 1500 foot deep lake available to the Navy, allow acoustic testing in a nearly constant temperature, constant turbidity, exceptionally quiet environment. Test facilities and personnel at Bayview contributes to the development of scientific base through development of the scientific base in radiated noise and target echo reduction concepts and technologies, translation of military requirements into ship specifications.

The ISMS is used to conduct tests of advanced radiated and target echo reduction concepts and potential ship designs on large models. It is the only facility capable of acquiring data with the precision and accuracies required for the HM&E Design Guidance. The combination of model size and water depth (1100 feet) is critical to the tests required for this technology area.

b. Geographic location of the range.

The ISMS is located at Lake Pend Oreille, a deep lake in North Idaho. Operation and support is provided by the NSWC-CD, Acoustic Research Detachment, located at the southern end of the Lake in Bayview.

c. Distance from the range to the activity's headquarters facility (main site).

The range is approximately 14 miles from the ARD base.

d. Range size square miles.

The approximate area of the range is 1/4 square miles.

e. Scheduling authority.

Scheduling priority of experiments to be conducted by the ISMS is determined by ONR code 4520 in consultation with CNO N87. Detailed and short term scheduling issues are the responsibility of the CDNSWC-ARD.

f. Air space available/restrictions.

N/A

g. Maximum water depth available/restrictions.

The maximum water depth is 1160 feet. Due to mountains which surround Lake Pend Oreille access is limited primarily to the northern and southern ends of the lake. The ARD has the capability to launch models/test fixtures up to 70 tons, and larger models can be launched at the northern end of the lake and barged/floated to the Base.

h. Instrumentation capability.

The Near Field Transmit Array (Nfta) Is Composed Of 36 Projectors In A Planar Array Of 3 Rows Of 12 Projectors Each. The Near Field Receive Array (Nfra) Is A Ring Of 158 Hydrophones And Transducers Configured As 12 Linear Segments In The Horizontal Plane Of The Model And The Center Row Of The Nfta. An Interface For The Target Model Is Provided For Data Acquisition And Control Of 1000 Channels, 800 Of Which Can Be External To The Model. In Addition, A Fiber Optic Link Is Provided To Interface With An On-Board Computer. All Data Processing Equipment And Control And Monitoring Workstations Are Located In The Range Operations Center (Roc) At The Ard. The Roc Based Data Acquisition System Consists Of Six Work Stations For; System Operation, Monitoring And User Data Analysis. Data Is Archived On 8 Mm Tape For Compatibility With Most User Processing Systems.

i. Accuracy of tracking.

The Location Measurement System (LMS) consists of several high frequency transmitters and receivers strategically located on the NFRA, NFTA and the Target Model. It is capable of locating all components of the in-water arrays and the target model within 0.4 inches.

j. Data collection/replay capability.

On-line data storage is provided by a series of 2 GB hard drives. Data can be accessed from these disks in near real-time during an experiment. Concurrently, data is archived to 8mm tape for user processing after after experiment has been completed.

k. What are the maximum hours per year that this range is available to support activities? Provide the actual hours that the range was up and capable of providing services. Do not count "down time" due to maintenance, reconfiguration, or administrative activities (i.e. Holiday shutdowns).

Once installed and operational, IOC second quarter of FY 95, the range can be used virtually 24 hrs/day. Operation and control of experiments is conducted from the ROC located on the ARD Base. Testing time is limited only by maintenance down time, model installation operations and testing ambient

thresholds. No history of operations exist since the range is currently under construction/installation.

l. What were the actual hours this range was utilized per year for the last five years (FYs 1989 - 1993)?

N/A (Under Construction)

m. What were the actual hours that this range was utilized in FY 1993?

N/A

n. Who are the customers of the range?

The customers for the range are PEO-SUB, ONR, and ARPA.

o. Of the actual hours utilized what percentage of utilization time was provided to which customers?

N/A

p. Provide a sketch, drawing or map of the range.

2. Are any of your ranges part of the DoD Major Range and Test Facility Base (MRTFB)? (yes/no) If yes, which ones?

No.

3. Are there any limiting (current or future) environmental and /or encroachment characteristics that are associated with this range?

No. Army Corps of Engineers and US Forest Services permits are good for minimum of next 28 years and can be renewed. NEPA documentation and existing permits cover expansion of in water systems to include the Far Field projector/receiver (Phase II).

4. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Functional Support Area	Life Cycle Work Area
1.1. PLATFORM/Undersea	3. Advanced Development

5. Related Special Facilities/Equipment.

This range supports the following special facilities/equipment and technical capabilities described in TAB B to this data call.

Special Facility/Equipment/Technical Capability

Experimental Support Platform

OUTPOST

Carderock TC 3 - RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems

6. The following activities utilize this Range.

Not known at this time.

NSWC CARDEROCK, BAYVIEW
DATA CALL #5

J2
SEA OPX
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)

D. K. Kruse; Captain, USN
NAME (Please type or print)

Signature

Commander
Title

5/10/94
Date

Carderock Division, USN
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

27 May 1994
Date

Activity

ORIGINAL

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

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

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

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

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

NOTE: FOR BRAC DATA CALL #5

ACTIVITY COMMANDER

F. F. SCHULZ, LCDR, USN
NAME (Please type of print)

OFFICER IN CHARGE
Title

ACOUSTIC RESEARCH DETACHMENT
Activity CDNSWC, BAYVIEW, ID. 83803

Signature

5/6/94
Date

ORIGINAL

196 R crime data

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

NEXT ECHELON LEVEL (if applicable)

James E. Baskerville; Captain USN
NAME (Please type or print)

Signature

Commander
Title

14 SEP 94
Date

Carderock Division, USN
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)

D. P. Sargent, Jr.; RADM (Sel), USN
NAME (Please type or print)

Signature

Commander
Title

9/15/94
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)
G. R. STERNER
Commander
Naval Sea Systems Command
Title

Signature

9.14.94
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)

NAME (Please type or print)

Signature

Title

10/1/94
Date

Activity

DATA CALL #5
BAYVIEW DETACHMENT

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

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

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

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

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

BRAC 95 DC#5 QUESTION #23 CLARIFICATION

ACTIVITY COMMANDER

LCDR F. F. SCHULZ
NAME (Please type of print)

OFFICER IN CHARGE
Title

BAYVIEW DETACHMENT
Activity

Signature

9/9/94
Date

Document Separator

196

BRAC 95

CARDEROCK DIVISION

NAVAL SURFACE WARFARE CENTER

BAYVIEW DETACHMENT

DATA CALL 33

ENVIRONMENTAL DATA CALL: CD, NSWC Detachment Bayview, ID
DATA CALL TO BE SUBMITTED TO
ALL NAVY/MARINE CORPS HOST ACTIVITIES

31 MAY 1994

BRAC 1995 ENVIRONMENTAL DATA CALL:
All Navy/Marine Corps Host Ativities

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ENVIRONMENTAL DATA CALL

Responses to the following questions provide data that will allow an assessment of the potential environmental impact associated with the closure or realignment of a Navy shore activity. This criterion consists of:

- Endangered/Threatened Species and Biological Habitat
- Wetlands
- Cultural Resources
- Environmental Facilities
- Air Pollution
- Environmental Compliance
- Installation Restoration
- Land/Air/Water Use

As part of the answers to these questions, a *source citation* (e.g., 1993 base loading, 1993 base-wide Endangered Species Survey, 1993 letter from USFWS, 1993 Base Master Plan, 1993 Permit Application, 1993 PA/SI, etc.) must be included. It is probable that, at some point in the future, you will be asked to provide additional information detailing specifics of individual characteristics. In anticipation of this request, supporting documentation (e.g., maps, reports, letters, etc.) regarding answers to these questions should be retained. Information needed to answer these questions is available from the cognizant EFD Planning and Real Estate Divisions, and Environment, Safety, and Health Divisions; and from the activity Public Works Department, and activity Health Monitoring and Safety Offices.

For purposes of the questions associated with land use at your base is *defined* as *land* (acreage owned, withdrawn, leased, and controlled through easements); *air* (space controlled through agreements with the FAA, e.g., MOAs); *and water* (navigation channels and waters along a base shoreline) *under the control of the Navy.*

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*
NONE				

Source Citation: Natural Resources Management Plan of January 1991.
Bald Eagles live nearby and on rare occasions land in Bayview Base trees. Eagles also fish in the adjacent lake. They do not, however, hunt, nest or loaf on Navy property.

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.	NO
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.	NO

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.

1d.

Have any efforts been made to relocate any species and/or conduct any mitigation with regards to critical habitats or endangered/threatened species? Explain what has been done and why.	NO

1e.

Will any state or local laws and/or regulations applying to endangered/threatened species which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.	NO

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, MS or officially adapted state definitions.

2a.

Does your base possess federal jurisdictional wetlands?	NO
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? 1/ 7/ 94	
What percent of the base has been surveyed?	100
What is the total acreage of jurisdictional wetlands present on your base?	0

Source Citation: Jurisdictional Wetland Determination by Grant, Schreiber & Associates of 7 Jan 1994.

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.

2c. Has the EPA, COE or a state wetland regulatory agency required you to modify or constrain base operations or development plans in any way in order to accommodate a jurisdictional wetland? NO If YES, summarize the results of such modifications or constraints.

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

None.
Source: Natural Resources Management Plan of January 1991.

3b.

Has the President's Advisory Council on Historic Preservation or the cognizant State Historic Preservation Officer required you to mitigate or constrain base operations or development plans in any way in order to accommodate a National Register cultural resource? If YES, list the results of such modifications or constraints below.	NO

3c.

Are there any on base areas identified as sacred areas or burial sites by Native Americans or others? List below.	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 There is no landfill.

4b. If there are any non-Navy users of the landfill, describe the user and conditions/agreements.
N/A There is not landfill.

4c.

Does your base have any disposal, recycling, or incineration facilities for solid waste?					NO
Facility/Type of Operation	**Permitted Capacity**	**Ave Daily Throughput**	**Maximum Capacity**	**Permit Status**	**Comments**

List any permit violations and projects to correct deficiencies or improve the facility.

4d.

Does your base own/operate a Domestic Wastewater Treatment Plant (WWTP) ?					NO
ID/Location of WWTP	**Permitted Capacity**	**Ave Daily Discharge Rate**	**Maximum Capacity**	**Permit Status**	**Level of Treatment/Year Built**

List permit violations and discuss any projects to correct deficiencies.

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.

Average daily sewage discharge rate is 8,000 gallons. Contract allows for 14,000 gallons per day, no other discharge limits. Potable water and sewage are not metered. Usage is based on number of employees and irrigated land equivalent resident (ER's) factors per existing lease/contract with suppliers. Values listed are estimated based on normal steady state loads. Contract number N6247488C4958 (15 ER's).

4f.

Does your base operate an Industrial Waste Treatment Plant (IWTP)?					NO
ID/Location of IWTP	**Type of Treatment**	**Permitted Capacity**	**Ave Daily Discharge Rate**	**Maximum Capacity**	**Permit Status**

List any permit violations and projects to correct deficiencies or improve the facility.

4g. Are there other waste treatment flows not accounted for in the previous tables? Estimate capacity and describe the system. NONE

4h.

Does your base operate drinking Water Treatment Plants (WTP)?					NO
ID/Location of WTP	**Operating (GPD)**		**Method of Treatment**	**Maximum Capacity**	**Permit Status**
	Permitted Capacity	**Daily Rate**			

List permit violations and projects/actions to correct deficiencies or improve the facility.

4i. If you do not operate a WTP, what is the source of the base potable water supply. State terms and limits on capacity in the agreement/contract, if applicable.
Source of water - Bayview Water District, no limit on capacity.

4j.

Does the presence of contaminants or lack of supply of water constrain base operations. Explain.	NO

4k.

Other than those described above does your base hold any NPDES or stormwater permits? If YES, describe permit conditions.	NO
If NO, why not and provide explanation of plan to achieve permitted status.	

CD, NSWC Det. Bayview was included in the Navy's multi-sector stormwater permit application to EPA. A multi-sector draft permit was issued by EPA on 19 Nov 1993. The Navy provided comments and expects to receive a final permit in July or August 1994.

4l.

	YES/NO
Does your base have bilge water discharge problem?	YES
Do you have a bilge water treatment facility?	YES

Explain: Bilge water from small Navy boats is collected and treated by running it through a "Bilge Boy" Oil/Water Separator. Oily waste extracted is then properly disposed of.

4m.

Will any state or local laws and/or regulations applying to Environmental Facilities, which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.	NO

4n. What expansion capacity is possible with these Environmental Facilities? Will any expansions/upgrades as a result of BRACON or projects programmed through the Presidents budget through FY1997 result in additional capacity? Explain.
N/A Sewage and water supply systems are not Navy owned.

4o. Do capacity limitations on any of the facilities discussed in question 4 pose a present or future limitation on base operations? Explain. NO

5. AIR POLLUTION

5a.

What is the name of the Air Quality Control Areas (AQCAs) in which the base is located? AQCR 63 in Idaho.
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.

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/nonattainment/maintenance. For those areas which are in non-attainment, state whether they are: Marginal, Moderate, Serious, Severe, or Extreme. State target attainment year.

Site: CDNSWC Detachment Bayview, ID AQCA: AQCR 63 in Idaho

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO	YES				
Ozone	YES				
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

[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.

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.
NOTE: AUTO EMISSIONS CALCULATIONS ARE IN APPENDIX 1.

	Emission Sources (Tons/Year) FY90				
Pollutant	Permitted Stationary	Personal Automobiles *	Aircraft Emissions	Other Mobile	Total
CO	None	0.152	None	Negligible	0.152
NOx	None	0.011	None	Negligible	0.011
VOC	None	0.022	None	Negligible	0.022
PM10	None	**	None	Negligible	**

Source Document: EPA Emissions Factor Model 15A
* Based on 100 personal automobiles at .25 mile/day (workyear = 225 days). Factors: CO - 24.48 grams/mile; NOx - 1.64 grams/mile; VOC - 3.68 grams/mile. ** Data was not collected..

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.
NOTE: AUTO EMISSIONS CALCULATIONS ARE IN APPENDIX 2.

	Emissions Sources (Tons/Year)				
Pollutant	Permitted Stationary	Personal Automobiles ***	Aircraft Emissions	Other Mobile	Total
CO	None	0.183	None	Negligible	0.183
NOx	None	0.012	None	Negligible	0.012
VOC	None	0.026	None	Negligible	0.026
PM10	None	**	None	Negligible	**

Source Document: EPA Emissions Factor Model 15A
*** Based on 120 personal automobiles at .25 mile/day (workyear = 225 days). Factors: CO - 24.48 grams/mile; NOx - 1.64 grams/mile; VOC - 3.68 grams/mile. ** Data was not collected.

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. None.

5f. Are there any critical air quality regions (i.e. non-attainment areas, national parks, etc.) within 100 miles of the base? YES. Spokane, Washington.

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. NO

5h. Does your base have Emission Reduction Credits (ERCs) or is it subject to any emission offset requirements? If yes, provide details of the sources affected and conditions of the ERCs and offsets. Is there any potential for getting ERCs? NO. NO.

6. ENVIRONMENTAL COMPLIANCE

6a. Identify compliance costs, currently known or estimated that are required for permits or other actions required to bring existing practices into compliance with appropriate regulations. Do not include Installation Restoration costs that are covered in Section 7. For the last two columns provide the combined total for those two FY's.

Program	Survey Com-pleted?	Costs in $K to correct deficiencies					
		FY94	FY95	FY96	FY97	FY98-99	FY00-01
Air	YES	5	5	0	0	25	0
Hazardous Waste	YES	0	0	0	0	0	0
Safe Drinking Water Act	YES						
PCBs	YES						
Other (non-PCB) Toxic Substance Control Act	YES	26	15	0	0	0	0
Lead Based Paint	NO						
Radon	YES	25	50	175	0	0	0
Clean Water Act	NO	61	0	5	0	0	0
Solid Waste	YES						
Oil Pollution Act	YES						
USTs	YES						
Other		0	10	0	10	20	25
Total		117	70	180	10	45	25

Provide a separate list of compliance projects in progress or required, with associated cost and estimated start/completion date.

6a continued

PROJECT	FY94	FY95	FY96	FY97	FY98/99	FY00/01
Radon Remediation	25	50	175	0	0	0
Emission Survey	5	0	0	0	0	0
Close Barge Tanks	4	0	0	0	0	0
Spill Clean-up	15	0	0	0	0	0
Asbestos Removal	26	19	0	0	0	0
Oil Skimmer	10	0	0	0	0	0
Spill Containment Fuel Pumps	10	0	0	0	0	0
Tank Farm Barricade	20	0	0	0	0	0
Overfill Protection	2	0	0	0	0	0
Halon Replacement	0	5	0	0	0	0
Storm Water Plan Update	0	0	5	0	0	0
ODS Replacement	0	0	0	0	25	0
Anticipated New Requirements	0	0	0	10	20	25
Pollution Prevention Plan	0	10	0	0	0	0

6b.
Does your base have structures containing asbestos?__YES_____ What % of your base has been surveyed for asbestos?____100_____ Are additional surveys planned? _____NO_____ What is the estimated cost to remediate asbestos ($K) ____45K_____. Are asbestos survey costs based on encapsulation, removal or a combination of both? Removal.

6c. Provide detailed cost of operational (environmental) compliance costs, with funding source.

Funding Source	FY92	FY93	FY94	FY95	FY96	FY97	FY98-99	FY00-01
O&MN	0	0	0	0	0	0	0	0
HA	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0
Other (specify) DBOF	33	54	78	103	106	113	238	265
TOTAL	33	54	78	103	106	113	238	265

6d. Are there any compliance issues/requirements that have impacted operations and/or development plans at your base. NO

7. INSTALLATION RESTORATION

7a.

Does your base have any sites that are contaminated with hazardous substances or petroleum products?	NO
Is your base an NPL site or proposed NPL site?	NO

7b. Provide the following information about your Installation Restoration (IR) program. Project list may be provided in separate table format. Note: List only projects eligible for funding under the Defense Environmental Restoration Account (DERA). Do not include UST compliance projects properly listed in section VI. None.

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] Type site: CERCLA, 'RCRA corrective action (CA), UST or other (explain)

[2] Status = PA, SI, RI, RD, RA, long term monitoring, etc.

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.

7e.

Has a RCRA Facilities Assessment been performed for your base?	NO

7f. Does your base operate any "Conforming Storage" facilities for handling **hazardous materials**? If YES, describe facility, capacity, restrictions, and permit conditions.

Yes. Materials are stored in a corrugated metal quonset building with a cement floor and a continuous 6" high spill sill capable of holding 980 gallons of product. This meets the requirements of the State of Idaho Panhandle Health District's Critical Material Compliance Regulations, and a permit has been issued.

7g. Does your base operate any "Conforming Storage" facilities for handling **hazardous waste**? If YES, describe facility, capacity, restrictions, and permit conditions.

Yes. The hazardous waste facility is a covered, fenced, locked area with a concrete floor and a continuous 7" tall spill berm around the entire perimeter. The site is a small quantity generator and the storage of hazardous waste is limited to 270 days per item. The area holds an average of twelve 55 gallon drums. Spill containment capability is 1,100 gallons. The facility has been issued a Critical Materials Compliance Certificate from the State of Idaho.

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.	NO

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 Base	24.8	Acoustic Research Det. Bayview, ID Kootenai County
Wigwam Site - Remote site - special use land permit from USFS	1.0	Bonner County, ID USFS
Outpost Site - Remote site - special use land permit from USFS	1.0	Bonner County, ID USFS

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.)		11.8
Total Undeveloped (areas that are left in their natural state but are under specific environmental development constraints, i.e.: wetlands, endangered species, etc.)		Wetlands: NONE
		All Others: 7*
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		0
Total Undeveloped land considered to be without development constraints		6
Total Off-base lands held for easements/lease for specific purposes		2
Breakout of undeveloped, restricted areas. Some restricted areas may overlap:	ESQD	
	HERF	
	HERP	
	HERO	
	AICUZ	
	Airfield Safety Criteria	
	Other	

* Due to a grade of 8% or greater.

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. NONE

8d. What is the date of your last AICUZ update? ____/____/____ Are any waivers of airfield safety criteria in effect on your base? Y/N Summarize the conditions of the waivers below. N/A, the base does not own or operate any airfields.

8e. List the off-base land use *types* (e.g, residential, industrial, agricultural) and *acreage* within Noise Zones 2 & 3 generated by your flight operations and whether it is compatible/incompatible with AICUZ guidelines on land use.

Acreage/Location/ID	Zones 2 or 3	Land Use	Compatible/ Incompatible
N/A, the base conducts no flight operations.			

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. None

Navigational Channels/ Berthing Areas	Location / Description	Maintenance Dredging Requirement			
		Frequency	Volume (MCY)	Current Project Depth (FT)	Cost ($M)
N/A, the base does not perform any maintenance dredging.					

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 dredged materials are generated.	N/A

8.i. List any requirements or constraints resulting from consistency with **State Coastal Zone Management Plans.** Army Corps of Engineers forbids construction below the high water level of Lake Pend Oreille.

8j. Describe any **non-point source pollution problems affecting water quality** ,e.g.: coastal erosion. N/A, the base has no non-point source pollution problems.

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.	N/A

The base does not have natural resources that would allow hunting and fishing.

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. WRAPUP

9a. Are there **existing or potential environmental showstoppers** that have affected or will affect the accomplishment of the installation mission that have not been covered in the previous 8 questions? NO

9b. Are there any other **environmental permits** required for base operations, include any relating to industrial operations.
The facility holds permits from the Army Corps of Engineers to:
1. Preserve and maintain all existing moorings and permanent barges located outside the base breakwater (#071-OYC-1-003395).
2. To preserve and maintain all existing docks, floats, moorings, permanent barges, boat houses, dolphins, log booms and wharfs located inside the breakwater, and to install additional dolphins (#071-OYC-1-003394).

9c. Describe any **other environmental or encroachment restrictions** on base property not covered in the previous 8 sections. The Army Corps of Engineers places restrictions on and requires permits for dredging, disturbing, etc. Lake Pend Oreille.

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 known.

Personal Autos-Bayview
Emission Calculations

1990 Data - *based on EPA Emission - Factor Model 5A
Source: Jim Campbell, Environ. Manager-Bayview

Personal Vehicles = 100 light duty gasoline vehicles

*Emission Factors = VOC: *3.68 gpm
gpm=grams per mile CO: *24.48 gpm
NOx: *1.64 gpm

VOCS: 100 vehicles x .25 miles/day
100 x .25 = 25 m/day
3.68 gpm/VOC x 25m = 92 gpd
92 gpd x **225 dpy = 20,700 gpy
20,700 2000 = 10.35 = 10 453.6 gpp = 0.022 TPY

CO: 24.48 x 25 m/d = 612 gpd
612 gpd x 225 dpy = 137,700 gpy
137,700 gpy 2000 = 68.85 = 69 453.6 gpp = 0.152 TPY

NOx: 1.64 gpm x 25 m/d = 41 gpd
41 gpd x 225 dpy = 9,225 gpy
9,225 gpy 2000 = 4.6125 = 5 453.6 gpp = 0.011 TPY

**225 days per year calculation is based on work days/yr. minus holidays and compressed schedule absences and leave.

APPENDIX 1

Personal Autos-Bayview
Emissions Calculations

1993 Data - *based on EPA Emission - Factor Model 5A
Source: Jim Campbell, Environ. Manager-Bayview

Personal Vehicles = 120 light duty gasoline vehicles

*Emission Factors = VOC: *3.68 gpm
gpm=grams per mile CO: *24.48 gpm
NOx: *1.64 gpm

VOCS: 120 vehicles x .25 miles/day
120 x .25 = 30 m/day
3.68 gpm/VOC x 30m = 110.4 gpd
110.4 gpd x **225 dpy = 24,840 gpy
24,840 2000 = 12.42 = 12 453.6 gpp = 0.026 TPY

CO: 24.48 x 30 m/d = 734.4 gpd
734.4 gpd x 225 dpy = 165,240 gpy
165,240 gpy 2000 = 82.62 = 83 453.6 gpp = 0.183 TPY

NOx: 1.64 gpm x 30 m/d = 49.2 gpd
49.2 gpd x 225 dpy = 11,070 gpy
11,070 gpy 2000 = 5.535 = 6 453.6 gpp = 0.013 TPY

**225 days per year calculation is based on work days/yr. minus holidays and compressed schedule absences and leave.

APPENDIX 2

ORIGINAL

DATA CALL #33
BAYVIEW SITE

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

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

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

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

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

FOR ENVIRONMENTAL DATA CALL (BRAC 95)

ACTIVITY COMMANDER

FREDERICK F. SCHULZ, LCDR, USN
NAME (Please type or print)

Signature

OFFICER IN CHARGE
Title

5/31/94
Date

ACOUSTIC RESEARCH DETACHMENT
Activity BAYVIEW, ID. 83803-0129

DATA CALL #33
BAYVIEW 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)

D. K. Kruse; Captain, USN
NAME (Please type or print)

Signature

Commander
Title

6/3/94
Date

Carderock Division, USN
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)

D. P. Sargent, Jr.; RADM (Sel), USN
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

Commander
Title

6/7/94
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)

P.W. DREWNOW
NAME (Please type or print)

Signature

ACTING
Title

6/24/94
Date

Activity

Document Separator

DATA CALL 66
INSTALLATION RESOURCES

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Activity Information:

Activity Name:	Bayview Detachment, Carderock Division, Naval Surface Warfare Center
UIC:	N62182
Host Activity Name (if response is for a tenant activity):	Not Applicable
Host Activity UIC:	Not Applicable

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

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INSTALLATION RESOURCES

(following line 2j., as necessary, to identify any additional cost elements not currently shown). **Leave shaded areas of table blank.**

Table 1A - Base Operating Support Costs (Other Than DBOF Overhead)			
Activity Name: Bayview Detachment, Carderock Division, Naval Surface Warfare Center		**UIC:** N62182	
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.	N/A	N/A	N/A
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:	N/A	N/A	N/A
3. Grand Total (sum of 1c. and 2k.):	N/A	N/A	N/A

***NO NON-DBOF COSTS AT BAYVIEW**

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)

Not Applicable

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..

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INSTALLATION RESOURCES

Table 1B - Base Operating Support Costs (DBOF Overhead)			
Activity Name: Bayview Detachment, Carderock Division, Naval Surface Warfare Center		**UIC:** N62182	
Category	**FY 1996 Net Cost From UC/FUND-4 ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:			
1a. Real Property Maintenance (>$15K)	200	6	206
1b. Real Property Maintenance (<$15K)	59	54	113
1c. Minor Construction (Expensed)	35	0	35
1d. Minor Construction (Capital Budget)	0	0	0
1c. Sub-total 1a. through 1d.	294	60	354
2. Other Base Operating Support Costs:			
2a. Command Office	50	96	146
2b. ADP Support	10	30	40
2c. Equipment Maintenance	288	0	288
2d. Civilian Personnel Services	10	65	75
2e. Accounting/Finance	10	97	107
2f. Utilities	161	0	161
2g. Environmental Compliance	25	50	75
2h. Police and Fire	62	55	117
2i. Safety	10	57	67
2j. Supply and Storage Operations	59	73	132
2k. Major Range Test Facility Base Costs	0	0	0
2l. Other (Specify)	593	339	932
2m. Sub-total 2a. through 2l:	1,278	862	2,140

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INSTALLATION RESOURCES

3. Depreciation	290	0	290
4. Grand Total (sum of 1c., 2m., and 3.) :	1,568	862	2,430

Table 1B (21. Other) - Base Operating Support Costs (DBOF Overhead)

Activity Name: Bayview Detachment, Carderock Division, Naval Surface Warfare Center	**UIC:** N62182

Category	**FY 1996 Net Cost From UC/FUND-4 ($000)**		
	Non-Labor	**Labor**	**Total**
2l. Other (Specify)			
2l (1) Admin Services (mail, directives, photo, etc)	10	41	51
2l (2) Division Public Works	120	139	259
2l (3) Other Engineering Services	128	91	219
21 (4) Base Communications	65	23	88
21 (5) SIP's	0	45	45
21 (6) Base Security Contract	270	0	270
2l. Sub-total 2l (1) through 21 (10)	593	339	932

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: Bayview Detachment, Carderock Division, Naval Surface Warfare Center	**UIC:** N62182

Cost Category	**FY 1996 Projected Costs ($000)**
Travel:	250
Material and Supplies (including equipment):	1,734
Industrial Fund Purchases (other DBOF purchases):	1,620
Transportation:	100
Other Purchases (Contract support, etc.):	4,619
Total:	8,323

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: Bayview Detachment, Carderock Division, Naval Surface Warfare Center	**UIC:** N62182
Contract Type	**FY 1996 Estimated Number of Workyears On-Base**
Construction:	1.5
Facilities Support:	14.5
Mission Support:	58.0
Procurement:	0.0
Other:*	0.0
Total Workyears:	74.0

* **Note:** Provide a brief narrative description of the type(s) of contracts, if any, included under the "Other" category.

DATA CALL 66
INSTALLATION RESOURCES

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)):

71

2) Estimated number of workyears which would be eliminated:

3

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):

0

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INSTALLATION RESOURCES

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	

No. of Additional Contract Workyears Which Would Be Relocated	General Type of Work Performed on Contract (e.g., engineering support, technical services, etc.)
15	

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

NEXT ECHELON LEVEL (if applicable)

D. K. Kruse; Captain, USN	D K Kruse
NAME (Please type or print)	Signature
Commander	7/28/94
Title	Date
Carderock Division, USN	
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)

D. P. Sargent, Jr.; RADM (Sel), USN	D P Sargent
NAME (Please type or print)	Signature
Commander	7/28/94
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. [illegible]	G R Stump
NAME (Please type or print)	Signature
	5-4-94
Title [illegible] Systems Command	Date
Activity	

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

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

J. B. GREENE, JR.	J B Greene Jr.
NAME (Please type or print)	Signature
ACTING	18 AUG 1994
Title	Date
Activity	

ORIGINAL

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

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

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

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

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

BRAC 95 DATA CALL # 66

ACTIVITY COMMANDER

FREDERICK F. SCHULZ, LCDR, USN
NAME (Please type of print)

Signature

OFFICER IN CHARGE
Title

7/26/94
Date

ACOUSTIC RESEARCH DETACHMENT
Activity BAYVIEW, ID. 83803

ORIGINAL

Document Separator

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:	Bayview Detachment, Carderock Division Naval Surface Warfare Center
UIC:	62182
Major Claimant:	Naval Sea Systems Command

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**.

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:	$51,111.00

Source of Data (1.a. Salary Rate): Defense Civilian Personnel Database System (DCPDS)

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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			
Kootenai County	ID	1	48	87.5%	19	25
Bonner County	ID	0	7	12.5%	29	40

= 100%

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:

No employees live in government housing.

Source of Data (1.b. 1) & 2) Residence Data): On-Site Personnel Files

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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)
Spokane	Spokane	53

Source of Data (1.c. Metro Areas): Hammond's Road Atlas

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	1	1.82%
20 - 24 Years	1	1.82%
25 - 34 Years	12	21.82%
35 - 44 Years	19	34.55%
45 - 54 Years	18	32.73%
55 - 64 Years	4	7.27%
65 or Older	0	N.A.
TOTAL	55	100 %

Source of Data (1.d.) Age Data): On-Site Personnel Files

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	0	N.A.
9th through 11th Grade	1	1.82%
12th Grade or High School Equivalency	20	36.36%
1-3 Years of College	9	16.37%
4 Years of College (Bachelors Degree)	11	20%
5 or More Years of College (Graduate Work)	14	25.45%
TOTAL	55	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.)	15
Associate Degree	2
Bachelor Degree	17
Masters Degree	8
Doctorate	0
Source of Data (1.e.1) and 2) Education Level Data): On-Site Personnel Records	

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Source of Data (1.e.1) and 2) Education Level 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	0	0%
2. Construction (includes facility maintenance and repair)	15-17	3	5%
3. Manufacturing (includes Intermediate and Depot level maintenance)	20-39		
3a. Fabricated Metal Products (include ordnance, ammo, etc.)	34	3	5%
3b. Aircraft (includes engines and missiles)	3721 et al	0	0%
3c. Ships	3731	0	0%
3d. Other Transportation (includes ground vehicles)	various	1	2%
3e. Other Manufacturing not included in 3a. through 3d.	various	8	15%
Sub-Total 3a. through 3e.	20-39	12	22%

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

4. Transportation/Communications/Utilities	40-49		
4a. Railroad Transportation	40	0	0%
4b. Motor Freight Transportation & Warehousing (includes supply services)	42	0	0%
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	0	0%
4f. Communications	48	0	0%
4g. Utilities	49	0	0%
Sub-Total 4a. through 4g.	40-49	0	0%
5. Services	70-89		
5a. Lodging Services	70	0	0%
5b. Personal Services (includes laundry and funeral services)	72	5	9%
5c. Business Services (includes mail, security guards, pest control, photography, janitorial and ADP services)	73	6	11%
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	0	0%
5h. Health Services	80	0	0%
5i. Legal Services	81	0	0%
5j. Educational Services	82	0	0%

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

5k. Social Services	83	0	0%
5l. Museums	84	0	0%
5m. Engineering, Accounting, Research & Related Services (includes RDT&E, ISE, etc.)	87	29	53%
5n. Other Misc. Services	89	0	0%
Sub-Total 5a. through 5n.:	70-89	40	73%
6. Public Administration	91-97		
6a. Executive and General Government, Except Finance	91	0	0%
6b. Justice, Public Order & Safety (includes police, firefighting and emergency management)	92	0	0%
6c. Public Finance	93	0	0%
6d. Environmental Quality and Housing Programs	95	0	0%
Sub-Total 6a. through 6d.		0	0%
TOTAL		55	100 %

Source of Data (1.f.) Classification By Industry Data): On Site Personnel Records

DATA CALL 65
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	3	5%
2. Professional Specialty		
2a. Engineers	24	43%
2b. Architects and Surveyors	0	0%
2c. Computer, Mathematical & Operations Research	0	0%
2d. Life Scientists	0	0%
2e. Physical Scientists	1	2%
2f. Lawyers and Judges	0	0%
2g. Social Scientists & Urban Planners	0	0%
2h. Social & Recreation Workers	0	0%
2i. Religious Workers	0	0%
2j. Teachers, Librarians & Counselors	0	0%
2k. Health Diagnosing Practitioners (Doctors)	0	0%
2l. Health Assessment & Treating(Nurses, Therapists, Pharmacists, Nutritionists, etc.)	0	0%

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Occupation	Number of Civilian Employees	Percent of Civilian Employees
2m. Communications	0	0%
2n. Visual Arts	0	0%
Sub-Total 2a. through 2n.:	25	45%
3. Technicians and Related Support		
3a. Health Technologists and Technicians	0	0%
3b. Other Technologists	2	4%
Sub-Total 3a. and 3b.:	2	4%
4. Administrative Support & Clerical	5	9%
5. Services		
5a. Protective Services (includes guards, firefighters, police)	4	7%
5b. Food Preparation & Service	0	0%
5c. Dental/Medical Assistants/Aides	0	0%
5d. Personal Service & Building & Grounds Services (includes janitorial, grounds maintenance, child care workers)	1	2%
Sub-Total 5a. through 5d.	5	9%
6. Agricultural, Forestry & Fishing	0	0%
7. Mechanics, Installers and Repairers	12	22%
8. Construction Trades	0	0%
9. Production Occupations	2	4%
10. Transportation & Material Moving	1	2%

11. Handlers, Equipment Cleaners, Helpers and Laborers (not included elsewhere)	0	0%
TOTAL	55	100 %

Source of Data (1.g.) Classification By Occupation Data): On-Site Personnel Records

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.

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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.

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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:	0%
2. Percentage of Military Spouses Who Work Outside of the Home:	N.A.
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:	N.A.
3b. Employed "On-Base" - Non-Appropriated Fund:	N.A.
3c. Employed "Off-Base" - Federal Employment:	N.A.
3d. Employed "Off-Base" - Other Than Federal Employment	N.A.

Source of Data (1.h.) Spouse Employment Data): On-Site Personnel Records

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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.

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

a. Table A: Ability of the <u>local community</u> 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 (1)	A	B	B
Schools - Public (2)	A	B	C
Schools - Private (3)	A	B	B
Public Transportation - Roadways (4)	A	A	A
Public Transportation - Buses/Subways (5)	A	A	A #
Public Transportation - Rail (6)	A	A	A #
Fire Protection (7)	A	A	B
Police (8)	A	B	B
Health Care Facilities (9)	A	A	A
Utilities:			
Water Supply (10)	A	A	A
Water Distribution (11)	A	A	A
Energy Supply (12)	A	B	B
Energy Distribution (13)	A	B	B
Wastewater Collection (14)	A	A	A
Wastewater Treatment (15)	A	A	A
Storm Water Collection (16)	A	A	A #
Solid Waste Collection and Disposal (17)	A	A	A
Hazardous/Toxic Waste Disposal (18)	A	A	A
Recreational Activities (19)	A	A	A

Remember to mark with an asterisk any categories which are wholly supported on-base.
Services are not provided by the local community but are also ***not*** needed by the activity.

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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.

2. Schools - Public: Local schools (Lakeland School District #272) are already at or above their maximum capacity. A 100% increase in personnel would require local schools to expand many of their current facilities and hire additional teachers/aids.

Source of Data (2.a. 1) & 2) - Local Community Table):

1. Off-Base Housing: Kootenai County Planning & Zoning Department
2. Schools - Public: Lakeland School District Administrative Office
3. Schools - Private: Coeur d'Alene Christian School
4. Public Transportation - Roadways: Idaho Department of Transportation
5. Public Transportation - Buses/Subways: Same as 4. above.
6. Public Transportation - Rail: Same as 4. above
7. Fire Protection: Commissioner, Bayview Fire Protection District
8. Police: Kootenai County Planning & Zoning Department
9. Health Care Facilities: Same as 8. above
10. Water Supply: Bayview Water & Sewer District
11. Water Distribution: Same as 10. above
12. Energy Supply: Kootenai Electric Cooperative
13. Energy Distribution: Same as 12. above
14. Wastewater Collection: Same as 10. above
15. Wastewater Treatment: Same as 10. above
16. Storm Water Collection: Same as 10. above
17. Solid Waste Collection and Disposal: Same as 8. above
18. Hazardous/Toxic Waster Disposal: Division of Environmental Quality, State of Idaho
19. Recreational Activities: Same as 8. above

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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 (1)	A	A	A
Schools - Public (2)	A	B	B
Schools - Private (3)	A	B	B
Public Transportation - Roadways (4)	A	A	A
Public Transportation - Buses/Subways (5)	A	A	A #
Public Transportation - Rail (6)	A	A	A #
Fire Protection (7)	A	A	A
Police (8)	A	A	A
Health Care Facilities (9)	A	A	A
Utilities:			
Water Supply (10)	A	A	A
Water Distribution (11)	A	A	A
Energy Supply (12)	A	B	B
Energy Distribution (13)	A	B	B
Wastewater Collection (14)	A	A	A
Wastewater Treatment (15)	A	A	A
Storm Water Collection (16)	A	A	A #
Solid Waste Collection and Disposal (17)	A	A	A
Hazardous/Toxic Waste Disposal (18)	A	A	A
Recreation Facilities (19)	A	A	A

Remember to mark with an asterisk any categories which are wholly supported on-base.
Services are not available at the activity but are also not needed.

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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.

None

Source of Data (2.b. 1) & 2) - Regional Table):

1. Off-Base Housing: Kootenai County Planning & Zoning Department
2. Schools - Public: Same as 1. above
3. Schools - Private: Coeur d'Alene Christian School
4. Public Transportation - Roadways: Idaho Department of Transportation
5. Public Transportation - Buses/Subways: Same as 4. above.
6. Public Transportation - Rail: Same as 4. above
7. Fire Protection: Same as 1. above
8. Police: Same as 1. above
9. Health Care Facilities: Same as 1. above
10. Water Supply: Same as 1. above
11. Water Distribution: Same as 1. above
12. Energy Supply: Kootenai Electric Cooperative
13. Energy Distribution: Same as 12. above
14. Wastewater Collection: Same as 1. above
15. Wastewater Treatment: Same as 1. above
16. Storm Water Collection: Same as 1. above
17. Solid Waste Collection and Disposal: Same as 1. above
18. Hazardous/Toxic Waster Disposal: Division of Environmental Quality, State of Idaho
19. Recreational Activities: Same as 1. above

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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: KOOTENAI COUNTY - 10-12% vacancy rate. Number of units vacant not available. Rental units are not monitored by a regulatory agency.
BONNER COUNTY - There are currently no rentals available; there are waiting lists for rentals.

Units for Sale: KOOTENAI COUNTY - 1,141 units for sale.
BONNER COUNTY - 995 units for sale.

Source of Data (3.a. Off-Base Housing):

Rental Units - KOOTENAI: PHONCON Rental Property Management
BONNER: PHONCON R&L Property Management,

Units for Sale - KOOTENAI: FAX from Acuff Northwest Realty
BONNER: FAX from Panhandle Realty (MLS)

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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	
Bonner #82	Bonner	9	2	4	5900	6500	19.7:1	N/Avail	N.A.
Coeur d'Alene #271 (Note 1)	Kootenai	10	2	1	7801	7234	26:1	N/Avail	N.A.
Lakeland #272 (Note 1)	Kootenai	5	1	1	3142	2768	22:1	N/Avail	N.A.
Post Falls #273 (Note 1)	Kootenai	3	1	1	3528	3500	21.1:1	N/Avail	N.A.

* Answer "Yes" in this column if the school district in question enrolls students who reside in government housing.

(Note 1) Current enrollment at the end of 1994 school year exceeds maximum capacity of current school facilities. All school districts are in the process of expanding existing facilities.

Source of Data (3.b.1) Education Table):
1. Bonner #82 - PHONCON Bonner School District Office
2. Coeur d'Alene #271 - PHONCON Coeur d'Alene School District Office
3. Lakeland #272 - PHONCON Lakeland School District Office
4. Post Falls #273 - PHONCON Post Falls School District Office

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): On-Site Records

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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 :

University of Idaho
North Idaho College
Lewis-Clark State College

Source of Data (3.b.3) Colleges): Idaho State Board of Education

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:

Air Conditioning, Heating and Refrigeration; Automotive Mechanic; Business; Carpentry; Child Care; Child Development; Computer Programming; Computer Technology; Data Processing; Diesel Engine Mechanic; Drafting; Electrical/Electronics Technology; Industrial Equipment Maintenance and Repair; Machine Tool Ops; Welding Technology; Law Enforcement; Pharmacy Technician; Practical Nursing; Secretary Studies; Small Business Management; Mental Health Technician; Marine Technology; Culinary Arts.

Source of Data (3.b.4) Vo-tech Training): North Idaho College, Administrative Records Section

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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): Idaho Department of Transportation

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.

Sandpoint, Idaho: 33 miles from the base.

Source of Data (3.c.2) Transportation): Idaho Department of Transportation

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.

Spokane International Airport, Spokane, Washington: 65 miles from the base.

Source of Data (3.c.3) Transportation): Idaho Department of Transportation

4) How many carriers are available at this airport?

Eight (8)

Source of Data (3.c.4) Transportation): Spokane International Airport Administrative Office

5) What is the Interstate route number and distance, in miles, from the activity to the nearest Interstate highway?

Traveling most direct route via State Highway 54 (8 miles) and U.S. Highway 95 (23 miles), it is 31 miles to Interstate 90.

Source of Data (3.c.5) Transportation): Hammonds Road Atlas

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.)

Quality is good. Capacity: Hwy 95 provides connection, principal arterial. Hwy. 54 is high volume, high class; major arterial. Hwy 54 through State Park is low speed, low volume, Hwy 54 is subject to load limits in the spring. Local roads are adequate to support access of all employees and visitors through single main gate. Base has second gate, which is only used for very large freight/material shipments or when main gate is closed for construction.

b) Do access roads transit residential neighborhoods?

No. Transistional/Agricultural zoning.

c) Are there any easements that preclude expansion of the access road system?

Yes, access road in State Park has some very limiting characteristics. The base is adjacent to the State Park and, therefore, subject to recreational limitations.

d) Are there any man-made barriers that inhibit traffic flow (e.g., draw bridges, etc.)?

No.

Source of Data (3.c.6) Transportation): Idaho Department of Transportation

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.

Yes. This Detachment has a Mutual Aid Agreement with the Bayview Volunteer Fire Protection District. They provide fire fighting services, the base provides local land/water HAZMAT spill response services.

Source of Data (3.d. Fire/Hazmat): Mutual Aid Assistance Agreement

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.
Not Applicable.

3) Does the activity have a specific written agreement with local law enforcement concerning the provision of local police protection?
No. However, the base security guards would assist police by either escorting the subject to the front gate while police wait, or escort police onto the base to apprehend the subject.

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.
Not Applicable.

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): LCDR F.F. Schulz, OIC, ARD, Bayview

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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.

Water: Bayview Water & Sewer District will provide 800 gpm @ 20 psi residual pressure to four points of delivery for a monthly fee.
Refuse Disposal: Contract with Rural Sanitation Co. for weekly pick-up of a maximum of 36 cubic yards delivered to Kootenai County Landfill. Yearly disposal fee paid to Kootenai County.
Power: Kootenai Electric Cooperative, Inc. provides 12,470 volt primary power at 4 points of delivery.
Sewer: Bayview Water & Sewer District provides collection and treatment of sewage and waste water for a monthly fee from 5 points of discharge.

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.

There has been no water rationing, extended interuptions, or restrictions during the last 5 years.

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.

This activity has experienced no "brown outs" or "rolling blackouts" during the last 5 years. There have been isolated outages due to severe weather or Utility Company equipment failures. Outages affecting the main base are repaired nominally within 2 hours. Outages affecting the remote test sites could take up to 8 hours to repair due to the steep terrain and no vehicle access to this area. No operational impacts occurred during these outages.

Source of Data (3.f. 1) - 3) Utilities): Facilities Manager, Acoustic Research Detachment
PHONCON Bayview Water & Sewer District
PHONCON Operations Manager, Kootenai Electric Cooperative

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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. Kootenai Medical Center	Community Hospital	914
2. Coeur d'Alene School District	Public School District	891
3. Hagadone Hospitality	Golf, Lodging, Restrauants	869
4. Bonner County School District	Public School District	743
5. North Idaho College	Community College	677
6. Louisiana-Pacific	Lumber and Other Wood Products	588
7. U. S. Forest Service	Public Land Management	506
8. Kootenai County Government	County Government	483
9. Idaho Forest Industries	Lumber and Other Wood Products	472
10. Post Falls School District	Public School District	361

Source of Data (4. Business Profile): Idaho Department of Employment, Labor Market Analyst

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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*:
   Bonner County: Advanced Input Devices, an electronics manufacturer, closed; 400 jobs lost; significant impact on Priest River's economy, marginal impact on Bonner County. Serac, a ski wear company, closed two sites; 100 jobs lost; marginal impact on Bonner County's economy. One additional manufacturer closed; Oberdorfer, and WIS downsized considerably resulting in the loss of 70 jobs.

   Kootenai County: W-I Forest Products closed; 150 jobs lost; marginal impact on Kootenai County's economy.

   b. *Introduction of New Businesses/Technologies*:
   Average of 220 new businesses per year for the past 5 years, 7.5% growth. There's a long-term trend of job losses due to the introduction of advanced technologies in lumber and manufacturing industries.

   c. *Natural Disasters*:
   Bonner County: Flood of Schweitzer Mountain Ski Resort access road cost roughly $3.5 - $4 million; marginal impact on Bonner County economy, no impact on base access roads, etc.

   Bonner & Kootenai Counties: Firestorm '91 caused local area to be declared a disaster; figures not yet available on what the economic impact was, but are considered to be insignificant.

   d. *Overall Economic Trends*:
   Construction industry is up 15.65% in past 5 years. Tourism industry is up 27.1% in past 5 years. Retail industry is up 53.6% in past 5 years. Increases due to population growth. Timber industry has declined slightly over past 5 years; declining 3.0% in past 3 years. The seasonally adjusted unemployment rates: Bonner - 9.4%
   Kootenai - 7.8%
   Both counties are considered labor surplus areas because unemployment rates exceed the national average.

Source of Data (5. Other Socio/Econ): Idaho Department of Employment, Labor Market Analyst

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

6. Other. Identify any contributions of your activity to the local community not discussed elsewhere in this response.

- Joint projects with Bayview Chamber of Commerce and Civic Groups
  - ABC Food Bank Christmas Drive/Fund Raiser
  - Crane support when requested
  - Recycling
  - Community Activities (i.e. Earth Day & 4th of July)
- Various Fish Studies
- Provide Lake Pend Oreille Rescue services when requested
- Forest Fire Fighting Services
- Support various Federal/State Agencies (Environmental Quality, Kootenai County Sheriff)

Source of Data (6. Other): LCDR F. F. Schulz, OIC, ARD, Bayview

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

NEXT ECHELON LEVEL (if applicable)

D. K. Kruse; Captain, USN
NAME (Please type or print)

Signature

Commander
Title

7/15/94
Date

Carderock Division, USN
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)

D. P. Sargent, Jr.; RADM (Sel), USN
NAME (Please type or print)

Signature

Commander
Title

Date 7/19/94

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

7/25/94
Date

Title

Activity

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

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

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

Signature

8/16/94
Date

Title

Activity

REPRODUCED AT GOVERNMENT EXPENSE

ORIGINAL

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.

FOR: BRAC 95 DATA CALL #65

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

ACTIVITY COMMANDER

LCDR F.F. SCHULZ
NAME (Please type or print)

Signature

OFFICER IN CHARGE
Title

7/6/94
Date

BAYVIEW DETACHMENT
Activity NSWC, BAYVIEW, ID 83803

ORIGINAL

Document Separator

ORIGINAL

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	BAYVIEW DETACHMENT, CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER
Acronyms(s) used in correspondence	CDNSWC-ARD, NSWC DET Bayview
Commonly accepted short title(s)	ARD or ACOUSTIC RESEARCH DETACHMENT

- **Complete Mailing Address**

  OFFICER IN CHARGE
  ACOUSTIC RESEARCH DETACHMENT
  NAVAL SURFACE WARFARE CENTER
  P O BOX 129
  BAYVIEW ID 83803-0129

- **PLAD**

  NAVSURFWARCEN DET BAYVIEW ID

- **PRIMARY UIC:** 00167 (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):** 62182 **PURPOSE:** FACILITIES MANAGEMENT (SITE SPECIFIC & DRMO)

2. PLANT ACCOUNT HOLDER:

- Yes X No ____ (check one)

ORIGINAL

ORIGINAL

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 _____ No __X__ (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 __X__ No _____ (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
WIGWAM	Pier (Bldg. #43)	WIGWAM Remote Site	62182
	Operations Bldg (Bldg. #44)	" " "	"
	R&D Lab (Bldg. #45)	" " "	"
	Winch Facility (Bldg. #46)	" " "	"
OUTPOST	Pier (Bldg. #13)	OUTPOST Remote Site	62182
	Support Facility (Bldg. #14)	" " "	"
	Winch Facility (Bldg. #15)	" " "	"

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5. **DETACHMENTS: If your activity has detachments at other locations, please list them in the table below.**

Name	UIC	Location	Host name	Host UIC
NONE				

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.**

NONE

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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).

The mission of the Carderock Division, Naval Surface Warfare Center is to:

"Provide research, development, test and evaluation, fleet support, and in-service engineering for surface and undersea vehicle, hull, mechanical and electrical systems, and propulsors; provide logistics R&D; and provide support to the Maritime Administration and the maritime industry." (OPNAVNOTE 5450)

The Bayview Detachment supports the mission of the Carderock Division of the Naval Surface Warfare Center by maintaining and operating facilities at Lake Pend Oreille, Idaho for conducting experimental programs in underwater acoustics and other areas of interest where a deep, quiet body of water is essential.

Current Missions

The Bayview Detachment provides a comprehensive set of Technical Capabilities which are essential for the execution of the mission of the Carderock Division and for the support of the Product Areas and Product Area Elements of the Naval Surface Warfare Center (NSWC). Bayview Detachment Technical Capabilities are comprised of a cadre of technical people with specific knowledge, skills and experience, and of the requisite facilities and equipment. The blending of these intellectual and physical assets yields the ability to deliver the technical products of the Division. Specific mission areas of the Bayview Detachment are:

- Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems RDT&E, Acquisition, and In-Service Engineering [Performed jointly at the Carderock, Annapolis and Bayview Sites.]

- Small Surface and Undersea Manned and Unmanned Vehicles including Combatant craft RDT&E, Design, Acquisition, In-Service Engineering and Fleet Support [Performed jointly at the Carderock and Bayview Sites.]

- Surface and Undersea Vehicle Non-Acoustic Signatures and Silencing Systems RDT&E, Acquisition, and In-Service Engineering [Performed jointly at the Carderock, Annapolis and Bayview Sites.]

Projected Missions for FY 2001

No Change.

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.

The Carderock Division provides many unique capabilities, not available elsewhere, for the design, development and support of Navy surface ships, submarines and small manned and unmanned vehicles. These capabilities are essential because they provide the technology, smart buyer expertise, and engineering support for the Navy to acquire and operate affordable, effective and safe ships. The Division contributes to the performance of the Joint Mission and Support areas by ensuring that current and future ships: 1) meet their mobility (performance/maneuver-ability/seakeeping) requirements, 2) have the lowest signature possible (are not detectable), 3) are survivable (able to withstand weapon impacts and continue to operate), and 4) can be procured and operated in sufficient numbers to meet national commitments (have affordable acquisition, operation and manning costs).

Current Unique Missions

The Bayview Detachment supports Naval Surface Warfare Center leadership areas (NSWC Charter of 2 Jan 92) listed below and provides primary support to the highlighted leadership area.

- **Ship Active and Passive Signatures (Includes Submarine HM&E) [Performed jointly at the Carderock, Annapolis and Bayview Sites]**

- Surface and Undersea Vehicle Hull, Machinery, Propulsors and Equipment [Performed jointly at the Carderock, Annapolis, NAVSSES and Bayview Sites]

NSWC ship (including submarine, unmanned vehicle, and craft) signatures and silencing products are the technology, materials, equipment and systems necessary to ensure that all Navy ships have the lowest possible signatures that are cost effective and compatible with the ship's mission. These include: acoustic signatures; wake signatures; and full spectrum electromagnetic signatures--magnetic, electric, radar, infrared (IR), ultraviolet (UV), and optical. In their application, the products reduce the signature at its source, reduce the signature before it is radiated, and/or impede the return of threat sensor energy to its source (echo mitigation).

Ship products include such things as: low- and controlled- signature hull, propulsor and machinery designs; signature reducing materials, structures and coatings; on-board signature monitoring systems; and signature measurement facilities, equipment and techniques. NSWC provides in-service engineering and Fleet support of ship signature and silencing systems including: the measurement and characterization of active and passive signatures; acquisition, reduction and analysis of ship signature data; development and optimization of signature reducing materials; identification and recommendation for correction of ship signature/silencing deficiencies; and development of operational concepts intended to meet improved stealth requirements.

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Stealth is the defining characteristic of submarine designs. The capability to test and evaluate new technologies on large scale models at Lake Pend Oreille prior to making design commitments is critical for ensuring the stealth of all future U.S. submarine designs. The facility can not be duplicated elsewhere since no other site exists with the required environmental attributes. No known U.S. facility, and certainly no other current DoD facility, provides the needed combination of depth, still water, flat bottom contour, isothermal temperature profile, low ambient noise, very low encroachment potential, large and unobstructed operating areas, etc. which are provided by Lake Pend Oreille. The Navy must, therefore, maintain this unique site, including the base property and waterfront facilities at Bayview, as well as the in-water ranges and large submarine models, for as long as it envisions a need for investment in improved submarines. If the capabilities associated with this Detachment were to be lost, they would be gone forever.

No other activity is assigned mission responsibilities for surface and undersea vehicle platform systems in these areas. In addition, Public Laws HR4045 (15 Jan 1896) and HR10135 (24 Feb 1937) state the CDNSWC shall be the Navy's technical agent for marine vehicles and for providing support to the maritime industry.

Projected Unique Missions for FY 2001

No Change.

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	68933
• **Funding Source**	**UIC**
"DBOF"	"MULTIPLE"

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10. PERSONNEL NUMBERS: Host activities are responsible for totaling 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	1	0	56
• Tenants (total)	0	0	0

End Strength as of 30 September 1994

	Officers	Enlisted	Civilian (Appropriated)
• Reporting Command	1	0	60
• Tenants (total)	0	0	0

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 codes(s). You may provide other key POCs if so desired in addition to those above.

Title/Name	Office	FAX	Home
• CO CAPT D. K. KRUSE	(301) 227-1221	(301) 227-3557	(703) 451-8297
• OIC LCDR F. F. SCHULZ	(208) 683-2321 x4080	(208) 683-2068	(208) 683-2230
• DIRECTOR Mr. G. A. GUEDEL	(208) 683-2321 x4030	(208) 683-2068	(208) 683-2926
• FACILITY MANAGER Mr. K. P. THOMAS	(208) 683-2321 x4500	(208) 683-4501	(208) 687-0945
• CDNSWC ASSISTANT DIRECTOR Dr. W. A. MIDDLETON	(301) 227-3186	(301) 227-5657	(703) 729-0225
• CDNSWC SPECIAL ASSISTANT FOR PLANNING Mr. P. S. MONTANA	(301) 227-1431	(301) 227-2138	(703) 450-4208

ORIGINAL

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 provided 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
NONE				

- Tenants residing on main complex (homeported units.)

Tenant Command Name	UIC	Officer	Enlisted	Civilian
NONE				

- Tenants residing in Special Areas (Special Areas are defines as real estate owned by host command not contiguous with main complex; e.g. outlying fields).

Tenant Command Name	UIC	Location	Officer	Enlisted	Civilian
NONE					

- Tenants (Other than those identified previously)

Tenant Command Name	UIC	Location	Officer	Enlisted	Civilian
NONE					

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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.)
BAYVIEW VOLUNTEER FIRE PREVENTION DISTRICT	BAYVIEW, ID	MUTUAL AID AGREEMENT (MAA)

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.)
  - ENCLOSED

- 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).)
  - ENCLOSED

- 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, 8-1/2"x 11".)
  - WILL BE PROVIDED BY SEPARATE COVER

- Air Installations Compatible Use Zones (AICUZ) Map. (Provide 12 copies.)
  - NOT APPLICABLE

ORIGINAL

~~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)

RADM (Sel) D. P. Sargent, Jr.
NAME (Please type of print

D P Sargent
Signature

Commander
Title

1 July 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

S. R. Stumm
Signature

Title

7-8-94
Date

Activity

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

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

J. B. GREENE, JR.
NAME (Please type of print

J B Greene Jr.
Signature

ACTING
Title

14 JUL 1994
Date

DATA CALL #1
BAYVIEW 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)

D. K. Kruse; Captain, USN	D K Kruse
NAME (Please type or print)	Signature
Commander	6/30/94
Title	Date
Carderock Division, USN	
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

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.

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

NAME (Please type or print)	Signature
Title	Date
Activity	

DATA CALL #1
BAYVIEW SITE

REPRODUCED AT GOVERNMENT EXPENSE

BRAC DC #1

ORIGINAL

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. BRAC DATA CALL #1

ACTIVITY COMMANDER

LCDR F.F. SCHULZ
NAME (Please type or print)

(*) [signature]
Signature

OFFICER IN CHARGE
Title

6/27/94
Date

BAYVIEW DETACHMENT
Activity NSWC, BAYVIEW, ID 83803

(*) DATA CALL SUBMITTED WITH EXCEPTION TO SECTION 14 "AERIAL PHOTOGRAPHS" OF FACILITY. THEY WILL BE SUBMITTED VIA SEPERATE COVER AND CERT SHEET.

ORIGINAL

INSTALLATION DATA

ORIGINAL

GENERAL INFORMATION

This is the first Data Call for the 1995 base realignment and closure (BRAC-95) process. This General Information Data Call is designed to provide the Base Structure Evaluation Committee (BSEC) with a broad view of each installation, looking across the entire range of missions performed, who performs them, and the geographic alignment of each installation (internal to itself and the relationship to the surrounding community). The desired end result of this Data Call is to give the BSEC a complete picutre of the shore facility infrastructure and general information on every organization performing a mission for the Department of the Navy today. This review is not limited to "above threshold" activities (those activities with more than 300 civilian personnel). It is absolutely imperative that all organizations complete the appropriate information about their organization so that follow-on Data Calls can be correctly focused and complete. There will be other Data Calls organized by category/subcategory (function) to gather information on military value, capacity, and economic/environmental impact.

The activities receiving this Data Call will fall into one of three categories: host command; tenant command; or independent activity. Each activity will be asked to identify themselves into one of these three categories. Due to the broad nature of the Data Call, not all questions will be applicable to all respondents, but all questions require a complete response. If a question is not applicable to your organization, clearly mark the response as "N/A"; do not leave blank.

The Data Call has been structured so that all responses, with the exception of the facility maps, can be made within the Data Call without the need to provide enclosures. The format for the tabular data allows for the expansion of each row as additional data is inputted, by pressing "enter" each time a new entry is made. Responses should be as complete and concise as possible.

In accordance with SECNAVNOTE 11000 of 08 December 1993, pertaining to the BRAC-95 process, all data provided must be certified and will be submitted hardcopy. Distribution of the Data Calls will flow through the operational command structure and inquiries should be directed in that manner to facilitate consistent and informative responses.

ORIGINAL

Document Separator

DATA CALL 63
FAMILY HOUSING DATA

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

Installation Name:	NSWC Bayview
Unit Identification Code (UIC):	N62182
Major Claimant:	NAVSEA

Percentage Of Military Families Living on-Base:	0
Number of Vacant Officer Housing Units:	0
Number of Vacant Enlisted Housing Units:	0
Fy 1996 Family Housing Budget ($000):	0
Total Number of Officer Housing Units:	0
Total Number of Enlisted Housing Units:	0

No housing or budget data associated with this UIC available.

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

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

MAJOR CLAIMANT LEVEL

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

Signature

COMMANDER
Title

7/20/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

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

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

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

Signature

Title

7/25/94
Date

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

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

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

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

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

ACTIVITY COMMANDER

J. R. REVER
NAME (Please type of print)

Signature

CAPT. CEC, USN
COMMANDING OFFICER
Title

27 June 1994
Date

SOUTHNAVFACENGCOM
Activity

Enclosure (1)

BRAC-95 CERTIFICATION

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

YVONNE O. SPRING
NAME (Please type or print)

Yvonne O. Spring
Signature

Housing Management Specialist
Title

27 June 1994
Date

Housing Division
Division

Facilities Management Dept.
Department

SOUTHNAVFACENGCON
Activity

Enclosure (1)

Document Separator

196

DATA CALL 66
INSTALLALATION RESOURSES

Activity Information:

Activity Name:	C CO, 4TH TANK BN BOISE ID
UIC:	45380
Host Activity Name (if response is for a tenant activity):	NMCRC BSE IDAHO NMCRC BOISE, ID (NAVY Host)
Host Activity UIC:	62139

General Instructions/Background. A separte response to this data call must be completed for each Department of the Navy (DON) host, independent and tenant activity which separtely 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 bugdet data supporting the FY 1996 NAVCOMPT Budget Submit. Two tables are provided. Table 1A identifies "Other than DBOF Overhead" BOS costs and Table1B identifies "DBOF Overhead" BOS costs. These tables must be completed, as appropriate, for all DON host, independent or tenant activities which separtely 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). 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 budget 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 activity 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: C CO, 4TH TANK BN BOISE ID		**UIC:** 45380	
Category	**FY 1996 BOS Costs ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:			
1a. Maintenance and Repair	$0.00	0.00	$0.00
1b. Minor Construction	0.00	0.00	0.00
1c. Sub-total 1a. and 1b.	**$0.00**	0.00	**$0.00**
2. Other Base Operating Support Costs:			
2a. Utilities	$20,405.72	0.00	$20,405.7
2b. Transportation	$14,152.00	0.00	$14,152.0
2c. Environmental	$0.00	0.00	$0.0
2d. Facility Leases	$0.00	0.00	$0.0
2e. Morale, Welfare & Recreation	$0.00	0.00	$0.0
2f. Bachelor Quarters	$10,553.00	0.00	$10,553.0
2g. Child Care Centers	$0.00	0.00	$0.00
2h. Family Service Centers	$0.00	0.00	$0.00
2i. Administration	$4,636.00	0.00	$4,636.0
2j. Other (Specify)	$10,370.00	0.00	$10,370.0
2k. Sub-total 2a. through 2j :	**$60,116.72**	0.00	**$60,116.7**
3. Grand Total (sum of 1c. and 2k.) :	**$60,116.72**	0.00	**$60,116.72**

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)
N/A	

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.

DATA CALL 66
INSTALLATION RESOURCES

Table 1B - Base Operating Support Costs (DBOF Overhead)			
Activity Name: C CO, 4TH TANK BN BOISE ID		**UIC:** 45380	
Category	**FY 1996 Net Cost From UC/FUND-4 ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:			
1a. Real Property Maintenance (>$15K)			N/A
1b. Real Property Maintenance (<$15K)			N/A
1c. Minor Construction (Expensed)			N/A
1d. Minor Construction (Capital Budget)			N/A
1e. Sub-total 1a. through 1d.			N/A
2. Other Base Operating Support Costs:			
2a. Command Office			N/A
2b. ADP Support			N/A
2c. Equipment Maintenance			N/A
2d. Civilian Personnel Services			N/A
2e. Accounting/Finance			N/A
2f. Utilities			N/A
2g. Environmental Compliance			N/A
2h. Police and Fire			N/A
2i. Safety			N/A
2j. Supply and Storage Operations			N/A
2k. Major range Test Facility Base Costs			N/A
2l. Other (Specify)			N/A
2m. Sub-total 2a. through 2l:			N/A
3. Depreciation			N/A
4. Grand Total (sum of 1c., 2m., and 3.):			N/A

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-heading 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. Reger 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 identifed. 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: C CO, 4TH TANK BN BOISE ID	**UIC:** 45380

Cost Category	**FY 1996 Projected Costs ($000)**
Travel:	$7,853.88
Material and Supplies (including equipment):	$36,287.77
Industrial Fund Purchases (other DBOF purchases):	$0.00
Transportation:	$0.00
Other Purchases (Contract support, etc.):	$15,975.06
Total:	$60,116.72

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 estimat 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. **See note.

Table 3 - Contract Workyears	
Activity Name: C CO, 4TH TANK BN BOISE ID	**UIC:** 45380
Contract Type	**FY 1996 Estimated Number of Workyears On-Base**
Construction:	N/A
Facilities Support:	N/A
Mission Support:	N/A
Procurement:	N/A
Other: *	N/A
Total Workyears: **	N/A

Note:
* Provide a brief narrative description of the type(s) of contracts, if any, included under the "Other" category.

** Contract workyears are insignificant and not recoverable.

DATA CALL 66
INSTALLATION RESOURCES

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.?** See Note.

N/A

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)):

N/A

2) Estimated number of workyears which would be eliminated:

N/A

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):

N/A

Note: **Contract workyears are insignificant and not recoverable.

Enclosure (5)

DATA CALL 66
INSTALLATION RESOURCES

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)**:

**See Note

No. of Additional Contract Workyears Which Would Be Eliminated	General Type of Work Performed on Contract (e.g., (engineering support, technical services, etc.)
*N/A	

No. of Additional Contract Workyears Which Would Be Eliminated	General Type of Work Performed on Contract (e.g., (engineering support, technical services, etc.)
*N/A	

Note: **Contract workyears are insignificant and not recoverable.

BRAC-95 CERTIFICATION
DATA CALL: 66
INSTALLATION RESOURCES

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. The attached 191 formats represent the MARRESFOR site submissions for BRAC 66.

LtCol Steven J. Gaffney
NAME

SIGNATURE

Assistant Chief of Staff, Comptroller
TITLE

20 Sept '94
DATE

Comptroller
DEPARTMENT

MARRESFOR
ACTIVITY

Enclosure (2)

BRAC-95 CERTIFICATION
DATA CALL: 66
INSTALLATION RESOURCES

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief. The attached 191 formats represent the MARRESFOR site submissions for BRAC 66.

J. E. LIVINGSTON
NAME

SIGNATURE

COMMANDING GENERAL
TITLE

26 Sept 94
DATE

COMMAND
DEPARTMENT

MARRESFOR
ACTIVITY

Enclosure (1)

Data Call 66
MARRESFOR

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

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print

Signature

Title

Date

Activity

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

NEXT ECHELON LEVEL (if applicable)

NAME (Please type of print

Signature

Title

Date

Activity

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

MAJOR CLAIMANT LEVEL

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 belief.

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

J.A. BRABHAM
LIEUTENANT G[illegible] MARINE CORPS
DEPUTY CHIE[illegible]
INSTALLATIONS AND [illegible]S

NAME (Please type of print

Signature

Title

10/20/94

Date

Document Separator

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:	Carderock Site Carderock Division, Naval Surface Warfare Center
UIC:	00167
Major Claimant:	Naval Sea Systems Command

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.**

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:	$53,783

Source of Data (1.a. Salary Rate): Comptroller Department, Carderock Division, NSWC, May 1994 Payroll Statistics

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DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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".

Carderock Site, Civilian Employees #

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			
Montgomery	MD	3	677	39.3 %	12	25
Fairfax[1]	VA	4	291	16.9 %	10	20
Prince Georges	MD		155	9.0 %	20	30
Frederick	MD		86	5.0 %	35	40
Loudoun	VA	1	51	3.0 %	25	35
Anne Arundel	MD		51	3.0 %	40	45
Washington	DC		35	2.0 %	14	15
Carroll	MD		34	2.0 %	50	60
Prince William[2]	VA		34	2.0 %	32	35
Howard	MD	1	18	1.0 %	25	35
Arlington	VA		17	0.9 %	15	20
Baltimore	MD		17	0.9 %	40	45
Other[3]		40	218	12.7 %		
Unknown[4]			39	2.3 %		
				= 100%		

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Includes 1723 full-time employees as of 30 June 1994

[1] Fairfax County includes Fairfax City and Falls Church [2] Prince William County includes Manassas and Manassas City

[3] Includes personnel in 18 Counties in Virginia, 8 Counties/Cities in Maryland, and 29 Counties in other states across the U.S. each of which has less than 1-percent of the Carderock Site assigned personnel.

[4] Includes personnel whose Zip Codes were not recorded in the NCPDS and could not easily be assigned to specific counties.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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".

Carderock Site, Civilian Employees #

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			
Montgomery	MD	3	677	39.3 %	12	25
Fairfax[1]	VA	4	291	16.9 %	10	20
Prince Georges	MD		155	9.0 %	20	30
Frederick	MD		86	5.0 %	35	40
Loudoun	VA	1	51	3.0 %	25	35
Anne Arundel	MD		51	3.0 %	40	45
Washington	DC		35	2.0 %	14	15
Carroll	MD		34	2.0 %	50	60
Prince William[2]	VA		34	2.0 %	32	35
Howard	MD	1	18	1.0 %	25	35
Arlington	VA		17	0.9 %	15	20
Baltimore	MD		17	0.9 %	40	45
Other[3]			218	12.7 %		
Unknown[4]			39	2.3 %		
				= 100%		

Includes 1723 full-time employees as of 30 June 1994

[1] Fairfax County includes Fairfax City and Falls Church

[2] Prince William County includes Manassas and Manassas City

[3] Includes personnel in 18 Counties in Virginia, 8 Counties/Cities in Maryland, and 29 Counties in other states across the U.S. each of which has less than 1-percent of the Carderock Site assigned personnel.

[4] Includes personnel whose Zip Codes were not recorded in the NCPDS and could not easily be assigned to specific counties.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Carderock Site, Civilian Employees of Tenants

County of Residence	State	No. of Employees Residing in County		Percentage of Total Tenant Employees	Average Distance From Base (Miles)	Average Duration of Commute (Minutes)
		Military	Civilian			
Montgomery	MD		9	36%	12	25
Prince Georges	MD		8	32%	20	30
Fairfax[1]	VA		2	8%	10	20
Stafford	VA		2	8%	40	50
Frederick	MD		1	4%	35	40
Anne Arundel	MD	1	0	4%	40	45
Washington	DC		1	4%	14	15
Howard	MD		1	4%	25	35

[1] Fairfax County includes Fairfax City and Falls Church

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:

Seventeen (17) military personnel attached to the Carderock Division, NSWC, Surface Effect Ship Support Office, Patuxent River Detachment utilize government housing in St. Mary's county, MD.

Source of Data (1.b. 1) & 2) Residence Data):
- o BRAC Data Call #5, May 1994
- o Military Programs Office, OIC, Carderock Site, Carderock Division, NSWC

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	Alexandria, VA	11
Arlington	Arlington, VA	8
Baltimore	Baltimore City, MD	38
Washington	Washington, DC	11
Annapolis Metro Area	Anne Arundel, MD	48

Source of Data (1.c. Metro Areas):

- o U.S. Department of Commerce, Statistical Abstract of the United States 1991, pp. 34-36, "Cities with 105,000 Inhabitants or more in 1990."
- o U.S. Department of the Interior, Geological Survey, The National Atlas of the United States of America, 1970. Distances are straight line point-to-point scaled from large scale maps.

d. Age of Civilian Workforce. Complete the following table, identifying the age of the activity's **civil service** workforce.

Carderock Site, Civilian Employees #

Age Category	Number of Employees	Percentage of Employees
16 - 19 Years	24	1.4 %
20 - 24 Years	67	3.9 %
25 - 34 Years	467	27.1 %
35 - 44 Years	474	27.5 %
45 - 54 Years	484	28.1 %
55 - 64 Years	174	10.1 %
65 or Older	33	1.9 %
TOTAL	1,723	100 %

Includes 1723 full-time employees as of 30 June 1994

Source of Data (1.d.) Age Data: DCPDS, June 1994

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Carderock Site, Civilian Employees of Tenants

Age Category	Number of Employees	Percentage of Employees
16 - 19 Years	0	0 %
20 - 24 Years	2	8 %
25 - 34 Years	9	38 %
35 - 44 Years	7	29 %
45 - 54 Years	4	17 %
55 - 64 Years	2	8 %
65 or Older	0	0 %
TOTAL	24	100 %

Source of Data (1.d.) Age Data):
- o Defense Finance and Accounting Service, Bethesda, MD
- o Supervisor, Personnel Support Detachment, Bethesda, MD
- o Defense Printing Service Office, Carderock Site, Carderock Division, NSWC

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.

Carderock Site, Civilian Employees #

Last School Year Completed	Number of Employees	Percentage of Employees
8th Grade or less	0	0.0 %
9th through 11th Grade	24	1.4 %
12th Grade or High School Equivalency	450	26.1 %
1-3 Years of College	176	10.2 %
4 Years of College (Bachelors Degree)*	679	39.4 %
5 or More Years of College (Graduate Work)*	394	22.9 %
TOTAL	1,723	100.0 %

Includes 1723 full-time employees as of 30 June 1994
* The numbers in this category represent employees who have completed this level of education, whether or not they have received a degree.

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DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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").

Carderock Site, Civilian Employees

Degree	Number of Civilian Employees
Terminal Occupation Program - Certificate of Completion, Diploma or Equivalent (for areas such as technicians, craftsmen, artisans, skilled operators, etc.)	72
Associate Degree	62
Bachelor Degree	520
Masters Degree	299
Doctorate	93

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Source of Data (1.e.1) and 2) Education Level Data): NCPDS Data Base/Personnel Department.

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").

Carderock Site, Civilian Employees

Degree	Number of Civilian Employees
Terminal Occupation Program - Certificate of Completion, Diploma or Equivalent (for areas such as technicians, craftsmen, artisans, skilled operators, etc.)	44
Associate Degree	43
Bachelor Degree	430
Masters Degree	270
Doctorate	89

Source of Data (1.e.1) and 2) Education Level Data): BRAC Data Call #5, May 1994

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

1) **Education Level Table.** Complete the following table, identifying the education level of the activity's civil service workforce.

Carderock Site, Civilian Employees of Tenants

Last School Year Completed	Number of Employees	Percentage of Employees
8th Grade or less	0	0.0 %
9th through 11th Grade	2	8.3 %
12th Grade or High School Equivalency	5	20.8 %
1-3 Years of College	13	54.2 %
4 Years of College (Bachelors Degree)*	4	16.7 %
5 or More Years of College (Graduate Work)*	0	0.0 %
TOTAL	24	100.0 %

* The numbers in this category represent employees who have completed this level of education, whether or not they have received a degree.

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").

Carderock Site, Civilian Employees of Tenants

Degree	Number of Civilian Employees
Terminal Occupation Program - Certificate of Completion, Diploma or Equivalent (for areas such as technicians, craftsmen, artisans, skilled operators, etc.)	0
Associate Degree	0
Bachelor Degree	4
Masters Degree	0
Doctorate	0

Source of Data (1.e.1) and 2) Education Level Data):
- o Defense Finance and Accounting Service, Bethesda, MD
- o Supervisor, Personnel Support Detachment, Bethesda, MD
- o Defense Printing Service Office, Carderock Site, Carderock Division, NSWC

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	0	0.0 %
2. Construction (includes facility maintenance and repair)	15-17	34	2.0 %
3. Manufacturing (includes Intermediate and Depot level maintenance)	20-39		
3a. Fabricated Metal Products (include ordnance, ammo, etc.)	34	15	0.9 %
3b. Aircraft (includes engines and missiles)	3721 et al	0	0.0 %
3c. Ships	3731	7	0.4 %
3d. Other Transportation (includes ground vehicles)	various	3	0.2 %
3e. Other Manufacturing not included in 3a. through 3d.	various	51	3.0 %
Sub-Total 3a. through 3e.	20-39	76	4.4 %

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	0.0 %
4b. Motor Freight Transportation & Warehousing (includes supply services) *	42	25	1.5 %
4c. Water Transportation (includes organizational level maintenance)	44	0	0.0 %
4d. Air Transportation (includes organizational level maintenance)	45	0	0.0 %
4e. Other Transportation Services (includes organizational level maintenance)	47	5	0.3 %
4f. Communications	48	3	0.2 %
4g. Utilities	49	10	0.6 %
Sub-Total 4a. through 4g.	40-49	43	2.5 %
5. Services	70-89		
5a. Lodging Services	70	0	0.0 %
5b. Personal Services (includes laundry and funeral services)	72	0	0.0 %
5c. Business Services (includes mail, security guards, pest control, photography, janitorial and ADP services) *	73	80	4.6 %
5d. Automotive Repair and Services	75	2	0.1 %
5e. Other Misc. Repair Services	76	6	0.3 %
5f. Motion Pictures	78	0	0.0 %
5g. Amusement and Recreation Services	79	0	0.0 %

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Industry	SIC Codes	No. of Civilians #	% of Civilians
5h. Health Services	80	0	0.0 %
5i. Legal Services *	81	7	0.4 %
5j. Educational Services	82	0	0.0 %
5k. Social Services	83	0	0.0 %
5l. Museums	84	4	0.2 %
5m. Engineering, Accounting, Research & Related Services (includes RDT&E, ISE, etc.)	87	1,166	67.7 %
5n. Other Misc. Services	89	239	13.9 %
Sub-Total 5a. through 5n.:	70-89	1,504	87.3 %
6. Public Administration	91-97		
6a. Executive and General Government, Except Finance *	91	32	1.9 %
6b. Justice, Public Order & Safety (includes police, firefighting and emergency management)	92	18	1.0 %
6c. Public Finance	93	11	0.6 %
6d. Environmental Quality and Housing Programs *	95	5	0.3 %
Sub-Total 6a. through 6d.		66	3.8 %
TOTAL		1,723	100.0 %

Includes 1723 full-time personnel as of 30 June 1994

* The Carderock Site is the Headquarters of the Carderock Division, Naval Surface Warfare Center. Under the organizational concept for the Division, management and some of their staff are located at the Carderock Site and provide support to the Annapolis, Bayview, and Philadelphia Sites.

Source of Data (1.f.) Classification By Industry Data): DCPDS, June 1994

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 *	283	16.4 %
2. Professional Specialty		
2a. Engineers	603	35.0 %
2b. Architects and Surveyors	3	0.2 %
2c. Computer, Mathematical & Operations Research *	103	6.0 %
2d. Life Scientists	5	0.3 %
2e. Physical Scientists	168	9.8 %
2f. Lawyers and Judges *	7	0.4 %
2g. Social Scientists & Urban Planners	0	0.0 %
2h. Social & Recreation Workers	0	0.0 %
2i. Religious Workers	0	0.0 %
2j. Teachers, Librarians & Counselors	6	0.3 %
2k. Health Diagnosing Practitioners (Doctors)	0	0.0 %

Occupation	Number of Civilian Employees #	Percent of Civilian Employees
2l. Health Assessment & Treating(Nurses, Therapists, Pharmacists, Nutritionists, etc.)	0	0.0 %
2m. Communications *	10	0.6 %
2n. Visual Arts *	18	1.0 %
Sub-Total 2a. through 2n.:	923	53.6 %
3. Technicians and Related Support		
3a. Health Technologists and Technicians	0	0.0 %
3b. Other Technologists	160	9.3 %
Sub-Total 3a. and 3b.:	160	9.3 %
4. Administrative Support & Clerical	208	12.0 %
5. Services		
5a. Protective Services (includes guards, firefighters, police)	22	1.3 %
5b. Food Preparation & Service	0	0.0 %
5c. Dental/Medical Assistants/Aides	0	0.0 %
5d. Personal Service & Building & Grounds Services (includes janitorial, grounds maintenance, child care workers)	4	0.2 %
Sub-Total 5a. through 5d.	26	1.5 %
6. Agricultural, Forestry & Fishing	0	0.0 %
7. Mechanics, Installers and Repairers	12	0.7 %
8. Construction Trades	25	1.5 %
9. Production Occupations	73	4.2 %
10. Transportation & Material Moving *	13	0.7 %

Occupation	Number of Civilian Employees #	Percent of Civilian Employees
11. Handlers, Equipment Cleaners, Helpers and Laborers (not included elsewhere)	0	0.0 %
TOTAL	1,723	100.0 %

Includes 1723 full-time personnel as 30 June 1994
* The Carderock Site is the Headquarters of the Carderock Division, Naval Surface Warfare Center. Under the organizational concept for the Division, management and some of their staff are located at the Carderock Site and provide support to the Annapolis, Bayview, and Philadelphia Sites.

Source of Data (1.g.) Classification By Occupation Data): DCPDS, June 1994

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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 persons.
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.** Bus drivers; material moving equipment operators; rail transportation occupations; truck drivers; 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.**

CARDEROCK SITE, UIC 00167

1. Percentage of Military Employees Who Are Married:	91%
2. Percentage of Military Spouses Who Work Outside of the Home:	90%
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:	0%
3b. Employed "On-Base" - Non-Appropriated Fund:	0%
3c. Employed "Off-Base" - Federal Employment:	11%
3d. Employed "Off-Base" - Other Than Federal Employment	89%

Source of Data (1.h.) Spouse Employment Data): Survey of Military Personnel at the Carderock Site, Carderock Division, NSWC

DATA CALL 65
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.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

a. Table A: Ability of the local community to meet the expanded needs of the base. The local community is defined as the Potomac Subregion of Montgomery County.

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	A	A	A
Schools - Private	N/A#	N/A#	N/A#
Public Transportation - Roadways	A	A	B
Public Transportation - Buses/Subways	A	A	A
Public Transportation - Rail	N/A#	N/A#	N/A#
Fire Protection	A	A	A
Police	A	A	A
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 *	B	B	B
Solid Waste Collection and Disposal	A	A	A
Hazardous/Toxic Waste Disposal	A	A	A
Recreational Activities	A	A	A

* This category is wholly supported on-base.

\# This category is not available at the activity, but is also not needed.

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.

Not Applicable as there are no "C"s identified in the table.

Source of Data (2.a. 1) & 2) - Local Community Table):

- Environmental Assessment for Base Realignment of the Carderock Division, Naval Surface Warfare Center, Bethesda, Maryland, Sep '92, Prepared by Chesapeake Division, Naval Facilities Engineering Command
- Facilities Contracts Branch, Carderock Division, NSWC, Bethesda, MD
- Water Resource Planning Department, Washington Suburban Sanitary Commission, Washington, D.C.
- Fire Chief, Carderock Site Fire Department, Carderock Division, NSWC
- Environmental Manager, Carderock Division, NSWC
- Planning Department, Engineering Field Activity Chesapeake, Washington, D.C.
- Environmental Protection Office, Carderock Division, NSWC
- Transportation Department, Maryland-National Capital Parks and Planning Commission, Silver Spring, MD
- Engineering Department, Potomac Electric Power Company, Washington, D.C.
- District of Columbia, Sewage Administration, Washington, D.C.
- Coordinator of Community Planning, Montgomery County Planning Board, Silver Spring, MD

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. The local region includes Montgomery, Prince Georges, Frederick, Carroll, Prince William, Anne Arundel, Howard, and Baltimore Counties in Maryland; Fairfax, Loudoun, and Arlington Counties in Virginia; and the District of Columbia.

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	B	B
Schools - Public	A	B	B
Schools - Private	N/A#	N/A#	N/A#
Public Transportation - Roadways	A	B	C
Public Transportation - Buses/Subways	A	A	A
Public Transportation - Rail	N/A#	N/A#	N/A#
Fire Protection	A	A	A
Police	A	A	A
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 *	B	B	B

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Category	20% Increase	50% Increase	100% Increase
Solid Waste Collection and Disposal	A	A	A
Hazardous/Toxic Waste Disposal	A	A	A
Recreation Facilities	A	A	A

* This category is wholly supported on-base.
# This category is not available at the activity, but is also not needed.

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.

Public Transportation - Roadways. The Capital Beltway is currently overcrowded. Any significant increase in traffic would require an analysis of the road network and probably major improvements. A joint study between Maryland and Virginia is underway to determine if certain sections of the Capital Beltway can and should be widened to accommodate existing traffic.

Source of Data (2.b. 1) & 2) - Regional Table):

- Environmental Assessment for Base Realignment of the Carderock Division, Naval Surface Warfare Center, Bethesda, Maryland, Sep '92, Prepared by Chesapeake Division, Naval Facilities Engineering Command
- Facilities Contracts Branch, Carderock Division, NSWC, Bethesda, MD
- Water Resource Planning Department, Washington Suburban Sanitary Commission, Washington, D.C.
- Fire Chief, Carderock Site Fire Department, Carderock Division, NSWC
- Environmental Manager, Carderock Division, NSWC
- Planning Department, Engineering Field Activity Chesapeake, Washington, D.C.
- Environmental Protection Office, Carderock Division, NSWC
- Transportation Department, Maryland-National Capital Parks and Planning Commission, Silver Spring, MD
- Engineering Department, Potomac Electric Power Company, Washington, D.C.
- District of Columbia, Sewage Administration, Washington, D.C.
- Coordinator of Community Planning, Montgomery County Planning Board, Silver Spring, MD

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: **5.1 percent**

Units for Sale: **5.2 percent**

Source of Data (3.a. Off-Base Housing):
- o Multiple Listing Service of Northern Virginia
- o Prince William (VA) Board of Realtors
- o Frederick County (MD) Board of Realtors
- o Loudoun County (VA) Board of Realtors
- o Montgomery County (MD) Board of Realtors
- o Prince Georges County (MD) Board of Realtors
- o Washington, D.C. Board of Realtors
- o Howard County (MD) Board of Realtors
- o Anne Arundel County (MD) Board of Realtors
- o 1990 U.S. Census of Population and Housing

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DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

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? *
		Elementary	Middle	High	Current	Max. Capacity[2]	Current[3]	Max. Ratio[2]	
	Loudoun, VA	23	4	4	14,485		16/11		
	Fairfax, VA[1]	130	20	23	128,766		14/15		
	Prince William, VA	39	11	7	45,000		24 total		
	Washington, DC	111	24	25	80,618		20 total		
	Carroll, MD	19	8	5	22,677		17 total		
	Montgomery, MD	123	19	28	107,399		16 total		
	Prince Georges, MD	114		41	111,652		17 total		
	Frederick, MD	27	11	8	29,036		16 total		
	Anne Arundel, MD	76	14	16	65,968		17 total		

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* Answer "Yes" in this column if the school district in question enrolls students who reside in government housing.

[1] Fairfax County includes Fairfax City and Falls Church
[2] Elementary/Secondary
[3] Information was not available at the time of submission.

Source of Data (3.b.1) Education Table):
- o Virginia Department of Education
- o Maryland State Department of Education

2) Are there any on-base "Section 6" Schools? If so, identify number of schools and current enrollment.

There are no "Section 6" schools on-base.

Source of Data (3.b.2) On-Base Schools): Human Resources Office, Carderock Site, Carderock Division, NSWC

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? *
		Elementary	Middle	High	Current	Max. Capacity[2]	Current[3]	Max. Ratio[2]	
	Loudoun, VA	23	4	4	14,485		16/11		
	Fairfax, VA[1]	130	20	23	128,766		14/15		
	Prince William, VA	39	11	7	[3]		[3]		
	Washington, DC	111	24	25	80,618		20 total		
	Carroll, MD	19	8	5	22,677		17 total		
	Montgomery, MD	123	19	28	107,399		16 total		
	Prince Georges, MD	114		41	111,652		17 total		
	Frederick, MD	27	11	8	29,036		16 total		
	Anne Arundel, MD	76	14	16	65,968		17 total		

* Answer "Yes" in this column if the school district in question enrolls students who reside in government housing.

[1] Fairfax County includes Fairfax City and Falls Church
[2] Elementary/Secondary
[3] Information was not available at the time of submission.

Source of Data (3.b.1) Education Table):
- o Virginia Department of Education
- o Maryland State Department of Education

2) Are there any on-base "Section 6" Schools? If so, identify number of schools and current enrollment.

There are no "Section 6" schools on-base.

Source of Data (3.b.2) On-Base Schools): Human Resources Office, Carderock Site, Carderock Division, NSWC

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 :

Undergraduate and Graduate Colleges and Universities

American University
Bowie State
Capitol College
Catholic University
Columbia Union College
Frederick Community College
Gallaudet College
George Mason University
George Washington University
Georgetown University
Hood College
Howard College
Marymount University
Montgomery College
Mount St. Mary's College
Mount Vernon College
Northern Virginia Community College
Prince George's Community College
Strayer College
Trinity College
University of the District of Columbia
University of Maryland
Virginia Polytechnic Institute and State University Graduate Center
University of Virginia Graduate Center
Washington Bible College

Source of Data (3.b.3) Colleges): The College Handbook, 1992 Edition

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:

Names and Major Curriculums of Vocational/Technical Training Schools

Abbie Business Institute - Legal, executive, medical secretarial programs
Academy of Professional Barber-Stylists - Barbering
Acupuncture School of Maryland - Medical technology
Airline Computer Institute - Travel
ATI Bartending Service - Bartending
ATI Career Institute - Hotel, bartending, computers, travel
ATI Career Institute - Word processing, computer training, hotel/bartending
ATI School of International Hotel and Restaurant Management - Hotel management
ATI School of Travel and Tourism - Travel agent
Automation Academy - Word processing, data entry, medical/nursing assistant
A-Z Business and Language Institute - Clerical, computer training
Barbizon School - Modeling
Bladensburg Barber School - Barbering
Bressler-Ingram CPA Review - Review for CPA Exam
Business and Language Institute - Office automation skills
Carlson Travel Academy - Travel
Columbia School of Gemology - Gemological instruction
Computer Institute - Programming, data entry
Computer Learning Center - Programming, computer accounting, operations
Corcoran School of Art - Fine arts, graphic design, photography
Engineering Drafting Instruction - Engineering drafting
Frederick Aviation, Inc. - Flying
Guardian Security Training Academy - Security
H&R Block - Income tax preparation
Institute for Legal Studies - Legal secretary, paralegal, investigations
International Travel Training Courses, Inc. - Travel
I.S.T. Law Enforcement Academy - Law enforcement
L'Academie de Cuisine - Culinary arts
Lambers CPA Review - Review for CPA Exam
Lincoln Technical Institute - Automotive technology, a/c and refrigeration
Maryland Academy of Dramatic Arts - Performing arts
Maryland College of Art and Design - Fine arts, graphic arts
Maryland Drafting Academy - Drafting
Maryland Drafting Institute - Engineering drafting
Maryland School of Dog Grooming - Dog grooming
National Business School - Automotive repair
National Education Center - Business operations, computer repair
National Institute of Paralegal Training - Paralegal training
National Institute of Real Estate - Real estate
National Training Systems, Inc. - Computer training in your home
Omega Recording Studios School of Applied Recording Arts & Sciences - Recording arts
Paralegal Institute - Paralegal, legal secretary

Patricia Stevens Fashion and Finishing School - Fashion buyer, merchandiser
Professional Bartending School - Bartending
PSI Institute of Washington - Computer programming, data entry
Reporting Academy of VA - Court reporting
Sanz School - Computer skills, word processing, typing, data entry
Smith Business School - Paralegal, word processing, data entry
Strayer College - Business
Technical Education Center, Inc. - Word processing, computer electronics
TESST Electronics and Computer Institute - Word processing & data entry, computer electronics
Welder Testing and Training Institute - Welding

Source of Data (3.b.4) Vo-tech Training):
- o Maryland Higher Education Commission
- o Northern Virginia, Maryland, and District of Columbia Yellow Pages

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): Montgomery County Ride-On

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.

Rockville, MD 11 Miles

Source of Data (3.c.2) Transportation): State Railroad Administration

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, Washington, D.C.
14 Miles

Source of Data (3.c.3) Transportation): Washington National Airport Operations

4) How many carriers are available at this airport?

14 Carriers

Source of Data (3.c.4) Transportation): Washington National Airport Operations

5) What is the Interstate route number and distance, in miles, from the activity to the nearest Interstate highway?

Interstate 495, 1 Mile

Source of Data (3.c.5) Transportation): American Automobile Association

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.)

The Main Gate of the Carderock site is accessed from the Clara Barton Parkway, a four-lane divided, limited access highway. There is additional access via a service gate from MacArthur Boulevard. Since the Carderock site is on flex time, there are no peak periods to cause traffic back-up. Both the Parkway and MacArthur Boulevard are well maintained and do not hinder access.

b) Do access roads transit residential neighborhoods?

From I-495 (Capitol Beltway) to the site, the Clara Barton Parkway is bordered by the Carderock site and by the parkland surrounding the C&O Canal. MacArthur Boulevard transits through a residential neighborhood; however, very little traffic flows through the service gate, thus presenting no congestion problems.

c) Are there any easements that preclude expansion of the access road system?

The Clara Barton Parkway is administered by the National Park Service and the Department of the Interior. MacArthur Boulevard has the Washington Aqueduct running along its route, as well as private residences. Both would be considerations for expansion of the existing roadway system.

d) Are there any man-made barriers that inhibit traffic flow (e.g., draw bridges, etc.)?

None

Source of Data (3.c.6) Transportation):
- o Environmental Assessment for Base Realignment of the Carderock Division, Naval Surface Warfare Center, Bethesda, Maryland, Sep 92, Prepared by Chesapeake Division, Naval Facilities Engineering Command.
- o David Taylor Research Center, Carderock Laboratory, Master Plan Update, 28 Apr 89.
- o Public Works and Industrial Department, Carderock Division, NSWC

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.

The Carderock Site has no formal Mutual-Aid agreement. By informal agreement, the Montgomery County Hazmat Spill Response Team agrees to respond to hazardous materials incidents. Similarly, Montgomery County Department of Fire and Rescue Services will respond to Carderock Site fire emergencies. The Carderock Fire Department in turn responds to community fire alarms when needed. A Memorandum of Understanding supporting these agreements is in draft form.

Source of Data (3.d. Fire/Hazmat):
- o Fire Chief, Carderock Site Fire Department, Carderock Division, NSWC
- o Environmental Protection Office, Carderock Division, NSWC

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.

Not Applicable

3) Does the activity have a specific written agreement with local law enforcement concerning the provision of local police protection?

No

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.

Not Applicable

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.

Not Applicable

Source of Data (3.e. 1) - 5) - Police): Security Office, Carderock Site, Carderock Division, NSWC

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.

Water. The Washington Suburban Sanitary Commission provides potable water through a main feed line to the base. Distribution is handled internally.

Refuse Disposal. A service contract provides collection and removal to area landfills. The current contract is maintained with A. W. Stevens & Sons Disposal Company.

Power. Potomac Electric Power Company provides electrical power up to the main feeders. Distribution is handled internally.

Natural Gas. Washington Gas Company provides natural gas service to the main boiler system for heating purposes. The lines are repaired and maintained by the utility company.

Sewage. Sewage is carried off base via lines administered by the District of Columbia, Department of Public Works, Water and Utility Administration, and the Washington Suburban Sanitary Commission for processing at the Blue Plains Sewage Plant.

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.

There has been no water rationing or extended interruptions during the last five years.

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.

The Carderock Site receives favorable gas rates under an interruptable service agreement. Under this agreement, the site agrees to reduce gas usage within 4 hours of a request by the Washingto Gas Company. Because the site is also capable of using oil fuel, the impact on operations is minimal. The following numbers indicate the number of times the site was asked to switch to oil.

1990	**5 times**
1991	**0 "**
1992	**26 "**
1993	**16 "**
1994	**37 "**

Potomac Electric Power Company requested all businesses to minimize load or shut down completely during the week of 17 January 1994 because of a possible east coast blackout. The Carderock Site was shut down for one full day.

Source of Data (3.f. 1) - 3) Utilities):
- o Facilities Contracts Branch, Carderock Division, NSWC
- o Local utility companies:
  - Washington Suburban Sanitary Commission
  - Potomac Electric Power Company
  - Washington Gas Company
  - District of Columbia, Department of Public Works
- o Utilities Systems Supervisor, Carderock Division, NSWC

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. Federal Government [1]	Government	371,346
2. District of Columbia Government [2]	Government	45,542
3. Fairfax County, VA Government [2]	Government	24,875
4. Giant Food	Supermarkets	24,651
5. Montgomery County, MD Government [2]	Government	22,500
6. Prince Georges County, MD Government [2]	Government	20,100
7. INOVA Health Systems	Health Care	17,600
8. Bell Atlantic	Communications	13,684
9. The Hecht Company	Department Stores	12,000
10. Marriott International Corp	Hospitality	11,516

[1] Civilian employees only
[2] Includes the public school systems in these jurisdictions

Source of Data (4. Business Profile):
- o Office of Personnel Management, Workforce Information Office
- o Office of Policy, District of Columbia Government
- o Office of Economic Development, Fairfax County, VA Government
- o Giant Food Public Affairs Office
- o Economic Development Office, Montgomery County, MD Government
- o Economic Development Office, Prince Georges County, MD Government
- o Office of Economic Development, City of Alexandria, VA Government
- o Bell Atlantic, Area Manager for Northern Virginia
- o Director of Compensation, The Hecht Company
- o The Washington Post, Business and Finance Office

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:

As shown by the table in Item 4. above, employment in the Carderock Site's geographic region is dominated by the Federal Government. Many businesses are dependent on government contracts for a sizeable portion of their annual revenue. Significant down-sizing of the Federal Government would have severe economic impact on the geographic region. No specific information was available at the time of submission of this report on loss of private sector major employers.

b. Introduction of New Businesses/Technologies:

Because of the size and diversity of the Carderock Site's geographic region, it is likely that many new businesses and technologies are introduced annually. No specific information was available at the time of submission of this report.

c. Natural Disasters:

The Carderock Site's geographic region is located in a temperate climate zone at the eastern edge of the Piedmont Plateau. This region is near the average paths of low pressure systems that move across the country. As a result, changes in wind direction are frequent and contribute to the changeable character of the weather. Average high temperature is 66 Degrees-F and the average low is 48 Degrees-F. The region is not routinely subject to extremes in weather such as hurricanes or other natural disturbances such as earthquakes.

d. Overall Economic Trends:

Washington Area Jurisdictions[1] (WAJ) experienced population growth from 1970-1980 of 5.7 percent and from 1980-1990 of 20.4 percent with the highest growth rates occurring in Charles, Loudoun and Prince William Counties. In 1989, per capital incomes ranged from $18,960 in Prince George's County to $33,039 in Arlington County, while 1991 average household income ranged from $42,686 in Arlington County to $62,335 in Fairfax County. Total employment in WAJ in 1990 was 2,181,400 after a growth in employment of 16.1 percent from 1985 to 1990. The unemployment rate in 1990 was 3.4 percent and over the past 10 years has been at least 2 percent lower that the national average. Residential construction

(measured by permits issued) ranged from a high of 19,882 in 1986 to a low of 7,377 in 1991 with a total of 96,493 for 1986 to 1991. Commercial construction starts (measured in square feet permitted) ranged from a high of 38,446,400 in 1988 to a low of 17,865,600 in 1985 with a total 159,649,200 for 1985 to 1990. Population of WAJ is projected to grow from 3,706,000 in 1990 to 4,205,000 in 2000. Employment in WAJ is expected to grow from 2,376,000 in 1990 to 2,968,000 in 2000. These statistics show a projected improvement in the ratio of population to employment for the WAJ.

[1] Alexandria, Arlington County, Charles County, District of Columbia, Fairfax County (including Falls Church and Fairfax City), Frederick County, Loudoun County, Montgomery County, Prince George's County, and Prince William County (includes cities of Manassas and Manassas Park).

Source of Data (5. Other Socio/Econ):
- o 1991 Annual Growth Summary, Loudoun County, Virginia, Department of Economic Development, Loudoun County, VA
- o DTRC, Carderock Laboratory, Bethesda, Maryland, Master Plan Update, 28 Apr 89
- o U. S. Department of Labor, Bureau of Labor Statistics

6. Other. Identify any contributions of your activity to the local community not discussed elsewhere in this response.

The Carderock Division, primarily the Public Affairs Office, supports informational activities, i.e., briefings for tours for students, community associations, scouts, etc. Approximately 40% of the 2,000 visitors at the Carderock Site are participants in such activities. The Division also operates programs such as the Science and Engineering Apprenticeship Program (SEAP).

Division personnel are involved in a variety of mentoring programs (e.g., Human Powered Submarine) in which students and faculty visit Carderock for briefings, tours and hands-on experiences. Scientists and engineers also volunteer their time to mentor students at school and serve as judges at area science fairs.

During the school year, we welcome students from educational institutions such as University of Maryland, Engineering Department; Sidwell Friends School; and many similar schools. During the summer, organizations such as the University of the District of Columbia Summer Science Program bring bright inner city students for tours. We also support the Navy Kids Program. Annually, we host 30-50

participants in the U.S. Presidential Scholars Program. This program attracts some of the best and brightest high school students from across the nation.

Additionally, this organization hosts special events to attract various segments of the business/maritime community and the general public. These events include Dual Use Technology Transfers Day, Earth Day, and Open Houses. Attendees at these forums include members of local Hi-Tech Councils, professional societies, local and federal elected officials, state economic development agency staffs, etc.

Source of Data (6. Other): Public Affairs Office, Carderock Division, NSWC

~~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)

RADM (Sel) D. P. Sargent, Jr.
NAME (Please type of print

Signature

Commander
Title

7/19/94
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

G. R. [illegible]
NAME (Please type or print

Signature

Title

7/25/94
Date

[illegible] 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)

W. A. EARNER
NAME (Please type of print

Signature

Title

8/6/94
Date

DATA CALL #65
CARDEROCK 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

D.K. Kruse; Captain, USN	D.K. Kruse
NAME (Please type or print)	Signature
Commander	7/15/94
Title	Date
Carderock Division; NSWC	
Activity	

Rev. ~~1-7~~ 3, 9, 27

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

NEXT ECHELON LEVEL (if applicable)

James E. Baskerville; Captain USN
NAME (Please type or print)

Signature

Commander
Title

Date

Carderock Division, USN
Activity

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

NEXT ECHELON LEVEL (if applicable)

Dr. Ira M. Blatstein
NAME (Please type or print)

Ira M Blatstein
Signature

Technical Director
Title

10/3/94
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

NAME (Please type or print)

S. R. Sterner
Signature

Title
R. STERNER
Commander
Naval Sea Systems Command
Activity

10-4-94
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)

P.W. DRENNON
NAME (Please type or print)

Signature
12 OCT 1994

Title
Acting

Date

DATA CALL #65
CARDEROCK SITE
REVISION A

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."

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

ACTIVITY COMMANDER

J. S. Chlebanowski, Commander	Joseph S. Chlebanowski
NAME (Please type or print)	Signature
Officer-in-Charge (Acting)	9/30/94
Title	Date
Carderock Division; NSWC	
Activity	

This revision provides the following: Pg 3--adds military personnel previously omitted; Pg 9 corrects number of personnel with degrees to include support personnel; and Pg 27 added school system information not available at time of previous submission.

DATA CALL #65
CARDEROCK SITE
REVISION A

Document Separator

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DATA CALL 63
FAMILY HOUSING DATA

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

Installation Name:	NSWC Carderock
Unit Identification Code (UIC):	00167
Major Claimant:	NAVSEA

Percentage of Military Families Living On-Base:	0
Number of Vacant Officer Housing Units:	0
Number of Vacant Enlisted Housing Units:	0
FY 1996 Family Housing Budget ($000):	0
Total Number of Officer Housing Units:	0
Total Number of Enlisted Housing Units:	0

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

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

MAJOR CLAIMANT LEVEL

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

Signature

COMMANDER
Title

7/20/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

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

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

W. A. EARNER

NAME (Please type or print)

Signature

Title

7/25/94
Date

BRAC-95 CERTIFICATION

Reference: SECNAV NOTE 11000 dtd 8 Dec 93

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

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

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

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

ACTIVITY COMMANDER

W.A. Waters, CAPT, CEC, USN
NAME (Please type of print)

Signature

Commanding Officer
Title

7/7/94
Date

NORTHNAVFACENGCOM
Activity

BRAC-95 CERTIFICATION

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

Sandra B. Culbertson
NAME (Please type or print)

Sandra B. Culbertson
Signature

Housing Management Specialist
Title

7/6/94
Date

Division

Housing/Real Estate
Department

NORTHNAVFACENGCOM
Activity

Enclosure (1)

Document Separator

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BRAC 95

CARDEROCK DIVISION

NAVAL SURFACE WARFARE CENTER

HEADQUARTERS, BETHESDA MARYLAND

DATA CALL 33

ENVIRONMENTAL DATA CALL: CD, NSWC Headquarters Bethesda, MD
DATA CALL TO BE SUBMITTED TO
ALL NAVY/MARINE CORPS HOST ACTIVITIES

2 JUNE 1994

BRAC 1995 ENVIRONMENTAL DATA CALL:
All Navy/Marine Corps Host Ativities

INDEX

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ENVIRONMENTAL DATA CALL

Responses to the following questions provide data that will allow an assessment of the potential environmental impact associated with the closure or realignment of a Navy shore activity. This criterion consists of:

- Endangered/Threatened Species and Biological Habitat
- Wetlands
- Cultural Resources
- Environmental Facilities
- Air Pollution
- Environmental Compliance
- Installation Restoration
- Land/Air/Water Use

As part of the answers to these questions, a *source citation* (e.g., 1993 base loading, 1993 base-wide Endangered Species Survey, 1993 letter from USFWS, 1993 Base Master Plan, 1993 Permit Application, 1993 PA/SI, etc.) must be included. It is probable that, at some point in the future, you will be asked to provide additional information detailing specifics of individual characteristics. In anticipation of this request, supporting documentation (e.g., maps, reports, letters, etc.) regarding answers to these questions should be retained. Information needed to answer these questions is available from the cognizant EFD Planning and Real Estate Divisions, and Environment, Safety, and Health Divisions; and from the activity Public Works Department, and activity Health Monitoring and Safety Offices.

For purposes of the questions associated with land use at your base is *defined* as *land* (acreage owned, withdrawn, leased, and controlled through easements); *air* (space controlled through agreements with the FAA, e.g., MOAs); *and water* (navigation channels and waters along a base shoreline) *under the control of the Navy.*

<u>NOTE:</u> Data and information provided herein is applicable only to the Carderock Division Headquarters at Bethesda, MD except where specified in paragraphs 5a and 8.

TENANT COMMANDS ON MAIN COMPLEX

Tenant Command Name	UIC
Hydroacoustic Technology Center	00024
Defense Publications and Printing Office	43627
BRCLSMCNCR, National Naval Medical Center, Branch Clinic	000168
Personnel Support Detachment	00171
Defense Financial and Accounting Service (DFAS)	NONE; uses 00167

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*
NONE				

Source Citation: Fish & Wildlife Management Plan 1990

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.	NO
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.	NO

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. N/A
N/A There are no endangered or threatened species.

1d.

Have any efforts been made to relocate any species and/or conduct any mitigation with regards to critical habitats or endangered/threatened species? Explain what has been done and why.	NO

1e.

Will any state or local laws and/or regulations applying to endangered/threatened species which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.	NO

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, MS or officially adapted state definitions.

2a.

Does your base possess federal jurisdictional wetlands?	YES
Has a wetlands survey in accordance with established standards been conducted for your base?	YES
When was the survey conducted or when will it be conducted? 3/ /93	
What percent of the base has been surveyed?	100 *
What is the total acreage of jurisdictional wetlands present on your base?	9.6

Source Citation: Carderock Master Plan 1989

* EFACHES contracted survey 1993 - final report not received

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. (Appendix 3)

2c. Has the EPA, COE or a state wetland regulatory agency required you to modify or constrain base operations or development plans in any way in order to accommodate a jurisdictional wetland? NO If YES, summarize the results of such modifications or constraints.

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

Buildings 1, 2, 3 and 4. Buildings 1, 2 and 3 are the main administration buildings. Building 4 is the towing basin.
Source: Carderock Master Plan of 1989

3b.

Has the President's Advisory Council on Historic Preservation or the cognizant State Historic Preservation Officer required you to mitigate or constrain base operations or development plans in any way in order to accommodate a National Register cultural resource? If YES, list the results of such modifications or constraints below.	NO

3c.

Are there any on base areas identified as sacred areas or burial sites by Native Americans or others? List below.	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, since the base no longer has an operating landfill.

4b. If there are any non-Navy users of the landfill, describe the user and conditions/agreements. N/A, since the base is not operating a landfill.

4c.

Does your base have any disposal, recycling, or incineration facilities for solid waste?					NO
Facility/Type of Operation	**Permitted Capacity**	**Ave Daily Throughput**	**Maximum Capacity**	**Permit Status**	**Comments**

List any permit violations and projects to correct deficiencies or improve the facility. N/A, since the base does not have these types of facilities.

4d.

Does your base own/operate a Domestic Wastewater Treatment Plant (WWTP) ?					NO
ID/Location of WWTP	**Permitted Capacity**	**Ave Daily Discharge Rate**	**Maximum Capacity**	**Permit Status**	**Level of Treatment/Year Built**

List permit violations and discuss any projects to correct deficiencies. N/A, since the base does not own or operate a wastewater treatment plant.

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.

Average discharge is 70,000 gallons/day. Discharge limits are set by permit for metals, TTO, oil & grease, pH and flow (32,000 gallons/day). Base is currently exceeding the flow limits as outlined in the permit. According to the WWTP, their facility has sufficient handling capacity (currently .8Mgpd below capacity) and is not jeopardized by this increase. According to the facility they could tolerate a steady state of up to 150,000gpd from Carderock. The present flow measuring equipment is being upgraded to improve flow and cost accounting. The cognizant regulating authority is in concurrence with this planned action.

4f.

Does your base operate an Industrial Waste Treatment Plant (IWTP)?					NO
ID/Location of IWTP	Type of Treatment	Permitted Capacity	Ave Daily Discharge Rate	Maximum Capacity	Permit Status

List any permit violations and projects to correct deficiencies or improve the facility.
N/A, since the base does not operate an industrial waste treatment plant.

4g. Are there other waste treatment flows not accounted for in the previous tables? Estimate capacity and describe the system. NONE

4h.

Does your base operate drinking Water Treatment Plants (WTP)?					NO
ID/Location of WTP	Operating (GPD)		Method of Treatment	Maximum Capacity	Permit Status
	Permitted Capacity	Daily Rate			

List permit violations and projects/actions to correct deficiencies or improve the facility. N/A, since the base does not operate a drinking water treatment plant.

4i. If you do not operate a WTP, what is the source of the base potable water supply. State terms and limits on capacity in the agreement/contract, if applicable.

Source of water - Washington Suburban Sanitary Commission; no known agreements which limit capacity.

4j.

Does the presence of contaminants or lack of supply of water constrain base operations. Explain.	NO

4k.

Other than those described above does your base hold any NPDES or stormwater permits? If YES, describe permit conditions.	YES
If NO, why not and provide explanation of plan to achieve permitted status.	

Permit places limits on temperature, pH, oil & grease and allows discharge of basin water, non-contact cooling water and storm water. All storm water only outfalls have been added to NPDES permit renewal application.

4l.

	YES/NO
Does your base have bilge water discharge problem?	NO
Do you have a bilge water treatment facility?	NO

Explain: N/A, the base has no bilge water discharges.

4m.

Will any state or local laws and/or regulations applying to Environmental Facilities, which have been enacted or promulgated but not yet effected, constrain base operations or development plans beyond those already identified? Explain.	NO

4n. What expansion capacity is possible with these Environmental Facilities? Will any expansions/upgrades as a result of BRACON or projects programmed through the Presidents budget through FY1997 result in additional capacity? Explain.

N/A BRACON projects are programmed to accommodate operations and personnel increases resulting from the relocation of the Materials Engineering Laboratory, however, these projects will not increase and/or add any "Environmental Facilities", as defined in the above paragraphs 4a through 4m. Additionally, sewage and water supply systems are not Navy owned.

4o. Do capacity limitations on any of the facilities discussed in question 4 pose a present or future limitation on base operations? Explain. No, but we would need to renegotiate with the non-Navy providing organizations for any required permitting revisions.

5. AIR POLLUTION

5a.

What is the name of the Air Quality Control Areas (AQCAs) in which the base is located? Area IV, CDNSWC Bethesda
Is the installation or any of its OLFs or non-contiguous base properties located in different AQCAs? YES . List site, location and name of AQCA.

5a. continued

Site	Location	AQCA
Annapolis Detachment	Annapolis, MD	Region 3 Area III EPA Area 115
Philadelphia Detachment	Philadelphia, PA	Region 3 Area 42, Co. # 108 EPA Area 045
Pax River Detachment	Patuxent River, MD	Region 3 Area V EPA Area 116
Combatant Craft Engineering Office	Norfolk, VA	Region 3 EPA Area 223
Alaska Site	Ketchikan, AK	Region 10 EPA Area 11
Bremerton Detachment	Bremerton, WA	Region 10 EPA Area 229
Bayview Detachment	Bayview, ID	Region 10 EPA Area 63
Underwater Explosions Research Office & UEB-1	Portsmouth, VA	Region 3 EPA Area 223
Acoustic Trials Site	Cape Canaveral, FL	Region 4 Area 47, Co. # 009 EPA Area 048
Large Cavitation Channel (LCC)	Memphis, TN	Region 4 Area 47, Co. # 157 EPA Area 018

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/nonattainment/maintenance. For those areas which are in non-attainment, state whether they are: Marginal, Moderate, Serious, Severe, or Extreme. State target attainment year. See below.

Site: CDNSWC, Bethesda AQCA: Region 3 Area IV - EPA Area 047

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO		Moderate		1995	not dependent
Ozone		Serious		1999	not dependent
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

[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.

5b. continued

Site: CDNSWC, Annapolis, MD AQCA: Region 3 Area III - EPA Area 115

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO		Moderate		1995	not dependent
Ozone		Severe		2005	not dependent
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

5b continued

Site: CDNSWC, Philadelphia, PA AQCA: Region 3 - EPA Area unknown

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO		Moderate		1995	not dependent
Ozone		Severe		2005	not dependent
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

Site: CDNSWC, Patuxent River, MD* AQCA: Region 3 Area V - EPA Area 116

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO	Unclassifiable				
Ozone	"				
PM-10	"				
SO_2	"				
NO_2	"				
Pb	"				

* Site is located in ozone transport region.
** No monitoring available - no monitoring station exists.

5b continued

Site: CDNSWC, Norfolk, VA AQCA: Region 3 - EPA Area 223

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO	YES				not dependent
Ozone		Marginal		1993	
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

Site: CDNSWC, Ketchikan, AK AQCA: Region 10 - EPA Area 11

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO	YES				
Ozone	YES				
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

5b continued

Site: CDNSWC, Bremerton, WA AQCA: Region 10 - EPA Area 229

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO	YES				
Ozone	YES				
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

Site: CDNSWC, Bayview, ID AQCA: Region 10 - EPA Area 63

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO	YES				
Ozone	YES				
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

5b continued

Site: CDNSWC, Portsmouth, VA AQCA: Region 3 - EPA Area 223

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO	YES				
Ozone		Marginal		1993	not dependent
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

Site: CDNSWC, Cape Canaveral, FL AQCA: Region 4 - EPA Area unknown

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO	YES				
Ozone	YES				
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

5b continued

Site: CDNSWC, Memphis, TN AQCA: Region 4 - EPA Area unknown

Pollutant	Attainment	Non-Attainment	Maintenance	Target Attainment Year[1]	Comments[2]
CO		Moderate		1995	not dependent
Ozone		Marginal		1993	not dependent
PM-10	YES				
SO_2	YES				
NO_2	YES				
Pb	YES				

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.
NOTE: LIST OF SOURCES AND CALCULATIONS ARE FOUND IN APPENDICES 1 & 2 RESPECTIVELY.

	Emission Sources (Tons/Year) 1991 Data				
Pollutant	Permitted Stationary	Personal Automobiles	Aircraft Emissions	Other Mobile	Total
CO	**	**	None	Negligible	**
NOx	1.5	**	None	Negligible	1.5
VOC	0.48	**	None	Negligible	0.48
PM10	**	**	None	Negligible	**

Source Document: VOC/NOx Emissions Inventory - September 1992. ** Data was not collected.

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.

	Emissions Sources (Tons/Year) 1993 Data				
Pollutant	Permitted Stationary	Personal Automobiles *	Aircraft Emissions	Other Mobile	Total
CO	0.72	2.29	None	Negligible	3.01
NOx	2.9	0.150	None	Negligible	3.05
VOC	1.0	0.336	None	Negligible	1.336
PM10	0.30	**	None	Negligible	0.30

Source Document: 1994 Emissions Inventory, EPA Emissions Factor Model 15A
* Based on 1,474 personal automobiles at .25 mile/day (workyear = 225 days). Factors: CO - 24.48 grams/mile; NOx - 1.64 grams/mile; VOC - 3.68 grams/mile. ** Data was not collected.

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. BRAC Realignment - expect increases in levels of the above four pollutants, due to the move of the Materials Directorate personnel from Annapolis to Bethesda.

5f. Are there any critical air quality regions (i.e. non-attainment areas, national parks, etc.) within 100 miles of the base? YES

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. NO

5h. Does your base have Emission Reduction Credits (ERCs) or is it subject to any emission offset requirements? If yes, provide details of the sources affected and conditions of the ERCs and offsets. Is there any potential for getting ERCs? NO. NO.

6. ENVIRONMENTAL COMPLIANCE

6a. Identify compliance costs, currently known or estimated that are required for permits or other actions required to bring existing practices into compliance with appropriate regulations. Do not include Installation Restoration costs that are covered in Section 7. For the last two columns provide the combined total for those two FY's.

Program	Survey Com-pleted?	Costs in $K to correct deficiencies					
		FY94	FY95	FY96	FY97	FY98-99	FY00-01
Air	YES	50	150	150	150	312	324
Hazardous Waste	NO	5	50	0	0	0	0
Safe Drinking Water Act	YES						
PCBs	YES	284	121	0	0	0	0
Other (non-PCB) Toxic Substance Control Act	NO	152	100	655	1,419	2,340	2,348
Lead Based Paint	NO						
Radon	YES	0	25	150	150	0	0
Clean Water Act	YES	0	20	48	0	71	0
Solid Waste	NO						
Oil Pollution Act	YES	50	0	0	0	0	0
USTs	YES	200	230	45	45	0	0
Other		200	40	33	150	62	104
Total		941	736	1,081	1,914	2,785	2,869

Provide a separate list of compliance projects in progress or required, with associated cost and estimated start/completion date. SEE NEXT PAGE

Item 6a. continued

PROJECT	FY94	FY95	FY96	FY97	FY98/99	FY00/01
Radon Remediation	0	25	150	150	0	0
Air Emission Survey	50	50	50	50	104	108
Enclose Oil Storage	50	0	0	0	0	0
Enclose HW Area	5	0	0	0	0	0
HAZMIN Survey	0	50	0	0	0	0
Update SPCC Plan	0	0	38	0	40	0
Rpl. PCB Transform.	284	121	0	0	0	0
Air Emission Testing	0	0	50	50	104	108
Air Permit Revisions	0	0	50	50	104	108
Solvent Sub. Study	0	100	0	0	0	0
TRI Plans	200	0	0	120	0	132
TRI Compliance	0	40	33	30	62	65
Storm Water Plan	0	0	10	0	11	0
Rpl. Sewer Flume	0	20	0	0	0	0
UST Removals	200	230	45	45	0	0
Asbestos Removal	152	100	655	1,419	2,340	2,348
NPDES Permit	0	0	0	0	20	0

6b.
Does your base have structures containing asbestos? YES What % of your base has been surveyed for asbestos? 90 Are additional surveys planned? YES What is the estimated cost to remediate asbestos ($K) 7,500 Are asbestos survey costs based on encapsulation, removal or a combination of both? Removal

6c. Provide detailed cost of operational (environmental) compliance costs, with funding source.

Funding Source	FY92	FY93	FY94	FY95	FY96	FY97	FY98-99	FY00-01
O&MN	0	0	0	0	0	0	0	0
HA	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0
Other (specify) DBOF	*311	*398	535	566	596	658	1,397	1,510
TOTAL	311	398	535	566	596	658	1,397	1,510

*
These compliance costs are estimates generated from a complilation of old work orders, job numbers and staffing levels.

6d. Are there any compliance issues/requirements that have impacted operations and/or development plans at your base. NO

7. INSTALLATION RESTORATION

7a.

Does your base have any sites that are contaminated with hazardous substances or petroleum products?	YES
Is your base an NPL site or proposed NPL site?	NO

7b. Provide the following information about your Installation Restoration (IR) program. Project list may be provided in separate table format. Note: List only projects eligible for funding under the Defense Environmental Restoration Account (DERA). Do not include UST compliance projects properly listed in section VI.

Site # or name	Type site [1]	Groundwater Contaminated?	Extends off base?	Drinking Water Source?	Cost to Complete ($M)/Est. Compl. Date	Status[2]/Comments
Base Landfill	CERCLA	NO	NO	NO	Unknown	SI
Storage Yard	CERCLA	NO	NO	NO	Unknown	SI
Scrap Yard	CERCLA	NO	NO	NO	$3.0M/Feb 95	Removal Action
Pesticide Leach Field	CERCLA	NO	NO	NO	Unknown	SI
Sandblast Shed	CERCLA	NO	NO	NO	Unknown	SI

[1] Type site: CERCLA, 'RCRA corrective action (CA), UST or other (explain)

[2] Status = PA, SI, RI, RD, RA, long term monitoring, etc.

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?	NO

7f. Does your base operate any "Conforming Storage" facilities for handling **hazardous materials**? If YES, describe facility, capacity, restrictions, and permit conditions.

Yes. Facility uses flammable and corrosive lockers, of small capacity. No permits are required.

7g. Does your base operate any "Conforming Storage" facilities for handling **hazardous waste**? If YES, describe facility, capacity, restrictions, and permit conditions.

Yes. One less than 90-day hazardous waste accumulation area is used. The area includes: a drum storage area of 20 x 25 feet; two 10 x 10 foot enclosed storage lockers; one flammable waste locker and one corrosive locker. No permits are required. The area is enclosed and consists of a concrete floored area with a continuous concrete berm around the perimeter to contain any spills. The facility is also in the process of modifying the used oil storage area to fully enclose it and contain any spills within a continuous concrete berm.

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.	NO

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 Base	186.5	Bethesda, MD
Detachment, Annapolis, MD (submitted separately)	89.7	Annapolis, MD
Detachment, Bayview, ID (submitted separately)	26.8	Bayview, ID
Site, Memphis, TN	91.6	Memphis, TN
Fox Island Acoustic Range	1.7	Bremerton, WA
Site, Ketchikan, AK (USFS Use Permit)	5.0	Ketchikan, AK

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.)		87.4
Total Undeveloped (areas that are left in their natural state but are under specific environmental development constraints, i.e.: wetlands, endangered species, etc.)		Wetlands: 9.6
		All Others: 10
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		20.1
Total Undeveloped land considered to be without development constraints		152.7
Total Off-base lands held for easements/lease for specific purposes		5.0
Breakout of undeveloped, restricted areas. Some restricted areas may overlap:	ESQD	1
	HERF	
	HERP	
	HERO	
	AICUZ	
	Airfield Safety Criteria	
	Other (Security)	12.7
	Other (Noise restricted;acoustic test interference.)	6.4

* Acreage data excludes Annapolis and Bayview which are reported separately.

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. NONE

8d. What is the date of your last AICUZ update? _____/_____/_____ Are any waivers of airfield safety criteria in effect on your base? Y/N Summarize the conditions of the waivers below. N/A, the base does not own or operate any airfields.

8e. List the off-base land use *types* (e.g, residential, industrial, agricultural) and *acreage* within Noise Zones 2 & 3 generated by your flight operations and whether it is compatible/incompatible with AICUZ guidelines on land use.

Acreage/Location/ID	Zones 2 or 3	Land Use	Compatible/ Incompatible
N/A, the base conducts no flight operations.			

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. None

Navigational Channels/ Berthing Areas	Location / Description	Maintenance Dredging Requirement			
		Frequency	Volume (MCY)	Current Project Depth (FT)	Cost ($M)
N/A, the base has no requirement for maintenance dredging.					

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 dredged materials are generated.	N/A

8.i. List any requirements or constraints resulting from consistency with **State Coastal Zone Management Plans**. N/A, the base is not subject to any State Coastal Zone Management Plans.

8j. Describe any **non-point source pollution problems affecting water quality** ,e.g.: coastal erosion. N/A, the base has no non-point source pollution problems.

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.	N/A

The base does not have natural resources that would allow hunting and fishing.

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. Wetlands - 9.6 acres.

9. WRAPUP

9a. Are there **existing or potential environmental showstoppers** that have affected or will affect the accomplishment of the installation mission that have not been covered in the previous 8 questions? NO

9b. Are there any **other environmental permits** required for base operations, include any relating to industrial operations.

Oil Operations Permit
Sewage Discharge Permit
Future possibility of Air Emissions Permit

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 known.

BETHESDA PERMITTED AIR EMISSION SOURCES

1991 Registered/Permitted Sources

Bethesda: Boiler #2 - Bldg. 6 (permit #1511285089990)
Paint Spray Booth - Bldg. 1 (#1511286015791)
Gas Pump (#1590373N)
Sandblast (#1511289033791)

1994 Registered/Permitted Sources

Bethesda: All of the 1991 sources
plus - Dry Filter Paint Booth - Bldg. 4E (awaiting permit #)

APPENDIX 1

Personal Autos-Bethesda
Emissions Calculations

1993 Data - *based on EPA Emission - Factor Model 5A
Source: Security office Vehicle listing

Personal Vehicles = 1474 light duty gasoline vehicles

*Emission Factors = VOC *3.68 gpm
gpm=grams per mile CO *24.48 gpm
NOx *1.64 gpm

VOCS: 1474 vehicles x .25 miles/day
1474 x .25 = 368.5 m/day
3.68 gpm/voc x 368.5 m = 1356.08 gpd
1356.08 gpd x **225 dpy = 305,118 gpy
305,118 2000 = 153 453.6 gpp = 0.34 TPY

CO: 24.48 gpm x 368.5 m/d = 9,020.88 gpd
9,020.88 gpd x 225dpy = 2,029,698 gpy
2,029,698 gpy 2000 = 1,015 453.6 gpp = 2.24 TPY

NOx: 1.64 gpm x 368.5 m/s = 604.34 gpd
604.34 gpd x 225 dpy = 135,976.5 gpy
135,979.5 gpy 2000 = 68 453.6 gpp = 0.15 TPY

**225 days per year calculation is based on work days/yr. minus holidays and compressed schedule absences and leave.

APPENDIX 2

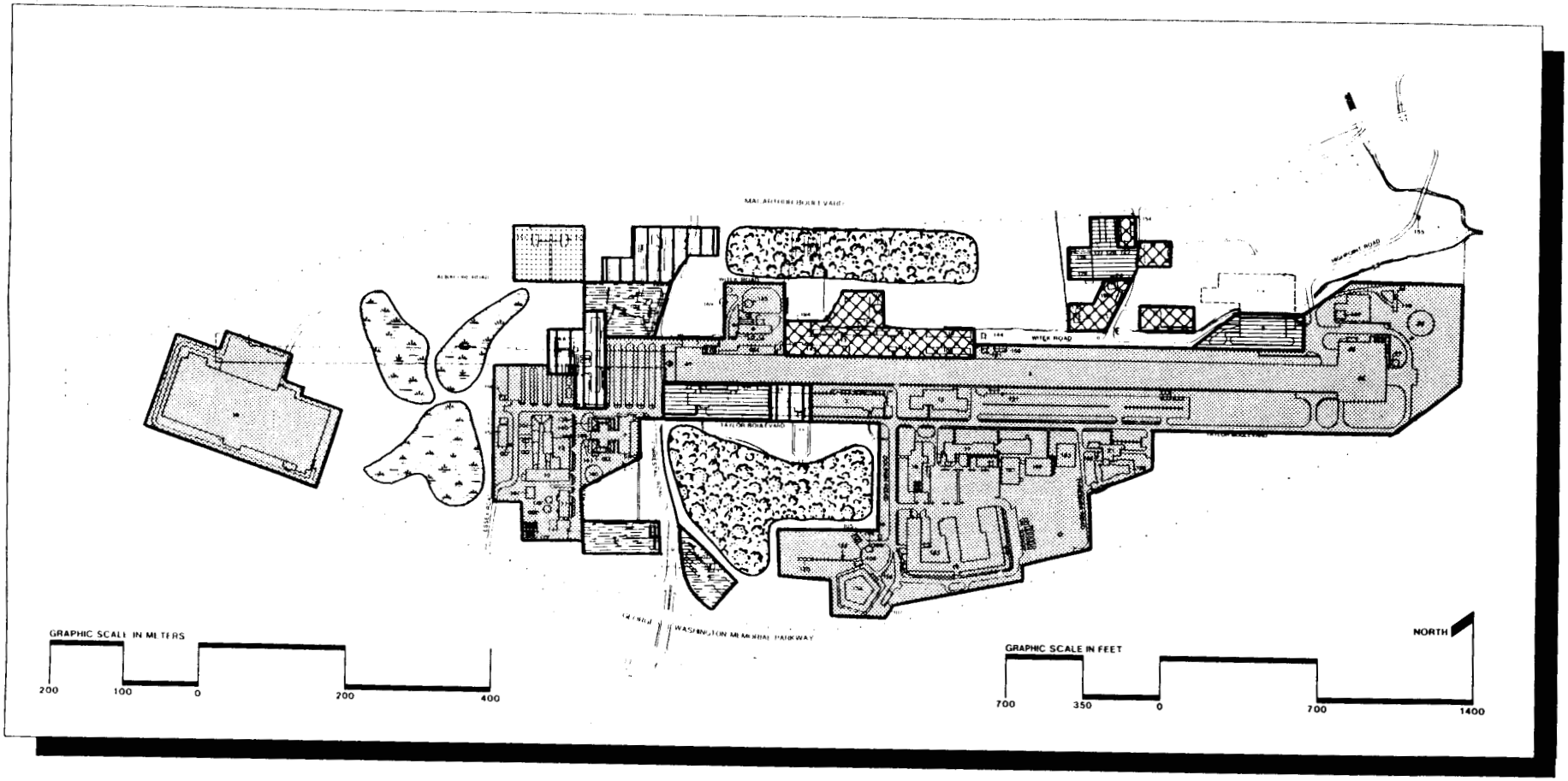

Figure 8 Existing Land Use

- Administration 4.8 Acres
- RDT&E 64.0 Acres
- Supply 5.3 Acres
- Maintenance 4.0 Acres
- Housing 1.4 Acres
- Community Facilities 4.9 Acres
- Open Space 75.0 Acres
- Recreation 14.6 Acres
- Wetland (Swamp) 9.6 Acres

APPENDIX 3

DATA CALL # 33
CARDEROCK 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

D.K. Kruse; Captain, USN
NAME (Please type or print)

D.K. Kruse
Signature

Commander
Title

6/3/94
Date

Carderock Division; NSWC
Activity

DATA CALL #33
CARDEROCK 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)

D. K. Kruse; Captain, USN
NAME (Please type or print)

Signature

Commander
Title

6/3/94
Date

Carderock Division, USN
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)

D. P. Sargent, Jr.; RADM (Sel), USN
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

Commander
Title

6/7/94
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)

P. W. DRENNON
NAME (Please type or print)

Signature

ACTING
Title

6/24/94
Date

Activity

Document Separator

CAPACITY ANALYSIS:
DATA CALL #4 WORK SHEET FOR
TECHNICAL CENTER or LABORATORY: **Carderock Site**
Carderock Division
Naval Surface Warfare Center

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8. Depot Level Maintenance Capacity	50
9. Ordnance Storage Capacity	50

TAB A: Ship Berthing Capacity
TAB B: Operational Airfield Capacity
TAB C: Depot Level Maintenance Capacity
TAB D: Ordnance Storage Capacity

**********There are no classified responses. **********

10 May 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 Carderock Site (UIC 00167)

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	167,342	160,923	21,560	1,915	1,963	119
87	164,708	136,567	47,586	1,963	1,838	109
88	182,526	152,844	52,996	1,849	1,857	144
89	176,547	170,467	93,987	1,863	1,828	168
90	171,260	205,685	20,108	1,834	1,861	186
91	164,696	195,537	51,687	1,829	1,760	170
92	187,943	202,795	54,588	1,696	1,746	136
93	194,107	250,907	73,822	1,519	1,696	133
94	195,316			1,405		
95	212,632			1,362		
96	240,925			1,322		
97	218,467			1,425		

*See notes for Tables 1.1 and 1.2.

Table 1.2 Historical and Projected Workload for Detachments of Carderock Site (UIC 00167)

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	23,890	22,974	1,156	181	185	43
87	24,326	20,170	9,226	200	187	42
88	22,093	18,500	24,769	199	200	45
89	20,223	19,527	26,359	200	196	44
90	23,899	28,703	25,110	194	197	57
91	33,072	39,265	6,308	200	192	54
92	40,148	43,321	9,897	251	258	61
93	31,869	52,536	10,239	237	265	77
94	29,481			251		
95	29,855			238		
96	31,686			228		
97	29,520			216		

Note: This table includes Actual Onsite Contractor Workyears for Detachments of Carderock-based codes.

NOTES FOR TABLES 1.1 AND 1.2

1. Funds budgeted and received for the fiscal year are reflected in the table.
2. Budgeted funds and budgeted workyears are as reflected in the President's budget for FY90 to FY95.
3. President's budgets are not available prior to FY90. The Division A-11 Budget submission was used for the budgeted funds and budgeted workyears.
4. FY96 and FY97 budget funds and workyears are the latest projections. Budgeted funds will change from the amount shown per NSWC review.
5. The Ft. Lauderdale and White Oak realignments are scheduled for FY94 and FY95, respectively; these are not reflected in the data.
6. FY93 and prior budget data for both budgeted funds and budgeted workyears are not available by site. The Division's budgeted data were broken down by site using the ratio of actual funds and workyears for the site compared to the total actual Division funds and workyears.
7. Table 1.2 includes data for those detachments shown in the chart below.
8. Budgeted and actual workyears include both civilian and military.
9. Projected funding for FY94 exceeds the President's budget by $160,823K.
10. The Carderock Division management information system tracks funding and labor (work years) according to organizational code. Because a number of organizational codes are split across the Carderock and Annapolis Sites, actual funding and actual work year data are somewhat inaccurate, while budget information for FY94-97 have been computed to reflect BRAC91 realignment guidance. In addition, funds managed at one site may be executed at the other site. It is not possible to reconstruct the funding information. An estimate of the correct work years may be made by subtracting 107 work years from the Carderock Site and adding it to the Annapolis Site. This correction addresses only the error due to split codes. An additional number of work years should also be added to Annapolis due to cross-servicing of project funding; however, this varies from year to year and is not easily represented by a single number.

CARDEROCK DIVISION DETACHMENTS/REMOTE SITES*

Name: Location: UIC: Host:	Acoustic Trials Detachment Cape Canaveral, FL 30025 None (leased)
Name: Location: UIC: Host:	Combatant Craft Department Suffolk, VA 00167 None (leased)
Name: Location: UIC: Host:	Underwater Explosions Research Detachment Norfolk, VA 30018 Naval Base, Norfolk, VA
Name: Location: UIC: Host:	Surface Effect Ship Support Patuxent River, MD 45705 (Boathouse), 46007 (Ship) Naval Air Station, Patuxent, MD
Name: Location: UIC: Host:	Puget Sound Detachment Bremerton, WA 30492 Puget Sound Naval Shipyard, Bremerton, WA
Name: Location: UIC: Host:	Santa Cruz Radar Imaging Facility Santa Cruz Island, CA 00167 Naval Air Weapons Station, Point Mugu, CA
Name: Location: UIC: Host:	Memphis Detachment, Large Cavitation Channel Memphis, TN 48381 None (owned)
Name: Location: UIC: Host:	Southeast Alaska Acoustic Measurement Facility Ketchikan, AK 30492 Class 2--owned/Class 1--leased from Forest Service
Name: Location: UIC: Host:	Fox Island Acoustic Range Carr Inlet/Bremerton, WA 30492 None (owned)
Name: Location: UIC: Host:	Santa Cruz Acoustic Range Facility Santa Cruz Island, CA 00167 Class 2--owned/Class 1--contractor leased/operated

TABLE 1.3 FY 1993 BREAKOUT OF FUNDS BUDGETED for Carderock Site (UIC 00167)

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
CNO															
ONR	2,983	43,409	1,712		1,619	718	6,774	710							
NISHQ									2,530		73				
AIR				673	619			270	1,490	127				10	395
NSEA			293	41,753	9,319	264	378	1,639	10,004		7,618	430	19,171	1,398	248
FACHQ									1,280						
MSCHQ														157	
CMC			100	2,576			25								
SPAW				806		135	78		130						
CINCLANT									2,235						
CINCPAC									1,234						
ONAV	128	5,958	1,149	44,203	1,094	1,567	475	276	3,781	1,850	2,003	190	387	2,877	418
ODOD	50	1,554		568	538	9,786	188								1,981
OGVT															1,127
PRIV															3,376
TOTAL	3,161	50,921	3,254	90,579	13,189	12,470	7,918	2,895	22,684	1,977	9,694	620	19,558	4,442	7,545

See notes to Tables 1.3 and 1.4

TABLE 1.3 FY 1994 BREAKOUT OF FUNDS BUDGETED for Carderock Site (UIC 00167)

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
CNO														1,491	
ONR	2,171	21,206	518	38		1,604	15,104								
NISHQ		566			319				203						
AIR															
NSEA			1,229	36,873	36,650	16,904	277	849	7,643		2,383		3,970	619	
FACHQ															
MSCHQ															
CMC		2,589		635			189	31						201	
SPAW				236		374	126								
CINCLANT															
CINCPAC															
ONAV		911	6	15,648	148	8	9	1,068	5,920		170		1,518	3,114	
ODOD		69		9,984	11	456	31	42	7						17
OGVT															489
PRIV															692
TOTAL	2,171	25,341	1,753	63,414	37,128	19,346	15,736	1,990	13,773		2,553		5,488	5,425	1,198

See notes to Tables 1.3 and 1.4

TABLE 1.3 FY 1995 BREAKOUT OF FUNDS BUDGETED for Carderock Site (UIC 00167)

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
CNO														3,256	
ONR	2,384	25,823	711			74	17,004								
NISHQ									3,151		1,391				
AIR		194			312				207						
NSEA			3,171	30,422	60,113	212	861		11,946		3,599		10,982	481	
FACHQ															
MSCHQ															
CMC		2,759	1,284	1,211											
SPAW				258		76	129								
CINCLANT									317						
CINCPAC									297						
ONAV		4,328	9,817	475	475	10			2,710		404			941	145
ODOD		194		7,332		517	807								517
OGVT															692
PRIV															643
TOTAL	2,384	33,298	14,983	39,698	60,900	889	18,801		18,628		5,394		10,982	4,678	1,997

R

See notes to Tables 1.3 and 1.4

TABLE 1.3 FY 1995 BREAKOUT OF FUNDS BUDGETED for Carderock Site (UIC 00167)

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
CNO														3,256	
ONR	2,384	25,823	711			74	17,004								
NISHQ									3,151		1,391				
AIR		194			312				207						
NSEA			3,171	30,422	60,113	212	861		11,946		3,599		10,982	481	
FACHQ															
MSCHQ															
CMC		2,759	1,284	1,211											
SPAW				258		76	129								
CINCLANT									317						
CINCPAC									297						
ONAV		4,333	9,829	475	475	10			2,710		404			941	145
ODOD		194		7,332		517	807								517
OGVT															692
PRIV															643
TOTAL	2,384	33,298	14,983	39,698	60,900	889	18,801		18,628		5,394		10,982	4,678	1,997

See notes to Tables 1.3 and 1.4

TABLE 1.3 FY 1996 BREAKOUT OF FUNDS BUDGETED for Carderock Site (UIC 00167)

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
CNO														26,644	
ONR	1,150	27,501	332			73	19,572								
NISHQ									3,551		1,966				
AIR		586			126				213						
NSEA			3,884	24,903	56,366		281	515	9,283		5,476		10,964	3,158	
FACHQ															
MSCHQ														40	
CMC		6,089	1,188	1,377											
SPAW				266		81	133								
CINCLANT									17						
CINCPAC									241						
ONAV		4,588	10,330	1,209	1,290	10			2,211		565			1,163	
ODOD		233		9,544		100	665	66	332		332		499		565
OGVT															741
PRIV															506
TOTAL	1,150	38,997	15,734	37,299	57,782	264	20,651	581	15,848		8,339		11,463	31,005	1,812

See notes to Tables 1.3 and 1.4

TABLE 1.3 FY 1997 BREAKOUT OF FUNDS BUDGETED for Carderock Site (UIC 00167)

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
CNO															
ONR	2,973	42,446	293	965	953	84	4,646	1,158	256						
NISHQ									2,414		209				
AIR		220		293	402			234							
NSEA			5,506	38,290	51,331		916	92	9,867		2,491		14,302	591	
FACHQ															
MSCHQ														44	
CMC		1,110	366	550			275								
SPAW				293		92	147								
CINCLANT									159						
CINCPAC									118						
ONAV		5,510	8,382	1,458	1,458	159			2,274		403			8,813	
ODOD		256		1,172		733	586								806
OGVT															887
PRIV															1,484
TOTAL	2,973	49,542	14,547	43,021	54,144	1,068	6,570	1,250	15,322		3,103		14,302	9,448	3,177

See notes to Tables 1.3 and 1.4

TABLE 1.4 FY 1993 BREAKOUT OF FUNDS BUDGETED for DETACHMENTS of Carderock Site (UIC 00167)

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
CNO															
ONR	60	26	58												
NISHQ															
AIR															
NSEA			1,427	1,710	6,112			703	10,949		14,230		6,940	35	2,019
FACHQ															
MSCHQ															
CMC															
SPAW															
CINCLANT									1,007						
CINCPAC															
ONAV			2,167	128	60				763	15			80		435
ODOD		75		890		1,288									923
OGVT															280
PRIV															156
TOTAL	60	101	3,652	2,728	6,172	1,288		703	12,719	15	14,230		7,020	35	3,813

See notes to Tables 1.3 and 1.4

TABLE 1.4 FY 1994 BREAKOUT OF FUNDS BUDGETED for DETACHMENTS of Carderock Site (UIC 00167)

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
CNO															
ONR	124	57				11									
NISHQ															
AIR															
NSEA			1,240	396	4,438			400	6,801		4,569		5,207		1,092
FACHQ															
MSCHQ															
CMC															
SPAW															
CINCLANT									315						
CINCPAC									473						
ONAV			234	525					143					693	
ODOD			20					1,465	238						691
OGVT															119
PRIV															230
TOTAL	124	57	1,494	921	4,438	11		1,865	7,970		4,569		5,207	693	2,132

See notes to Tables 1.3 and 1.4

TABLE 1.4 FY 1995 BREAKOUT OF FUNDS BUDGETED for DETACHMENTS of Carderock Site (UIC 00167)

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
CNO															
ONR	309	173													
NISHQ															
AIR															
NSEA			1,622	487	4,188		492		9,753		2,369		4,883	251	
FACHQ															
MSCHQ															
CMC															
SPAW															
CINCLANT									232						
CINCPAC									347						
ONAV				892					1,105					342	153
ODOD			72			475	814								690
OGVT															141
PRIV															65
TOTAL	309	173	1,694	1,379	4,188	475	1,306		11,437		2,369		4,883	593	1,049

See notes to Tables 1.3 and 1.4

TABLE 1.4 FY 1996 BREAKOUT OF FUNDS BUDGETED for DETACHMENTS of Carderock Site (UIC 00167)

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
CNO															
ONR	314	223													
NISHQ															
AIR															
NSEA			1,576	551	5,605			595	9,561		2,078		4,607	240	40
FACHQ															
MSCHQ															
CMC															
SPAW															
CINCLANT									282						
CINCPAC									423						
ONAV				999					306					1,552	
ODOD			80					1,825	410						239
OGVT															105
PRIV															75
TOTAL	314	223	1,656	1,550	5,605			2,420	10,982		2,078		4,607	1,792	459

See notes to Tables 1.3 and 1.4

TABLE 1.4 FY 1997 BREAKOUT OF FUNDS BUDGETED for DETACHMENTS of Carderock Site (UIC 00167)

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
CNO															
ONR	321	237													
NISHQ															
AIR															
NSEA			1,277	492	5,789			724	8,919		2.281		2,312	244	44
FACHQ															
MSCHQ															
CMC															
SPAW															
CINCLANT									317						
CINCPAC									476						
ONAV				1,113					333					1,564	
ODOD			88					2,017	526						263
OGVT															106
PRIV															77
TOTAL	321	237	1,365	1,605	5,789			2,741	10,571		2,281		2,312	1,808	490

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See notes to Tables 1.3 and 1.4

TABLE 1.4 FY 1997 BREAKOUT OF FUNDS BUDGETED for DETACHMENTS of Carderock Site (UIC 00167)

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
CNO															
ONR	321	237													
NISHQ															
AIR															
NSEA			1,277	492	5,789			724	8,919		2,281		2,312	244	44
FACHQ															
MSCHQ															
CMC															
SPAW															
CINCLANT									317						
CINCPAC									476						
ONAV				1,113					333					1,564	
ODOD			88					2,017	526					263	
OGVT														106	
PRIV														77	
TOTAL	321	237	1,365	1,605	5,789			2,741	10,571		2,281		2,312	1,808	490

See notes to Tables 1.3 and 1.4

R

NOTES FOR TABLES 1.3 AND 1.4

1. FY93 information represents actual performance.
2. For FY94 and FY95, the data were adjusted to the President's Budget.
3. Because the President's Budget was not available, FY96 and FY97 totals were adjusted on a percentage of total funds to the funding level projections used in FY96/97 A-11 SUBMISSION.
4. FY96 reflects the move of the Materials and Processing Technology functions (Code 60) from Annapolis to Carderock.

NOTES FOR TABLES 1.3 AND 1.4

1. FY93 information represents actual performance.
2. For FY94 and FY95, the data were adjusted to the President's Budget.
3. Because the President's Budget was not available, FY96 and FY97 totals were reduced based on a percentage of total funds to the funding level projections used in FY96/97 A-11 SUBMISSION.
4. FY96 reflects the move of the Materials and Processing Technology functions (Code 60) from Annapolis to Carderock.

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.

Table 2.1 Main Site Class 2 Assets of Carderock Site (UIC 00167)

Building type	NAVFAC (P-80) category code	Gross Floor/Building Area (KSF)			
		Adequate	Sub-standard	In-adequate	Total
Operational & Training	100	17.4	0	2.4	19.8
Maintenance & Production	200	5.2	8.5	25.3	39.0
Science labs	310	82.5	0	0	82.5
Aircraft labs	311	77.3	2.6	0	79.9
Missile and Space labs	312				
Ship and Marine labs	313	928.3	1.4	1.0	930.6
Ground Transportation labs	314				
Weapon and Weapon Systems labs	315				
Ammunition, Explosives, & Toxics labs	316				
Electrical Equip. labs	317	34.5	0	0	34.5
Propulsion labs	318				
Miscellaneous labs	319	16.4	0	5.2	21.6
Underwater Equip. labs	320	83.4	0	4.0	87.4
Technical Services labs	321	75.8	0	0.8	76.6
Supply Facilities	400	9.2	23.7	13.1	46.0
Hospital & other Medical	500	1.3	0	0	1.3
Administrative Facilities	600	48.5	36.7	3.1	88.3
Housing & Community	700	19.0	0.01	0	19.1
Utilities & Grounds	800	6.4	0	0	6.4
Other					
	Total	1,405.2	72.9	54.9	1,533.0

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: **Maintenance and Production/ 219-10, 219-20, 219-77**

(2) WHAT MAKES IT INADEQUATE?
A12 = Physical Condition; Building or Structure
B30 = Functional or Space Criteria; Building or Structure
F30 = Total Obsolescence or Deterioration; Building or Structure

(3) WHAT USE IS BEING MADE OF THE FACILITY?
PW Maintenance /Storage
Pavement/Grounds Equipment Shed
PW Shop

(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
Not tabulated; trailers scheduled for future demolition

(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
Unknown; trailers - None

(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING: **None**

(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP? **No**

(1)FACILITY TYPE/CODE: **Ship and Marine Labs/ 313-10**

(2) WHAT MAKES IT INADEQUATE?
A30 = Physical Condition; Building or Structure
B30 = Functional or Space Criteria; Building or Structure

(3) WHAT USE IS BEING MADE OF THE FACILITY? **Ship and Marine Lab**

(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
Not tabulated; trailer scheduled for future demolition

(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
Unknown; trailers - None

(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING: **None**

(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP? **No**

(1) FACILITY TYPE/CODE: **Miscellaneous Labs/ 319-15**

(2) WHAT MAKES IT INADEQUATE?

A12 = Physical Condition; Wiring/Feeders
F30 = Total Obsolescence or Deterioration;
Building or Structure

(3) WHAT USE IS BEING MADE OF THE FACILITY? **RDT&E Storage Lab**

(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?

Not tabulated

(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?

B109 Unknown; B125 Model Preparation/$260K

(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:

B109 None;
B125 Renovation is being funded by the program sponsor. The CCN will be changed from 319-15 to 321-10 (Technical Services Lab) to be used for model preparation. B125 was the best option to meet the sponsor's requirements for the work to be done on Navy property to ensure maximum security and control of classified work on large models. This renovation will not be fully adequate for the new function, but was economically the best solution.

(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP? **No**

(1) FACILITY TYPE/CODE: **Underwater Equipment Labs/ 320-10**

(2) WHAT MAKES IT INADEQUATE?

A12 = Physical Condition; Wiring/Feeders
A30 = Physical Condition; Building or Structure
B30 = Functional or Space Criteria;
Building or Structure
F30 = Total Obsolescence or Deterioration;
Building or Structure

(3) WHAT USE IS BEING MADE OF THE FACILITY? **Underwater Equipment Lab**

(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?

Not tabulated; trailer scheduled for future demolition

(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?

Unknown; trailers - None

(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING: **None**

(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP? **No**

(1) FACILITY TYPE/CODE: **Technical Service Labs/ 321-10**
(2) WHAT MAKES IT INADEQUATE?
A12 = Physical Condition; Wiring/FeedersA30 = Physical Condition; Building or Structure
F30 = Total Obsolescence or Deterioration;
Building or Structure
(3) WHAT USE IS BEING MADE OF THE FACILITY? **Sand Blast Shed**
(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
Not tabulated
(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
Unknown
(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:
Replacement; $290K MILCON
(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP? **No**

(1) FACILITY TYPE/CODE: **Supply Facilities/ 441-10**
(2) WHAT MAKES IT INADEQUATE?
A12 = Physical Condition; Wiring/FeedersA30 = Physical Condition; Building or Structure
F30 = Total Obsolescence or Deterioration;
Building or Structure
(3) WHAT USE IS BEING MADE OF THE FACILITY? **General Warehouse**
(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
Not tabulated
(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
Unknown
(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING: **None**
(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP? **No**

(1) FACILITY TYPE/CODE: **Administrative Facilities/ 610-10**

(2) WHAT MAKES IT INADEQUATE?

A30 = Physical Condition; Building or Structure
B30 = Functional or Space Criteria;
Building or Structure
F30 = Total Obsolescence or Deterioration;
Building or Structure

(3) WHAT USE IS BEING MADE OF THE FACILITY? **Administrative Offices**

(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?

Not tabulated; trailer scheduled for future demolition

(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?

Unknown; trailers - None

(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING:

None

(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP? **No**

Table 2.2 Main Site Class 2 Space of Carderock Site (UIC 00167) Assigned to Tenants

TENANT		NAVFAC (P-80) Category Code	GF/BA Assigned (KSF)
Name	UIC		
Naval Publication and Printing Service Office	43627	610-10	2.4
Personnel Activities Support Services Office	00171	610-10	1.8
Naval Medical Clinic	00168	550-10	1.0
Defense Finance and Accounting Service	00167	610-10	2.1
Hydrodynamic/Hydroacoustic Technology Center	00024	310-33	4.2
		Total:	13.7

Table 2.3 Class 2 Space Utilized/Leased by Carderock Site* (UIC 00167)

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				

* Carderock Division, NSWC, does not lease any Class 2 space for use by the Carderock Site.

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.

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.

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 Carderock Site Occupied by Detachments[1]

Building type	NAVFAC (P-80) category code	GF/BA (KSF)			
		Adequate	Sub-standard	In-adequate	Total
Operational & Training	100	7.5	0	0	7.5
Maintenance & Production	200	0	8.5	9.5	18.0
Science labs	310				
Aircraft labs	311				
Missile and Space labs	312				
Ship and Marine labs	313	122.4	209	0	331.4
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	100.9	7.5	0	108.4
Underwater Equip. labs	320	20.3	0	0	20.3
Technical Services labs	321	0	0.5	0	0.5
Supply Facilities	400	0	3.8	0	3.8
Hospital & other Medical	500				
Administrative Facilities	600	2.5	17.8	0	20.3
Housing & Community	700	0.4	13.1	0	13.5
Utilities & Grounds	800	5.8	5.0	0.7	11.5
Other					
	Totals	259.8	265.2	10.2	535.2

[1] Fox Island Acoustic Measurement Facility (UIC 30492)
Southeast Alaska Acoustic Measurement Facility (UIC 30492)
Memphis Detachment Large Cavitation Channel (UIC 48381)
Not officially in the naval facilities assets data base (NFADB)

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: **Maintenance and Production/ 200**
(2) WHAT MAKES IT INADEQUATE?
A30 = Physical Condition; Building or Structure
F30 = Total Obsolescence or Deterioration;
Building or Structure
(3)WHAT USE IS BEING MADE OF THE FACILITY?
Forge and Heat Treat Shop--Memphis Site
Maintenance Storage (vacant)--Memphis Site
(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
Not tabulated
(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
Unknown
(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING: **None**
(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP? **No**

(1) FACILITY TYPE/CODE: **Utilities and Grounds/ 800**
(2) WHAT MAKES IT INADEQUATE?
F30 = Total Obsolescence or Deterioration;
Building or Structure
(3) WHAT USE IS BEING MADE OF THE FACILITY?
Generator Building (vacant)--Memphis Site
(4) WHAT IS THE COST TO UPGRADE THE FACILITY TO SUBSTANDARD?
Not tabulated
(5) WHAT OTHER USE COULD BE MADE OF THE FACILITY AND AT WHAT COST?
Unknown
(6) CURRENT IMPROVEMENT PLANS AND PROGRAMMED FUNDING: **None**
(7) HAS THIS FACILITY CONDITION RESULTED IN C3 OR C4 DESIGNATION ON YOUR BASEREP? **No**

Table 2.5 Class 2 Space at Detachment Sites of Carderock Site* (UIC 00167) Assigned to Tenants

TENANT		NAVFAC (P-80) Category Code	GF/BA (KSF) Assigned
Name	UIC		
		Total:	

* There is no Class 2 space at Detachment sites assigned to tenants.

Table 2.6 Class 2 Space Utilized/Leased by Detachments* of Carderock Site (UIC 00167)

Building type	NAVFAC (P-80) category code	GF/BA (KSF)			
		Adequate	Sub-standard	In-adequate	Total-adequateTota
Operational & Training	100	0.3	0	0	0.3
Maintenance & Production	200				
Science labs	310				
Aircraft labs	311				
Missile and Space labs	312				
Ship and Marine labs[1]	313	73.2	0	0	73.2
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 [1,2]	319	22.2	0	0	22.2
Underwater Equip. labs [2]	320	14.3	0	0	14.3
Technical Services labs	321				
Supply Facilities	400				
Hospital & other Medical	500				
Administrative Facilities	600	16.9	0	0	16.9
Housing & Community	700				
Utilities & Grounds	800				
Other[3]		5.5	0	0	5.5
	Totals	132.4			132.4

* Detachments include:
Acoustic Trials Detachment, Cape Canaveral, FL, (lease)
Combatant Craft Department, Suffolk, VA, (lease)
Underwater Explosions Research Detachment, Norfolk, VA
Surface Effect Ship Support Office, Patuxent River, MD
Puget Sound Detachment, Bremerton, WA
Santa Cruz Radar Imaging Facility, Santa Cruz Island, CA

[1] Combatant Craft Department leases 18.6 KSF of RDT&E laboratory and associated space and 3.6 KSF of RDT&E storage space at an annual estimated cost of $383,048. There is no host-tenant agreement.

[2] Acoustic Trials Detachment leases 5 KSF of secured warehouse space and 12.5 KSF of RDT&E laboratory and associated space at an annual cost of $86,166.

[3] This facility is under CCN 371-17 Electronic, Communication, and Electrical System Range Facility. It is considered to be equipment in support of CCN 317-15 Detection System Laboratory. The unit of measure for CCN 371-17 is "each." It is estimated that 5.5 KSF of building space is occupied at this facility.

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 under utilized storage space into laboratory spaces, or buildout of a high bay area into a multi-floor 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 Gross Floor Area (GFA) 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 Gross Floor Area" as shown in Tables 3.1 & 3.2. -- **557.1K 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 GFA " as shown in Tables 3.1 & 3.2. -- **10.9K 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 GFA (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.

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 Gross Floor Area (GFA) 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.

Carderock Site

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 GFA" as shown in Tables 3.1 & 3.2.: **557,100 SQFT** R

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 GFA" as shown in Tables 3.1 & 3.2.: **10,900 SQFT** R

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 GFA (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.

See Table 3.1

Table 3.1 Constrained Class 2 Space Available for Expansion at Carderock Division, NSWC, Bethesda Site (UIC 00167)

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		
1 (321)	77.8	18.7	70	20	2,057
3 (313)	79.4	12.0	45	20	1,320
4 (313)	486.4	14.8	40	30	1,151
12 (311)	20.8	40.0	150	40	5,648
15 (320)	25.9	4.6	17	N/A	506
17 (310)	65.2	10.9*	41	N/A	654
18 (313)	263.9	15.2	57	N/A	1,672
19 (313)	122.3	8.4	28	30	924
Totals	---	124.6	448		13,932

* Reconfiguration

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.

See Table 3.2

Table 3.2 Unconstrained Class 2 Space Available for Expansion at Carderock Site (UIC 00167)

Building # / Category Code (3 digit)	Current GFA (KSF)	Additional Capacity Provided By Expansion		Height of High Bay (FT)	Estimated Cost of Rehab ($K's)
		GFA (KSF)	# of Personnel		
CCN 310	0	175.0	433	N/A	28,000
CCN 310	0	87.5	216	N/A	14,000
CCN 313	0	20.0	50	N/A	3,200
CCN 313[1]	0	60.0	149	N/A	9,600
CCN 313[2]	0	90.0	222	N/A	14,400
Totals	0	432.5	1,070		69,200

[1] Soil constraints: Madeland Series has surface and subsurface soils removed due to machine grading. Construction is not recommended unless necessary land preparations are made.
[2] Soil constraints: Calvert Series has poor drainage; Madeland Series has surface and subsurface soils removed due to grading. Construction is not recommended unless necessary land preparations are made.

Memphis Site

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 GFA" as shown in Tables 3.1 & 3.2.: **220,700 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 GFA" as shown in Tables 3.1 & 3.2.: **216,400 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 GFA (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.

See Table 3.1

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.

See Table 3.2

* A non-relocatable major test facility (Large Cavitation Channel) is located at the Memphis site. See Data Call #5 for the technical functions of this facility. Any expansion is constrained by the low ambient noise requirements for the operation of the Large Cavitation Channel.

Table 3.1 Constrained Class 2 Space Available for Expansion at Carderock Division, Memphis Site[1] (UIC 00167)

Building # / Category Code (3 digit)	Current GFA (KSF)	Additional Capacity Provided By Expansion		Height of High Bay (FT)	Estimated Cost of Rehab ($K's)
		GFA (KSF)	# of Personnel		
1 (313)	199.4	199.4**	0[2]	108[3]	0
2 (610)	4.6	4.6*	17	N/A	276
5 (740)	4.3	8.6	32	N/A	946
6 (441)	5.0	5.0**	0	N/A	0
20 (610)	2.4	2.4*	9	N/A	144
21 (441)	5.0	5.0**	0	N/A	0
Total	220.7	225.0	49		1,366

* Reconfiguration

** Available for immediate use.

1 Any expansion is constrained by the low ambient noise requirements for the operation of the Large Cavitation Channel.

2 Space available for storage only.

3 High bay ceilings vary in height.

Table 3.2 Unconstrained Class 2 Space Available for Expansion at Carderock Division, Memphis Site[1] (UIC 00167)

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		
CCN 610	0	450.0	1,688	N/A	72,000
CCN 610	0	64.8	243	N/A	10,386
CCN 441	0	300.0	10	N/A	15,000
CCN 441	0	14.4	4	N/A	720
CCN 441	0	7.2	2	N/A	360
Totals	0	836.4	1,947		98,466

[1] Any expansion is constrained by the low ambient noise requirements for the operation of the Large Cavitation Channel.

4. Class 1 Space Available for Expansion

Carderock Site

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).

See Table 4.1

b. Are there any constraints such as parking, utilities, legal restrictions that limit the potential for using Undeveloped land for expansion?

Limiting constraints include the preservation of the wetlands, environmental clean-up, security requirements, and the explosive safety arc.

c. Explain the radio frequency constraints/opportunities within your Class 1 holdings.

There are no radio frequency constraints at the Carderock (Bethesda) Site, except that no RF transmissions may be made in the immediate area of the explosives test pond, without prior coordination when testing is being conducted.

Only those frequencies that have been approved for use by CNO/NAVEMSCEN can be utilized at the Carderock site and its detachments.

Table 4.1 Class 1 Resources of Carderock Site (UIC 00167)
Site Location: Bethesda, MD

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	2.0	2.0	0	0
Operational	0.3	0.3	0	0
Training	0.2	0.2	0	0
R & D	80.4	35.2	1.0 (arc)	44.2
Supply & Storage	5.0	2.0	0	3.0
Admin	5.4	5.4	0	0
Recreational	15.8	1.1	0	14.7
Navy Forestry Program				
Navy Agricultural Outlease Program				
Hunting/Fishing Programs				
Other	77.4	10.6	30.6*	36.2
Total:	186.5	56.8	31.6	98.1

* Other restricted areas include

Wetlands	9.6 acres
Flood Plain	5
>15% Slope	2
Hazardous Waste (IR Sites)	3
Security Perimeter	11
Total	30.6 acres

d. Of the total Unrestricted Acres reported above, how much of it has existing roads and/or utilities that could support expansion efforts? **3.6 acres of road**

The 3.6 acres of road are approximately the 1.7 miles that make up the main artery of the road system to either end of the base. New roads will need to be built to connect new buildings to the existing road system. Additional utility lines will also need to be installed to tie the utilities into the existing systems. The main utility lines can handle some expansion without upgrades to the system.

Memphis Site

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).

See Table 4.1

b. Are there any constraints such as parking, utilities, legal restrictions that limit the potential for using Undeveloped land for expansion?

Limiting constraint is a low ambient noise requirement for the operation of the Large Cavitation Channel. Environmental remediation is ongoing but should not interfere with any expansion plans.

c. Explain the radio frequency constraints/opportunities within your Class 1 holdings.

Only those frequencies that have been approved for use by CNO/NAVEMSCEN can be utilized at the Carderock site and its detachments.

Table 4.1 Class 1 Resources of Carderock Division, Memphis Site (UIC 00167)
Site Location: Memphis, TN

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	0.2	0.2	0	0
Operational	0.1	0.1	0	0
Training				0
R & D	15.2	15.2	0	0
Supply & Storage	11.0	4.6	6.4*	0
Admin	0.7	0.7	0	0
Recreational	0.3	0.3	0	0
Navy Forestry Program				
Navy Agricultural Outlease Program				
Hunting/Fishing Programs				
Other	64.1	7.8	1.7**	54.6
Total:	91.6	28.9	8.1	54.6

* Noise restriction to minimize interference with acoustic testing in the Large Cavitation Channel.
** Other restricted areas include
Security Perimeter 1.7 acres

d. Of the total Unrestricted Acres reported above, how much of it has existing roads and/or utilities that could support expansion efforts? **0 acres of road**

New roads will have to be built to access any new buildings. Additional utility lines will also need to be installed to tie the utilities into the existing systems. The main utility lines can handle expansion without upgrades to the system.

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.

R

Table 5.1 Base Infrastructure Capacity & Load

	On Base Capacity	Off base long term contract	Normal Steady State Load	Peak Demand
Electrical Supply (KWH)	82,975 (KVA)[1]	As Required	3,500	7,500
Natural Gas (CFH)[2]	56,000	As Required	1,500	2,200
Sewage (GPD)[2]	833,760	As Required	70,000	220,000
Potable Water (GPD)[2]	6,480,000	As Required	150,000	300,000
Steam (PSI & lbm/Hr)	70PSI 80K lb/Hr	N/A	70 PSI 20K lb/Hr	70 PSI 30K lb/Hr
Long Term Parking	None	None	None	None
Short Term Parking	1,600 spaces	N/A	1,200 spaces[3]	1,400 spaces[3]

1 Current collected load for each of two substations. One serves as a backup.

2 These utilities are purchased from local utility companies. Capacity for sewage and potable water were estimated on general piping and site conditions. There are no known delivery limits for natural gas, sewage, and water. Natural Gas is an interruptible service.

3 Normal steady state and peak loads will increase by about 200 spaces with the relocation of the materials function from the Annapolis Detachment to the Carderock Site at the end of FY96.

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).

Not Applicable.

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?

Not Applicable.

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.

Not Applicable.

CCN	Facility Type	Unit of Measure	Adequate	Substandard	Inadequate	Total	Number of Units
111-20	Landing Pads	SF					
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

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER

TAB C of Data Call #4 is not applicable as there is no depot level maintenance performed at the Carderock site.

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER
Detachments and Remote Sites

TAB C of Data Call #4 is not applicable as there is no depot level maintenance performed at the Carderock site detachments or sites that did not receive this Data Call directly.

Maintenance and Industrial Activities

Activities that actually perform Depot Level Maintenance shoudl 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.

ICSG-DM: Maintenance and Industrial Activities

Refer to the following notes when filling out the tables in this TAB.

Commodity Groups List

1. Aircraft Airframes:
   - Rotary
   - VSTOL
   - Fixed Wing
     - Transport / Tanker / Bomber / Command and Control
     - Light Combat
     - Admin / Training
   - Other
2. Aircraft Components
   - Dynamic Components
   - Aircraft Structures
   - Hydraulic/Pneumatic
   - Instruments
   - Landing Gear
   - Aviation Ordnance
   - Avionics/Electronics
   - APUs
   - Other
3. Engines (Gas Turbine)
   - Aircraft
   - Ship
   - Tank
   - Blades / Vanes (Type 2)
4. Missiles and Missile Components
   - Strategic
   - Tactical / MLRS
5. Amphibians
   - Vehicles
   - Components (less GTE)
6. Ground Combat Vehicles
   - Self-propelled
   - Tanks
   - Towed Combat Vehicles
   - Components (less GTE)
7. Ground and Shipboard Communications and Electronic Equipment
   - Radar
   - Radio Communications
   - Wire Communications
   - Electronic Warfare
   - Navigational Aids
   - Electro-Optics / Night Vision
   - Satellite Control / Space Sensors
8. Automotive / Construction Equipment
9. Tactical Vehicles
   - Tactical Automotive Vehicles
   - Components
10. Ground General Purpose Items
    - Ground Support Equipment (except aircraft)
    - Small Arms / Personal Weapons
    - Munitions / Ordnance
    - Ground Generators
    - Other
11. Sea Systems
    - Ships
    - Weapons Systems
12. Software
    - Tactical Systems
    - Support Equipment
13. Special Interest Items
    - Bearings Refurbishment
    - Calibration (Type I)
    - TMDE
14. Other

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.

26. [12c.] For each Special Use Airspace (SUA) or airspace-for-special-use complete the following table:

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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).

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

Squadron/Detachment	#/Type Aircraft	Hanger Module Assignment

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)	82,975 (KVA)[1]	As Required	3,500	7,500
Natural Gas (CFH)[2]	56,000	As Required	1,500	2,200
Sewage (GPD)[2]	833,760	As Required	70,000[3]	220,000[3]
Potable Water (GPD)[2]	6,480,000	As Required	150,000	300,000
Steam (PSI & lbm/Hr)	70PSI 80K lb/Hr	N/A	70 PSI 20K lb/Hr	70 PSI 30K lb/Hr
Long Term Parking	None	None	None	None
Short Term Parking	1,600 spaces	N/A	1,200 spaces[4]	1,400 spaces[4]

1 Current collected load for each of two substations. One serves as a backup.

2 These utilities are purchased from local utility companies. Capacity for sewage and potable water were estimated on general piping and site conditions. There are no known delivery limits for natural gas, sewage, and water. Natural Gas is an interruptible service.

3 The Carderock Site utilizes two sewage discharge systems. The Washington Suburban Sanitary Commission (WSSC) for approximately 32,000 GPD, and an unlimited amount can be discharged into the D.C. Interceptor Sewer.

4 Normal steady state and peak loads will increase by about 200 spaces with the relocation of the materials function from the Annapolis Detachment to the Carderock Site at the end of FY96.

Note to Table 5.1

Small Minor Construction projects will not significantly affect utility usage (<1%). The BRAC MILCON will increase total square footage of the site by about 10%. Utilities are expected to increase accordingly.

Project: P172S/P-179S, Ships Material Technology Facility

Description:

This facility is a three story building to be used for engineering spaces and materials laboratories. Specifically, it will include laboratories for metals, welding and nondestructive evaluation, and chemical and physical processes. It will also support heavy metal testing devices, manufacturing and assembly processes, full-size prototypes, and chemical and paint laboratories.

Additional Square Footage: 135,000 SQFT

Award Date: 22 March 1994

Construction Start Date: May 1994

BOD: April 1996

Table 5.1 Base Infrastructure Capacity & Load of Carderock Division, Memphis Site
Site Location: Memphis, TN (UIC 00167)

	On Base Capacity	Off base long term contract[1]	Normal Steady State Load	Peak Demand
Electrical Supply (KWH)	12,500	12,500	1,000	9,500
Natural Gas (CFH)	As Required	As Required	12,450	37,305
Sewage (GPD)	1,440,000	1,440,000	4,000	724,000
Potable Water (GPD)	1,440,000	1,440,000	4,000	724,000
Steam (PSI & lbm/Hr)	N/A	N/A	N/A	N/A
Long Term Parking	360[2] spaces	N/A	N/A	360[2]
Short Term Parking	50 spaces	N/A	20 spaces	30 spaces

[1] All utilities are purchased from Memphis Light, Gas, and Water. There is no limit on natural gas. The other on-base capacities are limited by the limits of delivery established by the utility company. These limits can be changed.

[2] An existing parking lot with capacity for 360 spaces is currently not in use. It could be used for either long-term or short-term parking.

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 as ACE.

Table 5.2 Maintenance, Repair & Equipment Expenditure Data for Carderock Site (UIC 00167)

Fiscal Year	MRP ($M)	CPV ($M)	ACE ($M)
1985	4.2	319.8	95
1986	3.7	325.0	103
1987	5.8	329.0	119
1988	5.1	348.7	138
1989	6.8	355.4	142
1990	7.4	418.4	134
1991	6.6	424.3	130
1992	4.5	432.6	137
1993	4.2	449.0	137
1994	4.4	460.2	221
1995	6.8	471.7	237
1996	7.3	509.5	249
1997	7.5	522.3	260

These footnotes refer to values shown in the ACE column:

[1] Dollar value used for 1985 thru 1993 class 3&4 plant property as reported in Divisions Financial statements.

[2] Dollar value used for 1994 includes Philadelphia (NAVSSES) and Memphis (LCC) acquisitions.

[3] Definition of dollar value threshold for class 3&4 changed several times between 1985 and 1993.

[4] Records are not available to breakdown cost by site for prior years. The site breakdown was based on current site locations of class 3&4 property (Apr 94), with computed ratio applied to all prior and future years.

[5] Total dollar value for class 3 and 4 includes Division purchased and sponsor purchased equipment.

Table 5.2 Maintenance, Repair & Equipment Expenditure Data for Carderock Site (UIC 00167)

R

Fiscal Year	MRP ($M)	CPV ($M)	ACE ($M)
1985	4.2	319.8	67
1986	3.7	325.0	73
1987	5.8	329.0	84
1988	5.1	348.7	98
1989	6.8	355.4	101
1990	7.4	418.4	95
1991	6.6	424.3	92
1992	4.5	432.6	97
1993	4.2	449.0	98
1994	4.4	460.2	135
1995	6.8	471.7	144
1996	7.3	509.5	150
1997	7.5	522.3	157

These footnotes refer to values shown in the ACE column:

1 Dollar value used for 1985 thru 1993 class 3&4 plant property as reported in Divisions Financial statements.

2 Dollar value used for 1994 includes Memphis (LCC) acquisitions.

3 Definition of dollar value threshold for class 3&4 changed several times between 1985 and 1993.

4 Records are not available to breakdown cost by site for prior years. The site breakdown was based on current site locations of class 3&4 property (Apr 94), with computed ratio applied to all prior and future years.

5 Total dollar value for class 3 and 4 includes Division purchased and sponsor purchased equipment.

ADDENDUM TO DATA CALL #4, TABLE 5.2

CURRENT PLANT VALUE (CPV) OF CLASS 2 REAL PROPERTY AND ACQUISITION COST OF EQUIPMENT (ACE)

The CPV data contained within Table 5.2 is the Current Plant Value of Class II Real Property as obtained from the NAVFAC P-164 Report dated 09/30/93. The ACE Plant Account Equipment is only that Class III/IV equipment registered in our Central Plant Account records and the value represents the original acquisition cost of the equipment.

Because of the unique nature of experimental facilities located at the Carderock site, and because of specialized built-in features which cannot be adequately estimated using routine estimating techniques, the CPV reflected in the P-164 does not accurately reflect the true replacement value of the facilities. In addition, the Central Plant Account records do not contain much equipment which was acquired after the establishment of the site, but prior to the development of centralized site plant account records.

The table shown below is illustrative of the actual estimated replacement costs of the listed facilities, as developed by the principal organizational custodians and operators of the facilities. As can be seen from this abbreviated list, the estimated replacement value of Classes II, III and IV facilities and equipment is significantly higher than shown from the data in Table 5.2 above.

The data in the table below is representative as of 31 March 1994.

CARDEROCK SITE - CLASS II, III, IV REPLACEMENT ACQUISITION COST ESTIMATE

SITE	MAJOR ASSET DESCRIPTION	CLASS	
		II	III/IV
CARDEROCK		$M	$M
Misc	Laboratories, Offices	325	5
Misc	Industrial Plant, Shops	20	15
Bldg 4	DTMB Towing Tanks	235	650
Bldg 3	12" Water Tunnel	---	1
	24" Water Tunnel	---	3
	140-ft Towing Basin	---	3
Bldg 5	Circulating Water Channel	3	32
Bldg 16	36" Water Tunnel	19	35
Bldg 18	MASK	59	42
	Rotating Arm Facility	33	200
Bldg 7	Subsonic WT-North	4	15
	Subsonic WT-South	3	12
Bldg 21	Anechoic Flow Facility	8	14
Bldg 16	Survivability & Vulnerability Facility	3	32
	Explosive Pond System	1	2
	Carderock Sub-totals	713	1,061
	Carderock Total		1,774
MEMPHIS			
	Docks, Support Systems	4	3
	Industrial Buildings	3	2
	Large Cavitation Channel	32	92
	Memphis Sub-totals	39	97
	Memphis Total		136
SCRIF	SCRIF (equipment) Total		13
SCARF	SCARF (bldg and equip) Total		7
SEAFAC	SEAFAC (bldg and equip) Total		65
FIAL	FIAL (bldg and equip) Total		11
	GRAND TOTAL		2,006

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 and by the Activity. A formal school is a programmed course of instruction for military and/or civilian personnel that has been formally approved by an authorized authority (i.e.: 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.

CCN: 171-10

Type of Training Facility	School	Type of Training	FY 1993 Requirements			FY 2001* Requirements		
			A	B	C	A	B	C
Classroom	Catholic University	S & E Mission Essential	26	36	936	20	36	720
Classroom	George Wash. University	S & E Mission Essential	12	36	432	12	36	432
Classroom	Montgomery College	S & E Mission Essential	25	36	900	32	36	1152
Classroom	Contract	S & E Mission Essential	244	8	1952	300	8	2400
Classroom	Contract	General Management	368	8	2944	200	8	1600
Satellite	VA Consortium	S & E Mission Essential	2	36	72	10	36	360

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

NOTES: S & E - Scientific and Engineering
Courses average 16 attendees
Mandatory courses NOT included (Ethics, Safety, Security)

* Anticipated increase in S&E/professional short courses to replace skills lost in downsizing; decrease in classroom-based general management courses as expert automated systems are used.

(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.

(3) Describe how the Student HRS/YR value in the preceding table was derived.

Classrooms are available for instruction 240 days per year.

CCN: 171-10

Type Training Facility/CCN	Total Number	Design Capacity (PN)[1]	Capacity (Student HRS/YR)
Bldg. 11 (171-10)	1	16	30,720
Bldg. 11 (171-10)	1	20	38,400
Bldg. 102 (171-10)*	1	50	96,000
Bldg. 102 (171-10)*	1	15	28,800
Auditorium (171-10)	1	168	322,560

* Facility to be demolished . Equivalent capacity new facility will be available June/July 1994 timeframe.

[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.

SEE TAB A

7. Operational Airfield Capacity. If your activity owns and operates an operational airfield fill out the data sheets provided at TAB B.

NONE

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.

NONE

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.

SEE TAB D

TAB A

SHIP BERTHING CAPACITY

Note: Question numbers in [ ]'s are for internal BSAT purposes.

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER

TAB A of Data Call #4 is not applicable to the Carderock site as there is no ship berthing capacity.

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER
Detachments and Remote Sites

SEE TAB A

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.
C - 24 1969	151-20	12 ft	N/A	N/A	12 ft	N	0	0
(no name) 1991	151-20	80 ft	N/A	N/A	16 ft	N	0	0

[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.

NOTES:

1. Pier C-24 is located at Fox Island Acoustic Laboratory (FIAL). The second pier is located at Southeast Alaska Acoustic Measurement Facility (SEAFAC). Both piers are special purpose service piers used to transport personnel and equipment from shore to research vessels on the water.
2. Dredge Depth is Not Applicable (N/A) for service piers.
3. Slip Width is Not Applicable (N/A). Neither pier has any adjacent piers.
4. Neither pier is designed to handle ordnance.
5. Pier C-24: Periodic maintenance is performed around the pier service schedule. The pier is not taken out of service. The SEAFAC pier has not had any maintenance since it was built. It is anticipated that it will not be taken out of service to perform maintenance in the future.

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]
C-24	None							
SEAFAC	None							

1 List only permanently installed facilities.
2 Indicate if the steam is certified steam.
3 Describe any permanent fendering arrangement limits on ship berthing.

* Both the Fox Island Acoustic Laboratory (FIAL) and the Southeast Alaska Acoustic Measurement Facility (SEAFAC) have special purpose piers that do not provide ship support.

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]
C-24	N/A	None	None	None
SEAFAC	N/A	None	None	None

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.

NOTES:

* Both piers are special purpose service piers that have no capacity for berthing, ordnance, or maintenance of full-size ships.

** Steady State Loading is Not Applicable (N/A). Use of these service piers is dependent on acoustic research testing schedules.

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 is not applicable to the Carderock Division. The two special purpose piers owned by the Carderock Division, NSWC, are not designed for extended use. They are too small and are not equipped to support full-size naval vessels, nor do they have the capacity to handle ordnance or maintenance.

Table 14.1*

Pier/ Wharf	Typical Steady State Loading[1**]	Ship Berthing Capacity	Ordnance Handling Pier Capacity[2]	IMA Maintenance Pier Capacity[3]
C-24	N/A	None	None	None
SEAFAC	N/A	None	None	None

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.

NOTES:

* Both piers are special purpose service piers that have no capacity for berthing, ordnance, or maintenance of full-size ships. 1995 infrastructure improvements will not change capacity or load level.

** Steady State Loading is Not Applicable (N/A). Use of these service piers is dependent on acoustic research testing schedules.

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.

Both piers are special purpose service piers used to transport personnel and equipment from shore to research vessels on the water. Several small crafts are used to perform this primary function. There is also a barge moored off of Pier C-24 used for storage.

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.

Pier C-24 is only used when acoustic research tests are being performed. The SEAFAC pier is used for daily access to the remote island site and access to the water portion of the site for research purposes. No visiting ships use these piers.

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.

There is no potential requirement to increase ship berthing capacity at these detachments.

8. [15.d.] Describe any unique limits or enhancements on the berthing of ships at specific piers at your base.

The two special purpose service piers are limited by size and accessibility. There are also no support services available.

TAB B

OPERATIONAL AIRFIELD CAPACITY

Note: Question numbers in []'s are for internal BSAT purposes.

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER

TAB B of Data Call #4 is not applicable as there are no operational airfields at the Carderock site.

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER
Detachments and Remote Sites

TAB B of Data Call #4 is not applicable as there are no operational airfields at the Carderock site detachments or sites that did not receive this Data Call directly.

1. [1a.] **For the main airfield and each auxiliary airfield,** answer the following questions:

The Carderock Division does not have any operational air fields at any of its sites.

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.

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

4. [1d.] Are **all runways** with approved instrument approaches served by **hi-speed taxiways**?

Not Applicable.

5. [1e.] List any restrictions to **runways with approach obstructions** or any **restrictions on flight patterns.** Explain

Not Applicable.

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?)

Not Applicable.

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).

Not Applicable.

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.

Not Applicable.

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)?

Not Applicable.

10. [2d.] Are you designated as an **authorized divert field** for any non-DoD aircraft? Explain.

Not Applicable.

11. [2d.] Is your airfield designated as a **joint use airfield** (i.e. civilian/military)? Explain.

Not Applicable.

12. [2e.] What **percentage of total operations are civilian**?

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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).

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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.).

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

Unit	Active or Reserve	FY 1994	FY 1995	FY 1997	FY 1999	FY 2001

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

Not Applicable.

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:

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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).

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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.

Not Applicable.

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).

Not Applicable.

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.

Not Applicable.

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.

substandard, and inadequate facilities.

Not Applicable.

CCN	Facility Type	Unit of Measure	Adequate	Substandard	Inadequate	Total	Number of Units
111-20	Landing Pads	SF					
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

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER

TAB C of Data Call #4 is not applicable as there is no depot level maintenance performed at the Carderock site.

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER
Detachments and Remote Sites

TAB C of Data Call #4 is not applicable as there is no depot level maintenance performed at the Carderock site detachments or sites that did not receive this Data Call directly.

Maintenance and Industrial Activities

Activities that actually perform Depot Level Maintenance shoudl 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.

ICSG-DM: Maintenance and Industrial Activities

Refer to the following notes when filling out the tables in this TAB.

Commodity Groups List

1. Aircraft Airframes:
   - Rotary
   - VSTOL
   - Fixed Wing
     - Transport / Tanker / Bomber / Command and Control
     - Light Combat
     - Admin / Training
   - Other
2. Aircraft Components
   - Dynamic Components
   - Aircraft Structures
   - Hydraulic/Pneumatic
   - Instruments
   - Landing Gear
   - Aviation Ordnance
   - Avionics/Electronics
   - APUs
   - Other
3. Engines (Gas Turbine)
   - Aircraft
   - Ship
   - Tank
   - Blades / Vanes (Type 2)
4. Missiles and Missile Components
   - Strategic
   - Tactical / MLRS
5. Amphibians
   - Vehicles
   - Components (less GTE)
6. Ground Combat Vehicles
   - Self-propelled
   - Tanks
   - Towed Combat Vehicles
   - Components (less GTE)
7. Ground and Shipboard Communications and Electronic Equipment
   - Radar
   - Radio Communications
   - Wire Communications
   - Electronic Warfare
   - Navigational Aids
   - Electro-Optics / Night Vision
   - Satellite Control / Space Sensors
8. Automotive / Construction Equipment
9. Tactical Vehicles
   - Tactical Automotive Vehicles
   - Components
10. Ground General Purpose Items
    - Ground Support Equipment (except aircraft)
    - Small Arms / Personal Weapons
    - Munitions / Ordnance
    - Ground Generators
    - Other
11. Sea Systems
    - Ships
    - Weapons Systems
12. Software
    - Tactical Systems
    - Support Equipment
13. Special Interest Items
    - Bearings Refurbishment
    - Calibration (Type I)
    - TMDE
14. Other

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

Not Applicable.

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.

Table 1.1.a: **Historic and Predicted Depot/Industrial Workload**

Commodity Type	Throughput (Units)							
	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	FY 1991	FY 1992	FY 1993
Total:								

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
Total:								

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
Total:								

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
Total:								

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.

Not Applicable.

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
Total:							

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
Total:								

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.

Not Applicable.

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?

Not Applicable.

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 discharge, etc.)?

Not Applicable.

2. Workload Summary

Not Applicable.

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.

Not Applicable.

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
Total	N / A	N / A	N / A			

[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
Total	N / A	N / A	N / A			

[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
Total	N / A	N / A	N / A			

[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
Total	N / A	N / A	N / A			

[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
Total	N / A	N / A	N / A			

[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
Total	N / A	N / A	N / A			

[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
Total	N / A	N / A	N / A			

[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

Not Applicable.

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.

Not Applicable.

2. Core Requirements

Not Applicable.

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
Total:				

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
Total:				

Table 2.1.c: **Workload Requirements FY 1995**

FY 1995 Commodity Type	Core Workload (DLMHs)			
	Core Workload	Directed Workload	Core "Plus" Workload	Title 10 Workload
Total:				

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
Total:				

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
Total:				

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
Total:				

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
Total:				

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
Total:				

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
Total:				

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.

Not Applicable.

- 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.

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 1993 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

Not Applicable.

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.

Not Applicable.

TAB D

ORDNANCE STORAGE CAPACITY

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER

SEE TAB D

CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER
Detachments and Remote Sites

TAB D of Data Call #4 is not applicable as there is no ordnance storage capacity at the Carderock site detachments or sites that did not receive this Data Call directly.

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 include: Expendables and LOE: Small Arms

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/Projectil

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
Bldg. 120	0.04	90	0.04	90	0.06	90
TOTAL	0.04	90	0.04	90	0.06	90

* Net Explosive Weight.

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
Bldg. 120 / Special	R&D Explosives*	Own Use (R&D Testing)	---
Bldg. 120 / Special	LOE: Small arms**	Own Use (Training Operational)	LOE: Small Arms

* Explosives stored. Pentolite, CH-6, C-4 used in R&D shock testing in our own test facilities.

** For use by our Guard Force.

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
Bldg. 120 / SPEC*	1.1	86 lb	Y		
Bldg. 120 / LOE Small Arms**	1.4	20 lb	Y		

* SPEC = Special explosives stored are pentolite, CH-6, C-4 used in R&D shock testing in our own test facilities.

** For use by our Guard Force.

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.

None

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)	N		
Testing	N		
Manufacturing	N		
Outload	N		
Technical Support	N		

NSWC CARDEROCK, BETHESDA

JL
SEA 05X
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)

D. K. Kruse; Captain, USN
NAME (Please type or print)

Signature

Commander
Title

5/10/94
Date

Carderock Division, USN
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)

NAME (Please type or print)

Signature

Title

Date

Activity

NSWC CARDEROCK, BETHESDA

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

D.K. Kruse; Captain, USN
NAME (Please type or print)

D.K. Kruse
Signature

Commander
Title

5/10/94
Date

Carderock Division; NSWC
Activity

"REVISION"
DATA CALL #4
CARDEROCK

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.K. Kruse; Captain, USN
NAME (Please type or print)

D.K. Kruse
Signature

Commander
Title

6/3/94
Date

Carderock Division; NSWC
Activity

This revision affects the Carderock Site, BRAC Data Call #4 Pages 9, 16, 17, 31, 42 and 45. Additional details of changes are provided on attached sheets.

"...VISION"
DATA CALL #4
CARDEROCK

~~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)

RADM (Sel) D. P. Sargent, Jr.
NAME (Please type of print

Signature

Commander
Title

6/3/94
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

Signature

Title

7-1-94
Date

Activity

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

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

J. B. GREENE, JR.
NAME (Please type of print

Signature

ACTING
Title

08 JUL 1994
Date

Data Call #4

Document Separator

DATA CALL 64

CONSTRUCTION COST AVOIDANCES

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

Installation Name:	BETHESDA MD NSWCCARDEROCK
Unit Identification Code (UIC):	N00167 #197
Major Claimant:	NAVSEA

Project FY	Project No.	Description	Appn	Project Cost Avoid ($000)
2000	171	FIRE RESEARCH FACILITY	MCON	6,435
		Sub-Total - 2000		**6,435**
		Grand Total		**6,435**

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

MAJOR CLAIMANT LEVEL

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

Signature

COMMANDER
Title

7/13/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

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

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

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

Signature

Title

2/18/94
Date

BRAC-95 CERTIFICATION

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

MARK E. DONALDSON
NAME (Please type or print)

Signature

CDR, CEC, USN
Title

12 July 1994
Date

MILCON PROGRAMMING DIVISION
Division

FACILITIES PROGRAMMING AND CONSTRUCTION DIRECTORATE
Department

NAVAL FACILITIES ENGINEERING COMMAND
Activity

Enclosure (1)

BRAC DATA CALL NUMBER 64
CONSTRUCTION COST AVOIDANCE

Information on cost avoidance which could be realized as the result of cancellation of on-going or programmed construction projects is provided in Tables 1 (MILCON) and 2 (FAMILY HOUSING). These tables list MILCON/FAMILY HOUSING projects which fall within the following categories:

1. all programmed construction projects included in the FY1996 - 2001 MILCON/FAMILY HOUSING Project List,

2. all programmed projects from FY1995 or earlier for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995, and,

3. all programmed BRAC MILCON/FAMILY HOUSING projects for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995.

Projects listed in Tables 1 and 2 with potential cost avoidance were determined as meeting any one of the following criteria:

Projects with projected Work in Place (WIP) less than 75% of the Current Working Estimate (CWE) as of 1 OCT 1995 .

Projects with projected completion dates or Beneficial Occupancy Dates subsequent to 31 March 1996.

Projects with projected CWE amount greater than $15M.

The estimated cost avoidance for projects terminated after construction award would be approximately one-half of the CWE for the remaining work. Close-out, claims and other termination costs can consume the other half.

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DATA CALL 64
CONSTRUCTION COST AVOIDANCES

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

Installation Name:	**BETHESDA MD NSWCCARDEROCK**
Unit Identification Code (UIC):	**N00167**
Major Claimant:	**NAVSEA**

Project FY	Project No.	Description	Appn	Project Cost Avoid ($000)
1994	172S	COMPOSITE MATERIALS LAB *	BRAC	366
1994	179S	SHIPS MATERIALS TECHNOLOGY FAC *	BRAC	2,749
		Sub-Total - 1994		**3,115**
2000	171	FIRE RESEARCH LABORATORY	MCON	6,435
		Sub-Total - 2000		**6,435**
		Grand Total		**9,550**

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

MAJOR CLAIMANT LEVEL

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

Signature

COMMANDER
Title

12/9/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

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

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

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

Signature

Title

12/9/94
Date

BRAC-95 CERTIFICATION

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

MICHAEL D. THORNTON
NAME (Please type or print)

CDR, CEC, USN
Title

MILCON PROGRAMMING DIVISION
Division

NAVAL FACILITIES ENGINEERING COMMAND
Activity

MD Thornton
Signature

9 Dec 94
Date

Document Separator

Department of Defense

1995 Base Realignment and Closure
T&E Joint Cross-Service Group Data Guidance

March 31, 1994

T&E JOINT CROSS-SERVICE GROUP DATA GUIDANCE

SECTION 1: GUIDANCE, STANDARDS, AND ASSUMPTIONS
1.1 GUIDANCE
1.1.A Guidance for Identification of Test and Evaluation (T&E) Facilities/Capabilities
1.1.B Guidance for Military Department Data Collection
1.1.C Guidance for Military Department Data Analysis
1.2 ASSUMPTIONS
1.3 FUNCTIONAL AREAS
1.3.A Air Vehicles
1.3.B Electronic Combat (EC) Systems
1.3.C Armaments/Weapons

SECTION 2: CAPACITY & TECHNICAL RESOURCES
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2.2 UNCONSTRAINED CAPACITY
2.3 TECHNICAL RESOURCES

SECTION 3: MEASURES OF MERIT
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3.3 ELECTRONIC COMBAT
3.3.A Threat Environment
3.3.B Test Article Support
3.4 ARMAMENTS/WEAPONS
3.4.A Directed Energy
3.4.B Rocket/Missile/Bomb Systems

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 Essentiality. 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.

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.

-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?

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.

-2.2.B Is this capacity limited by the physical characteristics of the facility itself, safety or health considerations, commercial utility availability, etc?

Not applicable because the Carderock Division has no facilities within the scope of this data call.

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.

Not applicable because the Carderock Division has no facilities within the scope of this data call.

-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?

Not applicable because the Carderock Division has no facilities within the scope of this data call.

-2.3.B.1 On the test mission of any other activity?

-2.3.B.2 On any other mission deemed critical to the operational effectiveness of the armed forces of the United States?

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. NOT APPLICABLE BECAUSE THE CARDEROCK DIVISION HAS NO FACILITIES WITHIN THE SCOPE OF THIS DATA CALL. MLP 5/11/94

-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.
NOT APPLICABLE BECAUSE THE CARDEROCK DIVISION HAS NO FACILITIES WITHIN THE SCOPE OF THIS DATA CALL. MLP 5/11/94

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.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

- 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.

- 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.

- 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.

- 3.1.C.4 What is the total population within a 50 mile radius? 100 mile radius? 150 mile radius? 200 mile radius?

– 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.

– 3.1.C.5.A How many test missions per year are canceled due to commercial or public use?

– 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?

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.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

–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.

–3.1.D.2 Are specialized targets required to support this facility? Yes/no. If yes, explain.

–3.1.D.2.A Have the specialized targets been validated? Yes/no. If yes, by whom?

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.*

Not applicable because the Carderock Division has no

facilities within the scope of this data call.

-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.

-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.

-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.

-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)?

-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.

3.1.F Uniqueness (MV I) -- Measure of Merit: *Extent to which the facility is one-of-a kind.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

-3.1.F.1 Is this a one-of-a-kind facility within the DoD? Yes/no. If yes, describe.

-3.1.F.1.A Within the US Government? Yes/no. If yes, describe.

-3.1.F.1.B Within the US? Yes/no. If yes, describe.

-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.

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.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

-3.1.G.1 How many square miles of air, land, and sea space are available to support test operations?

-3.1.G.2 Who owns and or controls the land under the restricted airspace you use?

-3.1.G.3 How much of this is Restricted Airspace, and what altitude limits are associated with the restricted areas?

-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.

-3.1.G.5 Is the airspace over land or water? List the number of square miles over each.

-3.1.G.6 Identify known or projected airspace problems that may prevent accomplishing your mission.

-3.1.G.7 What is the maximum straight line segment in your airspace in nautical miles?

-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.

3.1.H Geographic/Climatological Features (MV II) – Measure of Merit: *Extent to which types of climatic/geographic conditions represent world-wide operational conditions.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

–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.

–3.1.H.2 Are there features of the local geology or soil conditions that enhance or inhibit any types of test?

–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.

–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?

–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%?

–3.1.H.6 What is the number of test missions per year (1985 – 1993) canceled due to weather?

–3.1.H.7 What is the number of test days per year (1985 – 1993) canceled due to weather?

–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?

-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.

-3.1.H.10 What percentage of the time are your test operations restricted due to weather?

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.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

-3.2.A.1 Do supersonic corridors or areas exist? Yes/no.

-3.2.A.2 Where are they located relative to your airfield?

-3.2.A.3 At what altitude (upper and lower altitude)?

-3.2.A.4 Over land or water? What size and shape (length and width)?

-3.2.A.5 Are there restrictions you must observe to use this space? Yes/no. If yes, explain.

-3.2.A.6 What is the maximum number of simultaneous users?

-3.2.B Airfield and Facility Characteristics (MV II) - Measure of Merit: *Extent of air vehicle infrastructure to support T&E operations.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

-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.

-3.2.B.2 How close and how many emergency runways or airfields are in your area of operation?

-3.2.B.3 Where is your airfield situated relative to working areas (airspace) for supporting test operations?

-3.2.B.4 What makes your airfield unique or at least suited for supporting test operations?

-3.2.B.5 Is there a size, weight, maintenance or mission limitation that would affect test operations? If so, describe the limitation(s).

-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?

-3.2.C Test Operations (MV II) - Measure of Merit: *Extent of T&E operations that the airspace can accommodate.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

-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)

-3.2.C.2 Do ground support facilities exist for pre-flight checkout or rehearsal of test missions?

-3.2.C.3 What kinds, numbers of aircraft and mix can be supported (manned and unmanned)?

-3.2.C.4 Does UAV and or rotary wing operations pose any limitation on other types of missions? If yes, explain.

-3.2.C.5 What sorts of missions (e.g. air-to-air, air-to-ground and refueling) can be flown within local airspace?

-3.2.C.6 What is the maximum number of simultaneous missions you can support that require telemetry?

-3.2.C.7 What is the largest number of simultaneous test missions you have supported in your airspace?

-3.2.C.8 Identify the number, types, and owners of aircraft at your installation.

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.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

–3.3.A.1 What is the number of threats simulated?

–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?

–3.3.A.3 Are the threat software models and simulators (software/hardware) validated? Yes/no. If yes, by whom?

–3.3.A.4 Do you conduct open loop testing? Reactive? Closed loop? Yes/no for each.

–3.3.A.5 What is the threat representation (fidelity) and density?

–3.3.A.6 Are you capable of simulating land threats? Sea threats? Combined land/sea threats? Yes/no. If yes, describe.

–3.3.A.7 What geographic dispersion can be simulated?

–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

–3.3.A.9 Is the facility interlinked with off–site threats? Yes/no. If yes, how are you linked?

–3.3.A.10 Is there a limit on simultaneous users? Yes/no. If no, explain.

3.3.B Test Article Support (MV II) – Measure of Merit: *Extent to which test support satisfies weapon system test requirements.*

Not applicable because the Carderock Division has no facilities within the scope of this data call.

–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.

–3.3.B.2 What is the number of simultaneous countermeasures that can be evaluated?

–3.3.B.3 What range of spectra can be tested and evaluated?

–3.3.B.4 What are the available spectra?

–3.3.B.5 Do you have a scene generation capability? Yes/no. If yes, describe.

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.

Not applicable because the Carderock Division has no facilities within the scope of this data call.

-3.4.A.1 Do you currently test directed energy weapon systems? Yes/no.

If yes, explain. Describe the power source(s) you have available. What is your maximum downrange distance?

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.

Not applicable because the Carderock Division has no facilities within the scope of this data call.

-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?

-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.

-3.4.B.1.C What are the maximum ranges (nautical miles) you can test, by type weapon?

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

-3.4.B.2.B Were flight termination systems required? Yes/no.

-3.4.B.2.C If no missions were scheduled in a category, give the reason(s).

-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.

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.

GENERAL INFORMATION

Facility/Capability Title: Not Applicable

Origin Date: _____

Service: _____ Organization/Activity: _____ Location: _____

T&E Functional Area: _____ UIC = _____

T&E Test Facility Category _____

	T&E	S&T	D&E	IE	T&D	OTHER=100%
PERCENTAGE USE:	_____	_____	_____	_____	_____	_____
BREAKOUT BY T&E FUNCTIONAL AREA (%)						
Air Vehicles	_____	_____	_____	_____	_____	_____
Armanent/Weapons	_____	_____	_____	_____	_____	_____
EC	_____	_____	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____	_____

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: Not Applicable

Facility Description; Including mission statement:
Interconnectivity/Mulit-Use of T&E Facility:
Type of Test Supported:
Summary of Technical Capabilities:
Keywords:

ADDITIONAL INFORMATION

Facility/Capability Title: AUTOMATED INFRARED 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	2	2	2	2	2	2	2
Contractor	0	0	0	0	0	0	0
Total	2	2	2	2	2	2	2

Total Square Footage: 10167

Test Area Square Footage: 10167

Office Space Square Footage: _____

Tonnage of Equipment: 8000 pounds

Volume of Equipment: 1500 cu. ft.

Annual Maintenance Cost: $10,000

Estimated Moving Cost: $100,000

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$75,000	$75,000	$75,000	$75,000	$75,000	$75,000	$75,000

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ADDITIONAL INFORMATION

Facility/Capability Title: Not Applicable

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian							
Contractor							
Total							

Total Square Footage: _____

Test Area Square Footage: _____ Office Space Square Footage: _____

Tonnage of Equipment: _____ Volume of Equipment: _____

Annual Maintenance Cost: _____ Estimated Moving Cost: _____

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Not Applicable

AGE: _____ REPLACEMENT VALUE: _____

MAINTENANCE AND REPAIR BACKLOG: _____

DATE OF LAST UPGRADE: _____

NATURE OF LAST UPGRADE: _____

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: _____

   TOTAL PROGRAMMED AMOUNT: _____
   SUMMARY DESCRIPTION: _____

2. UPGRADE TITLE: _____

   TOTAL PROGRAMMED AMOUNT: _____
   SUMMARY DESCRIPTION: _____

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Not Applicable

		FISCAL YEAR							
T&E 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								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: Not Applicable

ANNUAL HOURS OF DOWNTIME 1 _____
AVERAGE DOWNTIME PER DAY (LINE 1÷ 365) 2 _____
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2) 3 _____

TEST TYPES	TESTS AT ONE TIME	WORKLOAD PER TEST PER FACILITY HOUR	WORKLOAD PER FACILITY HOUR	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ)
4	5	6	7	8_____
_____	_____	_____	_____	
_____	_____	_____	_____	ANNUAL UNCONSTRAINED CAPACITY
_____	_____	_____	_____	9 _____
_____	_____	_____	_____	
_____	_____	_____	_____	
"TYPICAL"	_____	_____	_____	

TOTAL Σ _____

NSWC CARDEROCK, BETHESDA

JL
SEA 09X
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)

D. K. Kruse; Captain, USN
NAME (Please type or print)

Signature

Commander
Title

5-10-94
Date

Carderock Division, USN
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

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

Date

OPNAV
Activity

DATA CALL #13

NSWC CARDEROCK, BETHESDA

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

D.K. Kruse; Captain, USN
NAME (Please type or print)

DKKruse
Signature

Commander
Title

5-10-94
Date

Carderock Division; NSWC
Activity

DATA CALL #13

NSWC Crane Division
Crane Site
Data Call 13

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

S. HOWARD
NAME (Please type or print)

Signature

COMMANDER
Title

6/1/94
Date

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
Activity

Revision to the Crane Division, Crane Site BRAC 95 Data Call 13, Attachment C, page 30a.

Additional details of changes described on attached sheets.

REPRODUCED AT GOVERNMENT EXPENSE

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)

RADM (Sel) D. P. Sargent, Jr.

NAME (Please type of print

Signature

Commander

Title

6/3/94

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

Signature

Title

7-1-94

Date

Activity

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

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

J. B. GREENE, JR.

NAME (Please type of print

Signature

ACTING

Title

08 JUL 1994

Date

COMPLETELY
REVISED
AND REPLACED

JOINT CROSS SERVICE GROUP LABORATORIES DATA CALL

DATA CALL #12

Carderock Site
Carderock Division
Naval Surface Warfare Center

SECTION II: CAPACITY OF DOD COMPONENTS

2.1 Workload. Use the following table to describe historic and projected workload at each activity in terms of funding and workyears. Assume previous BRAC closures and realignments are implemented on schedule. Projected funding will be derived from FY95 President's Budget Submission (Then year dollars). Past fiscal year data shall begin with FY86 or at the inception of the activity as it existed on 1 Oct 93. (BRAC Criteria I & IV)

Information Required	Fiscal Years											
	86	87	88	89	90	91	92	93	94	95	96	97
Total Funds Programmed ($M)	198	204	209	200	199	201	232	232	233	250	280	255
Total Actual Funds ($M)	190	169	175	193	239	239	251	311				
Programmed Workyears	2110	2187	2071	2091	2054	2063	1979	1790	1725	1660	1607	1692
Actual Workyears	2162	2048	2080	2052	2084	1985	2037	2000				

Note 1: **The Carderock Site does not have any on-site FFRDC or SETA personnel at any location. Funding actuals and budget do not include direct cites.**

Note:2 **The Carderock Division management information system tracks funding and labor (work years) according to organizational code. Because a number of organizational codes are split across the Carderock and Annapolis Sites, actual funding and actual work year data are somewhat inaccurate, while budget information for FY94-97 have been computed to reflect BRAC91 realignment guidance. In addition, funds managed at one site may be executed at the other site. It is not possible to reconstruct the funding information. An estimate of the correct work years may be made by subtracting 107 work years from the Carderock Site and adding it to the Annapolis Site. This correction addresses only the error due to split codes. An additional number of work years should also be added to Annapolis due to cross-servicing of project funding; however, this varies from year to year and is not easily represented by a single number.**

- Budgeted workyears are the selected indicator of the "lab" infrastructure's capacity at an aggregate level for each Military Department. They include both workyears funded directly by

the Military Department and the workyears funded from organizations outside the Military Department.

Workyears = government personnel and on-site FFRDCs and SETAs

2.2 Excess "Lab" Capacity -- Measured at the DOD Component Level

- Excess "Lab" Capacity = Sum of the Peak Workyears - Sum of the Projected Workyears
  -- Peak at each activity = Highest value between FY86 (or since inception of organization) and FY93
  -- Projected at each activity = Estimated at FY97

Excess Capacity of the Carderock Site = 2162 - 1692 = 470

Note 3. **BRAC91 directed the realignment of approximately 340 work years from the Annapolis Detachment to the Carderock Site of the Carderock Division. Therefore, the "excess capacity" calculation algorithm should demonstrate:**

Excess Capacity of the Carderock Site = 2162 - (1692 + 340) = 130

Note 4. **To correct for the error in work years attributable to the management information system characteristics discussed in Note 2. above, 107 work years must be subjected from the actual work years from FY86 to FY93 as follows:**

Excess Capacity of the Annapolis Detachment = (2162-107) - (1692 + 340)

= +23

SECTION III: CAPABILITY OF ACTIVITIES TO PERFORM COMMON SUPPORT FUNCTIONS (CSFs): Provide the information described for each common support function listed in Appendix C in which you are actively engaged.

Product Functions. The Carderock Site provides some limited aerodynamic performance evaluation and structural analysis in support of aircraft, ship and aircraft-ship interface projects. Facilities include one fully operational 8 by 10-foot subsonic wind tunnel and one 7 by 10-foot transonic wind tunnel (in caretaker status awaiting major repairs). These wind tunnels are unmovable facilities. Total work effort is about 6 work years. Because of the insubstantial work (less than 2 work years related to the Aircraft--Structures common support area), the response to the balance of SECTION III. is "Not Applicable."

Pervasive Functions. The Carderock Site is not engaged in any work consistent with the Pervasive Functions defined in Appendix C.

3.0 Mission: Describe the major capabilities at your activity contributing to the common support function in bulletized format. Describe any relationship and interconnectivity with other functions (common or otherwise) in support of the overall activity mission.

Not Applicable.

3.1 Location

Not Applicable.

3.1.1 **Geographic/Climatological Features:** Describe any geographic/climatological features in and around your activity that are relevant to each CSF. Indicate and justify those that are required versus those that just serve to enhance accomplishing the mission of the activity. For example, clear air at high altitude that increases quality of atmospheric, ground-based laser experiments in support of the weapons CSF. (BRAC Criteria I)

Not Applicable.

3.1.2 **Licenses & permits:** Describe and list the licenses or permits (e.g., environmental, safety, etc.) that your activity currently holds and justify why they are required to allow tests, experiments, or other special capabilities at your location for each CSF. For example, permit to store and use high explosives. (BRAC Criteria I)

Not Applicable.

3.1.3 **Environmental constraints:** Describe and list the environmental or land use constraints present at your activity which limit or restrict your current scope for each CSF, i.e., would not allow increased "volume" or "spectrum" for the CSF. Example -- Volume: frequency of a type of experiment. Example -- Spectrum: Current permit to detonate high explosives will not allow detonation or storage of increased quantity of explosives without legal waiver (state law) or relocation of surrounding (non-govt) buildings. (BRAC Criteria II)

Not Applicable.

3.1.4 **Special Support Infrastructure:** List and describe the importance of any mission related special support infrastructure (e.g. utilities) present at your location for your activity. (BRAC Criteria I)

Not Applicable.

3.1.5. **Proximity to Mission-Related organizations:** List and describe the importance and impact of not having nearby organizations which facilitate accomplishing or performing your mission -- e.g. operational units, FFRDCs, universities/colleges, other government organizations, and commercial activities. Restrict your response to the top five. Complete the following: (BRAC Criteria I)

Not Applicable.

Common Support Functions	Name	Type of Organization	Distance	Workyears Performed by Your Activity	Workyears Funded by Your Activity

3.2 Personnel:

3.2.1 **Total Personnel:** What is the total number of government (military and civilian), on-site federally funded research and development center (FFRDC), and on-site system engineering technical assistance (SETA) personnel engaged in science and technology (S&T), engineering development and in-service engineering activities as of end FY93? For individuals that predominantly work in CSFs, involved in more than one CSF, account for those individuals in the CSF that represents the preponderance of their effort. (BRAC Criteria I)

Not Applicable.

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical				
Management (Supv)				
Other				

3.2.2 **Education:** What is the number of government personnel actively engaged in S&T, engineering development and in-service engineering activities by highest degree and type of position? Provide the data in the following table: (BRAC Criteria I)

Not Applicable.

Type of Degree/ Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less			
Associates			
Bachelor			
Masters			
Doctorate (include Med/Vet/etc.)			

3.2.3 **Experience:** What is the experience level of government personnel? Fill in the number of government personnel in the appropriate boxes of the following table. (BRAC Criteria I)

Not Applicable.

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical					
Management (Supv)					
Total					

3.2.4 **Accomplishments During FY91-93:** For government personnel answer the following questions.

Not Applicable.

3.2.4.1 How many patents were awarded and patent disclosures (only count disclosures with issued disclosure numbers) were made? (BRAC Criteria I)

Not Applicable.

CSF	Disclosures	Awarded	Patent Titles (List)
Total			

3.2.4.2 How many papers were published in peer reviewed journals? (BRAC Criteria I)

Not Applicable.

CSF	Number Published	Paper Titles (List)
TOTAL		

3.3 Workload

3.3.1 FY93 Workload

3.3.1.1 **Work Year and Lifecycle:** Identify the number of actual workyears executed for each applicable CSF in FY93 for each of the following: government civilian; military; on-site FFRDCs; and on-site SETAs. (BRAC Criteria I)

Not Applicable.

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology				
Engineering Development				
In-Service Engineering				

3.3.1.2 **Engineering Development By ACAT:** For each Common Support Function (e.g. airborne C4I) at each activity engaged in engineering development, provide:

- For each ACAT IC, ID, and II program (as defined in DODI 5000.2):
  - The name of the program
  - A brief program description
- For each ACAT III and IV programs:
  - The number of such programs
  - A list of program names
- For each program not an ACAT I, II, III, IV:
  - The number of such programs
  - A list of program names
- For the purpose of this question, any program between Milestone I and IV and containing demonstration and validation (Dem/Val 6.4)/Engineering and Manufacturing Development (EMD 6.5) funds in the FY95 PBS is considered to be engaged in engineering development (BRAC Criteria I).

Not Applicable.

Engineering Development	Name or Number	Workyears (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
ACAT IC	(Name)			(Description)
ACAT ID	(Name)			(Description)
ACAT II	(Name)			(Description)
ACAT III/IV	(Number)			(List)
Other	(Number)			(List)

3.3.1.3 **In-Service Engineering:** For each Common Support Function at each activity engaged in in-service engineering, list the in-service engineering efforts, the FY93 funds (from all sources) obligated for these efforts, the FY93 workyears for these efforts, and the weapon system(s) supported by these efforts. In-service engineering consists of all engineering support of fielded and/or out of production systems and includes efforts to improve cost, throughput, and schedule to support customer requirements as well as mods and upgrades for reliability, maintainability, and performance enhancements. (BRAC Criteria I)

Not Applicable.

Common Support Functions	In-Service Engineering Efforts (List)	FY93 Actual		Weapon System(s) Supported
		Funds Received (Obligation Authority)	Workyears	

3.3.2 **Projected Funding**

3.3.2.1 **Direct Funding:** For each applicable CSF, identify direct mission funding by appropriation from FY94 to FY97. Use FY95 PBS for FY95-FY97. (BRAC Criteria I)

Not Applicable.

CSF	FY94	FY95	FY96	FY97

3.3.2.2 **Other Obligation Authority:** For each applicable CSF, identify reimbursable and direct-cite funding (other obligation authority expected) from FY94 to FY97. Funding allocation must be traceable to FY95 PBS. (BRAC Criteria I)

Not Applicable.

CSF	FY94	FY95	FY96	FY97

3.4 Facilities and Equipment

3.4.1 **Major Equipment and Facilities:** Describe major facilities and equipment necessary to support each Common Support Function (include SCIFs). If the facilities and equipment are shared with other functions, identify those functions and the percentage of total time used by each of the functions. Provide labeled photographs that picture the breadth and scope of the equipment and facilities described. If it is unique to DOD, to the Federal Government, or to the US, describe why it is unique. Insert the replacement cost. For this exercise, Replacement cost = (Initial cost + capital investment) multiplied by the inflation factor for the original year of construction. (BRAC Criteria II)

Not Applicable.

Common Support Function	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
		DOD	Federal Gov't	U. S.	

3.5 Expansion Potential

3.5.1 **Laboratory Facilities:** Use facilities records as of fourth-quarter FY93 in answering the following (in sq ft) for each CSF: (BRAC Criteria II)

Not Applicable.

Common Support Function	Facility or Equipment Description	Type of Space*	Space Capacity (KSF)		
			Current	Used	Excess

* Administrative, Technical, Storage, Utility

3.5.1.1 Describe the capacity of your activity to absorb additional similar workyears categorized in the same common support function with minor facility modification. If major modification is required, describe to what extent the facilities would have to be modified. (Use FY97 workyears as your requirement) (BRAC Criteria III)

Not Applicable.

3.5.1.2 If there is capacity to absorb additional workyears, how many additional workyears can be supported? (BRAC Criteria III)

Not Applicable.

3.5.1.3 For 3.5.1.1 and 3.5.1.2 (above) describe the impact of military construction programs or other alteration projects programmed in the FY95 PBS. (BRAC Criteria II)

Not Applicable.

3.5.2 **Land Use:** Provide number of buildable acres for additional laboratory/administrative support construction at your installation. (BRAC Criteria II)

Not Applicable.

3.5.3 **Utilities:** Provide an estimate of your installation's capability to expand or procure additional utility services (electric, gas, water). Estimates should be provided in

appropriate units -- e.g. KWH of electricity. (BRAC Criteria II)

Not Applicable.

NSWC CARDEROCK, BETHESDA
DATA CALL #12

J2
SEA 04X
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)

D. K. Kruse; Captain, USN
NAME (Please type or print)

Signature

Commander
Title

5-10-94
Date

Carderock Division, USN
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

27 May 1994
Date

Activity

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.K. Kruse; Captain, USN
NAME (Please type or print)

DKKruse
Signature

Commander
Title

5-10-94
Date

Carderock Division; NSWC
Activity

Document Separator

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COMPLETE REVISION
21 JULY 94

JOINT CROSS SERVICE GROUP LABORATORIES DATA CALL

DATA CALL #12

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Carderock Site
Carderock Division
Naval Surface Warfare Center

SECTION II: CAPACITY OF DOD COMPONENTS

2.1 Workload. Use the following table to describe historic and projected workload at each activity in terms of funding and workyears. Assume previous BRAC closures and realignments are implemented on schedule. Projected funding will be derived from FY95 President's Budget Submission (Then year dollars). Past fiscal year data shall begin with FY86 or at the inception of the activity as it existed on 1 Oct 93. (BRAC Criteria I & IV)

Information Required	Fiscal Years											
	86	87	88	89	90	91	92	93	94	95	96	97
Total Funds Programmed ($M)	198	204	209	200	199	201	232	232	233	250	280	255
Total Actual Funds ($M)	190	169	175	193	239	239	251	311				
Programmed Workyears	2110	2187	2071	2091	2054	2063	1979	1790	1725	1660	1607	1692
Actual Workyears	2162	2048	2080	2052	2084	1985	2037	2000				

Note 1: **The Carderock Site does not have any on-site FFRDC or SETA personnel at any location. Funding actuals and budget do not include direct cites.**

Note:2 **The Carderock Division management information system tracks funding and labor (work years) according to organizational code. Because a number of organizational codes are split across the Carderock and Annapolis Sites, actual funding and actual work year data are somewhat inaccurate, while budget information for FY94-97 have been computed to reflect BRAC91 realignment guidance. In addition, funds managed at one site may be executed at the other site. It is not possible to reconstruct the funding information. An estimate of the correct work years may be made by subtracting 107 work years from the Carderock Site and adding it to the Annapolis Site. This correction addresses only the error due to split codes. An additional number of work years should also be added to Annapolis due to cross-servicing of project funding; however, this varies from year to year and is not easily represented by a single number.**

- Budgeted workyears are the selected indicator of the "lab" infrastructure's capacity at an

aggregate level for each Military Department. They include both workyears funded directly by the Military Department and the workyears funded from organizations outside the Military Department.

Workyears = government personnel and on-site FFRDCs and SETAs

2.2 Excess "Lab" Capacity -- Measured at the DOD Component Level

- Excess "Lab" Capacity = Sum of the Peak Workyears - Sum of the Projected Workyears
  -- Peak at each activity = Highest value between FY86 (or since inception of organization) and FY93
  -- Projected at each activity = Estimated at FY97

Excess Capacity of the Carderock Site = 2162 - 1692 = 470

Note 3. **BRAC91 directed the realignment of approximately 340 work years from the Annapolis Detachment to the Carderock Site of the Carderock Division. Therefore, the "excess capacity" calculation algorithm should demonstrate:**

Excess Capacity of the Carderock Site = 2162 - (1692 + 340) = 130

Note 4. **To correct for the error in work years attributable to the management information system characteristics discussed in Note 2. above, 107 work years must be subjected from the actual work years from FY86 to FY93 as follows:**

Excess Capacity of the Carderock Site = (2162-107) - (1692 + 340)
= +23

SECTION III: CAPABILITY OF ACTIVITIES TO PERFORM COMMON SUPPORT FUNCTIONS (CSFs): Provide the information described for each common support function listed in Appendix C in which you are actively engaged.

The Carderock Site provides some capabilities in support of the Product Function "Air Vehicles, Rotary, Structures.

3.0 Mission: Describe the major capabilities at your activity contributing to the common support function in bulletized format. Describe any relationship and interconnectivity with other functions (common or otherwise) in support of the overall activity mission.

The Sea Based Aviation Office of the Carderock Site, Carderock Division, Naval Surface Warfare Center, has technical personnel with extensive background and depth of experience in design, analysis and testing of the V-22 aircraft. This experience has been developed through active support of the V-22 Full-Scale Development Program during the period FY-84 through FY-94. This expertise continues to be required to assure that the trade-off studies, subsequent design modifications, and testing performed by the contractor during the EMD program correctly supports certification and fleet requirements.

Carderock personnel also have extensive experience in analysis, design and testing of advanced VTOL and VSTOL vehicles. These capabilities enable the Division to provide engineering support to NAVAIR for investigation of rotor loads, dynamic response of helicopters, and the aircraft Structural Life Surveillance (ASLS) Program.

3.1 Location

None.

3.1.1 **Geographic/Climatological Features:** Describe any geographic/climatological features in and around your activity that are relevant to each CSF. Indicate and justify those that are required versus those that just serve to enhance accomplishing the mission of the activity. For example, clear air at high altitude that increases quality of atmospheric, ground-based laser experiments in support of the weapons CSF. (BRAC Criteria I)

None.

3.1.2 **Licenses & permits:** Describe and list the licenses or permits (e.g., environmental, safety, etc.) that your activity currently holds and justify why they are required to allow tests, experiments, or other special capabilities at your location for each CSF. For example, permit to store and use high explosives. (BRAC Criteria I)

None.

3.1.3 **Environmental constraints:** Describe and list the environmental or land use constraints present at your activity which limit or restrict your current scope for each CSF, i.e., would not allow increased "volume" or "spectrum" for the CSF. Example -- Volume: frequency of a type of experiment. Example -- Spectrum: Current permit to detonate high explosives will not allow detonation or storage of increased quantity of explosives without legal waiver (state law) or relocation of surrounding (non-govt) buildings. (BRAC Criteria II)

None.

3.1.4 **Special Support Infrastructure:** List and describe the importance of any mission related special support infrastructure (e.g. utilities) present at your location for your activity. (BRAC Criteria I)

None.

3.1.5. **Proximity to Mission-Related organizations:** List and describe the importance and impact of not having nearby organizations which facilitate accomplishing or performing your mission -- e.g. operational units, FFRDCs, universities/colleges, other government organizations, and commercial activities. Restrict your response to the top five. Complete the following: (BRAC Criteria I)

Common Support Functions	Name	Type of Organization	Distance	Workyears Performed by Your Activity	Workyears Funded by Your Activity
Air Vehicle	University	University	15 Miles	3.8	1.0
Rotary	of				
Structures	Maryland				

The Army Center of Excellence for Rotorcraft Education and Research at the University of Maryland is recognized as a leader in rotary-wing research. A computer code, UMARC, was developed by Dr. I. Chopra (at U of M) and will be used by Division engineers to support NAVAIR in rotary-wing fault detection. The close proximity of U of M to Carderock allows frequent interaction to successfully utilize and modify the UMARC program for this effort without incurring large travel expenses.

3.2 Personnel:

3.2.1 **Total Personnel:** What is the total number of government (military and civilian), on-site federally funded research and development center (FFRDC), and on-site system engineering technical assistance (SETA) personnel engaged in science and technology (S&T), engineering development and in-service engineering activities as of end FY93? For individuals that predominantly work in CSFs, involved in more than one CSF, account for those individuals in the CSF that represents the preponderance of their effort. (BRAC Criteria I)

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	8	0	0	0
Management (Supv)	0	0	0	0
Other	0	0	0	0

3.2.2 **Education:** What is the number of government personnel actively engaged in S&T, engineering development and in-service engineering activities by highest degree and type of position? Provide the data in the following table: (BRAC Criteria I)

Type of Degree/ Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	0	0	0
Associates	0	0	0
Bachelor	5	0	0
Masters	2	0	0
Doctorate (include Med/Vet/etc.)	1	0	0

3.2.3 **Experience:** What is the experience level of government personnel? Fill in the number of government personnel in the appropriate boxes of the following table. (BRAC Criteria I)

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	0	1	5	0	2
Management (Supv)	0	0	0	0	0
Total	0	1	5	0	2

3.2.4 **Accomplishments During FY91-93:** For government personnel answer the following questions.

3.2.4.1 How many patents were awarded and patent disclosures (only count disclosures with issued disclosure numbers) were made? (BRAC Criteria I)

None.

CSF	Disclosures	Awarded	Patent Titles (List)
	None	None	
Total			

3.2.4.2 How many papers were published in peer reviewed journals? (BRAC Criteria I)

CSF	Number Published	Paper Titles (List)
Air Vehicle, Rotary, Structures	**8**	**1. Prediction of Yaw Control Effectiveness and Tail Rotor Loads.** **2. Analytical Investigation of Flight Conditions Leading to Unanticipated Right Yaw.** **3. Simulation of V-22 Rotorcraft Hover Flowfield.** **4. Stabilizing Pylon Whirl Flutter on a Tilt-Rotor Aircraft.** **5. Helicopter Flight Data Feature Extraction for Component Load Monitoring.** **6. Prediction of Helicopter Component Loads Using Neural Networks.** **7. Identification of Helicopter Component Loads Using Multiple Regression.** **8. Determination of Helicopter Flight Loads from Fixed System Measurements.**
TOTAL	**8**	

3.3 Workload

3.3.1 FY93 Workload

3.3.1.1 **Work Year and Lifecycle:** Identify the number of actual workyears executed for each applicable CSF in FY93 for each of the following: government civilian; military; on-site FFRDCs; and on-site SETAs. (BRAC Criteria I)

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	0	0	0	0
Engineering Development	1.7	0	0	0
In-Service Engineering	2.1	0	0	0

3.3.1.2 **Engineering Development By ACAT:** For each Common Support Function (e.g. airborne C4I) at each activity engaged in engineering development, provide:

- For each ACAT IC, ID, and II program (as defined in DODI 5000.2):
  - The name of the program
  - A brief program description
- For each ACAT III and IV programs:
  - The number of such programs
  - A list of program names
- For each program not an ACAT I, II, III, IV:
  - The number of such programs
  - A list of program names
- For the purpose of this question, any program between Milestone I and IV and containing demonstration and validation (Dem/Val 6.4)/Engineering and Manufacturing Development (EMD 6.5) funds in the FY95 PBS is considered to be engaged in engineering development (BRAC Criteria I).

Engineering Development	Name or Number	Workyears (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
ACAT IC	(None)			
ACAT ID	V-22 Engineer-ing Support	1.7	$300K (A511-5115/010D/2 H1425)	(See text below)
ACAT II	(None)			
ACAT III/IV	0			
Other	0			

V-22 Engineering Support. The V-22 provides the Navy, Army, Air Force and Marine Corps the ability to conduct combat missions requiring vertical/short field take-off and landing capabilities not currently available. Application to each service mission needs will be accomplished by a common air vehicle with service-unique mission equipment. Primary missions are: amphibious/land assault, troop lift and external cargo (Marines), combat search and rescue (Navy), and special operations (Air Force).

3.3.1.3 **In-Service Engineering:** For each Common Support Function at each activity engaged in in-service engineering, list the in-service engineering efforts, the FY93 funds (from all sources) obligated for these efforts, the FY93 workyears for these efforts, and the weapon system(s) supported by these efforts. In-service engineering consists of all engineering support of fielded and/or out of production systems and includes efforts to improve cost, throughput, and schedule to support customer requirements as well as mods and upgrades for reliability, maintainability, and performance enhancements. (BRAC Criteria I)

Common Support Functions	In-Service Engineering Efforts (List)	FY93 Actual		Weapon System(s) Supported
		Funds Received (Obligation Authority)	Workyears	
Air Vehicle, Rotary, Structures	Rotorcraft Loads and Dynamics Engineering, Aircraft Structural Life Surveillance	$280K (A5602530/ 010-4/2660)	2.1	All Navy Rotorcraft in the Fleet--SH-60, H-53E, AH-1W, H-46, SH-2, H-3

3.3.2 **Projected Funding**

3.3.2.1 **Direct Funding:** For each applicable CSF, identify direct mission funding by appropriation from FY94 to FY97. Use FY95 PBS for FY95-FY97. (BRAC Criteria I)

Not Applicable.

CSF	FY94	FY95	FY96	FY97
	0	0	0	0

3.3.2.2 **Other Obligation Authority:** For each applicable CSF, identify reimbursable and direct-cite funding (other obligation authority expected) from FY94 to FY97. Funding allocation must be traceable to FY95 PBS. (BRAC Criteria I)

CSF	FY94	FY95	FY96	FY97
Air Vehicle, Rotary, Structures	$540.4K	$666K	$960K	$977K

3.4 Facilities and Equipment

3.4.1 **Major Equipment and Facilities:** Describe major facilities and equipment necessary to support each Common Support Function (include SCIFs). If the facilities and equipment are shared with other functions, identify those functions and the percentage of total time used by each of the functions. Provide labeled photographs that picture the breadth and scope of the equipment and facilities described. If it is unique to DOD, to the Federal Government, or to the US, describe why it is unique. Insert the replacement cost. For this exercise, Replacement cost = (Initial cost + capital investment) multiplied by the inflation factor for the original year of construction. (BRAC Criteria II)

None.

Common Support Function	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
		DOD	Federal Gov't	U. S.	
	None				

3.5 Expansion Potential

3.5.1 **Laboratory Facilities:** Use facilities records as of fourth-quarter FY93 in answering the following (in sq ft) for each CSF: (BRAC Criteria II)

Common Support Function	Facility or Equipment Description	Type of Space*	Space Capacity (KSF)		
			Current	Used	Excess
Air Vehicle, Rotary, Structures	**CCN 311**	**Technical**	**0.48**	**0.48**	**0**

* Administrative, Technical, Storage, Utility

3.5.1.1 Describe the capacity of your activity to absorb additional similar workyears categorized in the same common support function with minor facility modification. If major modification is required, describe to what extent the facilities would have to be modified. (Use FY97 workyears as your requirement) (BRAC Criteria III)

The Carderock Site has a gross building space of 1,533 KSF of which 79.9 KSF is in CCN 311, Aircraft Labs. The Site has approximately 10.9 KSF which could be made available for expansion with little or no modifications and an additional 124.6 KSF which could be made available with major modifications to existing buildings. Considering new construction a total of 557.1 KSF could be made available to absorb additional work years.

3.5.1.2 If there is capacity to absorb additional workyears, how many additional workyears can be supported? (BRAC Criteria III)

As shown in Table 3.3.2.2 above, about 4 additional work years in this common support function are planned by FY1997. These work years can be accommodated within existing space or by reassignment of existing personnel currently on-site.

3.5.1.3 For 3.5.1.1 and 3.5.1.2 (above) describe the impact of military construction programs or other alteration projects programmed in the FY95 PBS. (BRAC Criteria II)

None.

3.5.2 **Land Use:** Provide number of buildable acres for additional laboratory/administrative support construction at your installation. (BRAC Criteria II)

98.1 Acres at the Carderock Site are available for new construction without restrictions.

3.5.3 **Utilities:** Provide an estimate of your installation's capability to expand or procure additional utility services (electric, gas, water). Estimates should be provided in appropriate units -- e.g. KWH of electricity. (BRAC Criteria II)

Natural Gas.	**No known limitations.**
Sewage.	**Excess capacity above normal steady state load of 1,040,000 GPD or above peak demand of 716,000 GPD.**
Water.	**Excess capacity above normal steady state load of 1,040,000 GPD or above peak demand of 716,000 GPD.**
Electricity.	**Excess capacity above normal steady state load of 11,500 KWH or above peak demand of 3,000 KWH.**

~~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)

RADM (Sel) D. P. Sargent, Jr.
NAME (Please type of print

D P Sargent
Signature

Commander
Title

7/20/94
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

G. R. [illegible]
NAME (Please type or print

G. R. Steuer
Signature

Title
[illegible] Systems Command

8/5/94
Date

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)

W. A. EARNER
NAME (Please type of print

W A Earner
Signature

Title

8/18/94
Date

DATA CALL #12
CARDEROCK 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

D.K. Kruse; Captain, USN	DK Kruse
NAME (Please type or print)	Signature
Commander	7/21/94
Title	Date
Carderock Division; NSWC	
Activity	

Provides a correction due to improper site reference on page 3, and provides complete Section III data on pages 4 through 14 and adds page 7A as a result of BSAT guidance on the level-of-effort threshold for data submission.

MILITARY VALUE DATA CALL

TECHNICAL CENTERS

Category	Tech Centers/Labs
Technical Center Site	Carderock Site Carderock Division Naval Surface Warfare Center
Location/Address	Bethesda, MD

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

TAB B Facilities and Equipment: Facilities/Equipment Capability Form

TAB C Range Resources: Range Capability Form

Appendix A Functional Support Areas - Life Cycle Work Areas List

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

EXECUTIVE SUMMARY
CARDEROCK DIVISION - Carderock Site

Introduction

NSWC Carderock Division was established under BRAC 1991 with the merger of the Annapolis and Carderock Sites of the David Taylor Research Center (DTRC) and the Naval Ship System Engineering Station (NAVSSES). This is the only Navy and DoD Laboratory dedicated to Hull, Mechanical and Electrical (HM&E) engineering, research and development of ships and submarines. BRAC 91 mandated the relocation of the Materials function from Annapolis to Carderock which will be completed in 1996.

The mission by Congressional Charter (HR4045, HR10135) includes providing support to the commercial maritime industry. The mission is unique within the Navy and no other organization, public or private, provides this capability.

Mission

Provide research, development, test and evaluation, and fleet support for surface ships, submarines and undersea vehicles including support for the Maritime Administration and Maritime Industry (OPNAVNOTE 5450).

The Carderock Site houses the Division's Headquarters for the Annapolis and Philadelphia sites and provides many of the support functions such as financial and contracting for the Division.

Technical Functions

The technical functions are comprehensive to insure that the mission can be executed. They include the aspects of HM&E necessary to insure that the U.S. Navy continues to have the best ships, submarines and vehicles in the world. The site houses the Division's Hydromechanics, Survivability, Structures and Signatures capabilities and the Ship Systems/Programs group The site interacts with and complementrs technology development at the Annapolis site for acoustic and non-acoustic signatures, materials,and survivability and the Philadelphia site for materials, survivability and shared trials.

The work in structures; survivability, vulnerability and protection; focuses on affordable ship and submarine hulls that can withstand seaway loads and survive an attack. Work in hydrodynamics and propulsors relates to efficient hull forms that provide stable platforms in seaways, submarines with known control features and safe operating envelopes, and propulsors that are extremely quiet and propel ships at speeds that are beyond commercial interest. Work in acoustics and non-acoustic signature measurement, reduction and control focuses on quieting noise emissions from ships and submarines and other signatures such as infra-red, electromagnetic and radar. The logistic technologies focuses on

the application of information systems. In addition there is work in the design and systems integration of new developments from the technical specialties into new ships.

Because of the demanding military requirement for quieting and signature reduction, large high speed ships, and submarine hulls and ship hulls subject to attack, there is little commercial interest in the primary applications of our technology or maintaining special facilities to support these technologies.

The in-house expertise and unique facilities contributes to the DON imperative on:
-maintaining a critical in-house scientific and engineering knowledge and development base,
-providing "smart" buyer and user capabilities for acquisition support,
-providing full spectrum in-house testing capabilities,
-maintaining technical knowledge of weapons and systems within the Navy,
-translating new technology to meet current and future Navy needs.

The complex of people and facilities provides a wide spectrum of capabilities in HM&E, a corporate knowledge base, consistency in problem solving and a base for fleet improvements.

Manpower

The personnel are consonant with the mission, technical functions, and facilities. Advanced educational degrees are necessary becuse the technical work is R&D and solving non-standard fleet problems. The site contains a major concentration of naval architects. The civilian technical workforce consists of scientists and engineers, a high percentage with advanced degrees. Of the 1021 technical personnel at the Carderock Site 89 of these have doctorates and 127 have masters' degrees.

The scientists and engineers produce a significant number of patents and a large number of technical reports and papers for technical societies and symposia. This work results in ship design criteria and specifications. The reputation and dedication of the scientists and engineers is shown by the number of awards they receive, especially from professional societies.

Two members of the staff are members of the National Academy of Engineers.

Facilities and Equipment

These facilities are world-class and unique within the United States. They are essential to assure that future ships and submarines of the U.S. Navy meet their required future missions. The value of the hydroacoustic, hydrodynamic, and structural test facilities is well over $1.7 Billion..

The facilities include, among others, large pressure tanks for testing submarine structures, facilities for hull structural survivability, and various hydrodynamic and hydroacoustic test facilities, such as the Anechoic Flow Facility, the David Taylor Model Basins, the Maneuvering and Seakeeping Basin, and the Large Cavitation Channel. This latter test facility is located in Memphis, TN and represent a state of the art hydroacoustic/hydrodynamic facility that is the largest and quietest in the world.

Location

The main site is located in the western suburb of Washington, DC next to the Potomac River and Interstate 495 in Montgomery Co., MD. There is easy and rapid access (approximately 15 miles) to Navy headquarters, the Pentagon, Office of Naval Research, the Coast Guard and offices of other sponsors. Our many field elements and detachments are close to the fleet. Four major local universities have Engineering schools that provide additional R&D talent and facilities.

Features and Capabilities

The computer capabilities are extensive, pervasive and what one would expect at a major R&D and T&E facility. Computers are used for data collection, driving wave makers, CAD-CAM for model construction, controlling 20 ft long radio-controlled submarine models, simulating structural dynamics and collapse, sound-energy path in structures and computational fluid dynamics. Powerful workstations are numerous. There is access through T-1 lines and the internet to large governmental computational centers for problems that exceed on site computers. Nearly all employees PC's are connected to the local network, DTNET, and electronic mail is the norm.

Quality of Life

The site is located in a major metropolitan area, employees have all the cultural, educational and spouse employment opportunities that such an area offers. There are a number of major medical facilities in the area including the Naval Medical Center and the National Institutes of Health in Bethesda. The site has some recreational facilities but many more are available in the community. There are numerous other recreational opportunities within easy traveling distance, including the Chesapeake Bay, the Appalachian Mountains and the Atlantic beaches. The site is located next to a major National Historical Park, the C&O Canal. There are five quality universities besides a number of other educational institutions in the area.

Tab A

Tab A is summarized in a table which shows that the major part of our work is in the undersea and surface ship Functional Support Area. That work is concentrated in the Life Cycle Work Areas of R&D. Each FSA-LCWA intersection contains information on the type of work done and the facilities used to do that work.

Tab B

Tab B contains the site facilities information but it is grouped by technical capability. The Carderock Division specializes in twenty technical capabilities, six of which are entirely resident at the Carderock Site; the other thirteen are shared or reside at the other sites. Each technical capability writeup shows the relationship between the specialized nature of the facilities, the people, the dependency on other sites, the multiple uses of the facilities by the various technical capabilities, and the work for the Navy.

Tab C

Tab C gives the Ranges associated with the Carderock Site.

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.

CARDEROCK

The mission of the Carderock Division, Naval Surface Warfare Center is to:

"Provide research, development, test and evaluation, fleet support, and in-service engineering for surface and undersea vehicle, hull, mechanical and electrical systems, and propulsors; provide logistics R&D; and provide support to the Maritime Administration and the maritime industry." (OPNAVNOTE 5450)

The Carderock Site supports the mission of the Carderock Division of the Naval Surface Warfare Center by providing comprehensive full spectrum capabilities in the areas of: ship design and systems integration; structures; survivability, vulnerability and protection; hydrodynamics and propulsors; acoustic and non-acoustic (including radar, infrared and optical) signature measurement, reduction and control; and logistic technologies related to information systems.

No other activity is assigned mission responsibilities for surface and undersea vehicle platform systems in these areas. In addition, Public Laws HR4045 (15 Jan 1896) and HR 10135 (24 Feb 1937) state that CDNSWC shall be the Navy's technical agent for marine vehicles and for providing support to the maritime industry.

The Carderock Division provides many unique capabilities, not available elsewhere, for the design, development and support of Navy surface ships, submarines and small manned and unmanned vehicles. These capabilities are essential because they provide the technology, smart buyer expertise, and engineering support for the Navy to acquire and operate affordable, effective and safe ships. The Division contributes to the performance of the Joint Mission and Support areas by ensuring that current and future ships: meet their mobility (performance/maneuverability/seakeeping) requirements; have the lowest signature possible (are not detectable); are survivable (able to withstand weapon impacts and continue to operate); and can be procured and operated in sufficient numbers to meet national commitments (have affordable acquisition, operation and manning costs).

The Carderock Division supports Naval Surface Warfare Center leadership areas (NSWC Charter of 2 Jan 92) listed below and provides primary support to the highlighted leadership areas.

(1) Surface Warfare Modeling and Analysis [Primarily Carderock Site]

(2) Surface ship Combat and Combat Control Systems

(3) Surface Ship Electronic Warfare

(4) Surface Ship Electromagnetic and Electro-optic Reconnaissance, Search and Track Systems

(5) Surface Ship Weapons Systems (including Shipboard Missile Integration)

(6) Ship Vulnerability and Survivability (includes Submarine HM&E) [Primarily Carderock and Annapolis Sites]

(7) Ship Active and Passive Signatures (Includes Submarine HM&E) [Primarily Carderock, Annapolis and Bayview Sites]

(8) Surface and Undersea Vehicle Hull, Machinery, Propulsors and Equipment [Carderock, Annapolis and NAVSSES Sites]

(9) Platform Systems Integration [Primarily Carderock Site]

(10) Strategic Targeting Support (including Fire Control, Targeting and Re-entry Systems)

(11) Amphibious Warfare Systems

(12) Special Warfare Systems

(13) Warheads (Explosives and Energetic Materials)

(14) Mines, Mine Countermeasures and Mine Clearance Systems

Projected Missions Changes.

Additions:

- Dahlgren Division Signature Capabilities at White Oak, MD, and Ft. Lauderdale, FL consolidated with Carderock Acoustic Trials Facility at Cape Canaveral, FL.

- Elements of NAVSEA Ship Design Components moved to Carderock Site.

- Weapons Materials at Dahlgran Division Detachment White Oak, MD consolidated with Carderock Division's Materials and Processing Technology.

- Dahlgren Division Defense Against Nuclear Weapons Radiation Effects Capabilities at White Oak, MD, consolidated with Carderock Division's Vulnerability and Survivability Capabilities.

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

The Carderock Division participates in joint planning of Science and technology (S&T) programs with the Army and Air Force under Project Reliance in the areas of Advanced Materials, Environmental Quality, and Ships/ Watercraft. In the latter category, the Army and Navy have agreed to consolidate Watercraft S&T at the Carderock Division.

The Carderock Division and the Army Aviation and Troop Command (ATCOM) are parties to a Memorandum of Understanding which designates the Carderock Division as the principal agency for assisting ATCOM offices in accomplishing engineering functions including RDT&E, engineering support for procurements, in-service engineering, and upgrades of fielded items for marine craft.

The Carderock Division is party to numerous information exchange agreements and cooperative projects with foreign countries. A partial list of those agreements for which the Carderock Site has leadership responsibility is as follows:

CD/NSWC Project Officers	Data Exchange Agreement (DEA) Number	Country	Agreement Title
W. Morgan	N-93-F-5669	France	Naval Hydrodynamic Matters
R. Rockwell	N-63-F-186	Germany	Non-Nuclear Submarine Construction and Propulsion
I. Koh	N-80-K-4515	Korea	Conventional Submarine Design and Construction
J. Offutt	ABC-31	Tri-Country Multi-national	Operational Concepts for Hydrofoils and Air Cushion Vehicles
W. Morgan	IEP-17	Tri-Country Multi-national	Studies and Investigations of Hydromechanics
M. Riley	N-78-TN-4816	The Netherlands	Explosive Effects on Hulls and Equipment
W. Morgan	N-84-TN-4821	The Netherlands	Hydrodynamic Stability, Maneuverability, and Thrust Devices for Surface Ships and Non-Nuclear Submarines

J. Corrado	N-93-TN-4812	The Netherlands	Ship Construction Materials
W. Sikes	N-92-S-5413	Sweden	Conventional Submarine Construction and Propulsion
W. Morgan	N-91-S-5406	Sweden	Conventional Submarine Ship Control
R. Rockwell	B-47	United Kingdom	Structural Design of Surface Ships and Submarines

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.

SEE TAB A

FSA/LCWA SUMMARY
(TAB A)

FSA	LCWA	Dir WYs	In-house $K	Out-of-House $K	Direct Cite $K
Carderock Site					
1.1	1	12	1,702	293	25
	2	66	10,354	2,569	167
	3	259	33,367	15,775	1,402
	4	106	18,074	19,715	3,927
	6	7	2,238	968	0
	8	5	1,092	370	18,527
	9	26	4,120	1,223	0
	10	61	9,306	2,242	4,210
	13	34	5,726	5,327	1,910
1.3	1	13	1,813	187	0
	2	57	9,284	7,511	2,690
	3	141	21,167	13,215	9,003
	4	59	9,002	3,896	400
	8	17	2,551	522	0
	9	9	1,402	602	0
	10	34	5,283	2,904	794
	13	7	1,109	988	0
10.2	2	5	972	4,502	0
	4	12	3,420	5,741	0
	10	8	5,857	14,710	0

Revision R

FSA/LCWA SUMMARY FOR DETACHMENTS
(TAB A - Detachments)

FSA	LCWA	Dir WYs	In-house $K	Out-of-House $K	Direct Cite $K
Combatant Craft					
1.3	3	17.4	1,857	261	0
	4	12.4	1,387	562	0
	10	9.2	1,210	516	0
	13	1.1	114	15	0
	14	6.6	649	150	0
4.1	14	1.7	186	15	0
4.2	5	9	1,400	640	0
	6	13.9	1,910	1,223	0
	8	0.3	34	1	0
	14	7.1	815	217	0
LCC, Memphis					
1.1	5	0	0	0	3,030
	9	0.8	127	0	0
1.3	5	0	0	0	3,030
Bremerton/ Cape Canaveral					
1.1	1	1	130	0	0
	3	7.6	1,284	593	0
	8	3.5	462	180	0
	13	35	6,824	2,965	352
	14	36	7,300	4,474	0
1.3	8	3.5	556	174	0
	13	1.1	230	141	0
	14	1.2	93	57	0

FSA/LCWA SUMMARY FOR DETACHMENTS
(TAB A - Detachments)

FSA	LCWA	Dir WYs	In-house $K	Out-of-House $K	Direct Cite $K
Combatant Craft					
1.3	3	17	2,170	20	0
	4	13	1,520	440	0
	10	10	1,550	360	0
	13	8	780	0	0
	14	7	680	130	0
4.1	14	2	160	150	0
4.2	5	9	1,400	640	0
	6	2	240	120	0
	8	0.5	50	0	0
	14	6.5	660	120	0
LCC, Memphis					
1.1	5	0	0	0	3,030
	9	15	1,270	0	0
1.3	5	0	0	0	3,030
Bremerton/ Cape Canaveral					
1.1	1	1	130	0	0
	3	7.6	1,284	593	0
	8	3.5	462	180	0
	13	35	6,824	2,965	352
	14	36	7,300	4,474	0
1.3	8	3.5	556	174	0
	13	1.1	230	141	0
	14	1.2	93	57	0

revision

R

FSA/LCWA SUMMARY FOR DETACHMENTS (Continued)
(TAB A - Detachments)

FSA	LCWA	Dir WYs	In-house $K	Out-of-House $K	Direct Cite $K
Underwater Explosions Research Department					
1.1	2	0	5	0	120
	3	2.6	405	227	370
	4	13.5	2,142	891	0
	10	1.0	274	326	0
1.3	3	1.3	212	38	25
	4	7.8	1,038	765	400
	8	0.9	124	9	0
	10	9.3	1,330	518	0

FSA/LCWA SUMMARY FOR DETACHMENTS (Continued)
(TAB A - Detachments)

FSA	LCWA	Dir WYs	In-house $K	Out-of-House $K	Direct Cite $K
Underwater Explosions Research Department					

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.

Table 4.1, General Support Resources for (Activity: Carderock Site) (UIC: 00167)

Function	Space allocated	Work Years	Civilian Personnel	Contract Work	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/TD/etc.)*	6,170	32.9	22		2	
Comptroller*	9,679	41.8	37	1.0		
Admin*	26,551	49.4	73	6.0		
Human Resources*	12,693	28.0	30			
OPERATIONS SUPPORT						
Supply Management*	19,270	61.0	73		1	
Consolidated Computational Computer Support*	3,610	19.1	6	21.0		
Information Systems and Communications*	18,050	14.0	32			
Safety/OSH/Environmental	1,713	3.0	8			
INFRASTRUCTURE						
Physical Security	2,287	18.3	22			
Public Works/Staff Civil Engr	95,162	111.0	105	50.0	2	
Fire Protection	1,597	7.9	4			
Medical/Dental	991					
Military Support						
Air/Waterfront Operations						
Other	10,530	8.4				
TECHNICAL STAFF						
Technical Operations			1021	10	5	0
Totals	208,303	394.8	1433	88	10	0

*The Carderock Site is the Headquarters of the Carderock Division, Naval Surface Warfare Center. Under the organizational concept for the Division, management and some of their staff are located at the Carderock Site and provide support to the Annapolis, Bayview, and Philadelphia Sites.

revision

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Table 4.2, General Support Resources for all Detachments (Activity: Carderock Site) (UIC: 00167)

Function	Space allocated	Work Years	Civilian Personnel	Contract Work	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/ XO/ TD/etc.)		9.4			2	
Comptroller						5
Admin						
Human Resources						
OPERATIONS SUPPORT						
Supply Management						
Consolidated Computational Computer Support						
Information Systems and Communications						
Safety/OSH/Environmental	186		1			
INFRASTRUCTURE						
Physical Security	2,377		1			
Public Works/Staff Civil Engr	9,500			10		
Fire Protection						
Medical/Dental						
Military Support						
Air/Waterfront Operations						
Other		0.9				
TECHNICAL STAFF						
Technical Operations			229	16		34
Totals	12,063	10.3	231	26	2	39

Table 4.2, General Support Resources for all Detachments (Activity: Carderock Site) (UIC: 00167)

Function	Space allocated	Work Years	Civilian Personnel	Contract Work	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command ,(CO/ XO/ TD/etc.)		9.4			2	
Comptroller						5
Admin						
Human Resources						
OPERATIONS SUPPORT						
Supply Management						
Consolidated Computational Computer Support						
Information Systems and Communications						
Safety/OSH/Environmental	186		1			
INFRASTRUCTURE						
Physical Security	2,377		1			
Public Works/Staff Civil Engr	9,500			10		
Fire Protection						
Medical/Dental						
Military Support						
Air/Waterfront Operations						
Other		0.9				
TECHNICAL STAFF						
Technical Operations			229	15		34
Totals	12,063	10.3	231	26	2	39

Notes to General Support Resources Tables 4.1 and 4.2:

1. Data as of 31 March 1994.

2. General and Administrative (G&A) overhead workyears are a product of civilian regular and overtime hours.

3. Workyears reflect G&A performance and actual hours of charging through 31 March 1994.

4. 869 hours were used as the basis for a workyear for the period ending 31 March 1994.

5. Command includes the Commander, Technical Director, Office of Counsel, Program Planning Office, and the Command Evaluation and Review Office.

6. Some G&A functions, such as Commander and Comptroller, are located at only one or two sites but provide support to all sites. Therefore, some sites show a higher figure of workyears for some functions while other sites show few or no workyears.

7. Table 4.2 includes data for the Detachments in the following chart.

CARDEROCK DIVISION DETACHMENTS*

Name: Location: UIC: Host:	Acoustic Trials Detachment Cape Canaveral, FL 30025 None (leased)
Name: Location: UIC: Host:	Combatant Craft Department Suffolk, VA 00167 None (leased)
Name: Location: UIC: Host:	Underwater Explosions Research Detachment Norfolk, VA 30018 Naval Base, Norfolk, VA
Name: Location: UIC: Host:	Surface Effect Ship Support Patuxent River, MD 45705 (Boathouse), 46007 (Ship) Naval Air Station, Patuxent, MD
Name: Location: UIC: Host:	Puget Sound Detachment Bremerton, WA 30492 Puget Sound Naval Shipyard, Bremerton, WA
Name: Location: UIC: Host:	Santa Cruz Radar Imaging Facility Santa Cruz Island, CA 00167 Naval Air Weapons Station, Point Mugu, CA
Name: Location: UIC: Host:	Memphis Detachment, Large Cavitation Channel Memphis, TN 48381 None (owned)
Name: Location: UIC: Host:	Southeast Alaska Acoustic Measurement Facility Ketchikan, AK 30492 None (owned)
Name: Location: UIC: Host:	Fox Island Acoustic Range Carr Inlet/Bremerton, WA 30492 None (owned)

* Does not include Bayview, Panama City or SCARF.

Combatant Craft Department - Norfolk

Description of Site: The site is located in Suffolk Virginia near the core of the U.S. Navy and U.S. Army boat communities. The facilities include test and evaluation lab space for assembly, calibration and storage of specialized craft test instrumentation, computer and Computer Aided Design (CAD) space, warehouse space for boat and craft evaluation, general engineering development office space, classified work spaces and local boat yard facilities housing several test and test support craft.

Functions Performed: The Combatant Craft Department (CCD) provides full spectrum engineering technical support for U.S. Navy boats and craft from cradle to grave. CCD supports joint services and non DOD by providing engineering technical support for boats and craft to the U.S. Army, Special Warfare, U.S. Marine Corps, U.S. Air Force, U. S. Coast Guard, National Oceanographic and Atmospheric Administration (NOAA), private Industry and others. The types of engineering functions performed (classified and non-classified) include:

In-Service Engineering
Direct Fleet Technical Support
Test and Evaluation
Contract and Detail Design
Construction Technical Support
Research and Development
Concept Formulation
Trade-off Analysis
Integrated Logistics Support (ILS) Documentation
Technical Manual Development and Maintenance
Provisioning/Supply Support
Maintenance Documentation Support
Acquisition Support
Life Cycle Management Support
Life Raft Repair Facility Certification
U.S. Navy and U.S. Army Drawing and Specification Repository
Advancement of Boat, Craft and System Technology
Boat and Craft Inspections and Surveys
Special Programs (partially and wholly classified programs)

Photos of Site:
1. Aerial View of Main Facility
2. Various Craft undergoing Test & Evaluation
3. Map showing proximity to Various Activities

Reason for Sites Existence and Necessity of Sites Location: The Combatant Craft Department (CCD) was transferred to the Tidewater Virginia area from NAVSEC (currently NAVSEA) in 1967 to improve fleet interface, minimize technical support response times and to provide access to the waterfront and various operational conditions for Boat and Craft Test

& Evaluation. CCD exists to develop and support boats and craft required to meet U.S. Navy, U.S. Army and other DOD and Non-DOD mission requirements.

The largest and most varied inventory of DOD and non DOD boats and craft located anywhere is concentrated in the Tidewater area. This allows engineers and technicians to provide quick response to technical problems and to maintain an active interface with the user community. User feedback can be incorporated into later designs. There are local representative boats and craft for almost all U.S. Navy, U.S. Army, Special Warfare, NOAA and U.S. Coast Guard inventories.

The CCD performs receipt inspections of all new boats and craft delivered to the boat repository at Cheatham Annex, inspections of in-service boats on local ships and at local activities, and is the only local activity performing boat surveys.

There are numerous activities and units located within the Tidewater area (Norfolk, Portsmouth, Newport News, Virginia Beach, Hampton, Chesapeake and Suffolk) which are supported by the Combatant Craft Department including:

U.S. Navy and Special Warfare
Norfolk Naval Station (Ship's Boats)
Fleet Industrial Supply Center Cheatham Annex (Boat Storage Repository)
Little Creek Amphibious Base
Assault Craft Unit Two
Assault Craft Unit Four
Amphibious Construction Battalion Two
Beachmaster Unit Two
Naval Beach Group Two
Naval Special Warfare Group Two
Dam Neck
Naval Special Warfare Development Group
Special Boat Unit Twenty
Special Boat Unit Twenty Four
Special Boat Squadron Two
Seal Delivery Vehicle Team Two
Seal Teams Two, Four and Eight
Mobile Diving and Salvage Unit Two
Explosive Ordnance Disposal Unit Two
Fleet Technical Support Center Atlantic
Naval Surface Force U.S. Atlantic Fleet
Naval Surface Force Atlantic-Readiness Support Group
Naval Sea Support Center-St Juliens Creek (inactive Fleet)
Norfolk Naval Shipyard
Life Raft Certification Facilities - Norfolk, Portsmouth
Shore Intermediate Maintenance Activities (SIMA), Norfolk, Little Creek and Portsmouth
Operational Test and Evaluation Force - Norfolk

Supervisor of Shipbuilding Conversion and Repair (SUPSHIP) Portsmouth and Newport News
Fleet Training Center
Naval Air Station
Naval Safety Center

U.S. Army
Fort Eustis (largest active Army Watercraft Contingent)
7th Transportation Group
10th Transportation Battalion
Army Transportation School (User representative / Combat Developer)
Fort Story
11th Transportation Battalion

U.S. Marine Corps
Landing Force Training Command Atlantic

U.S. Coast Guard
Support Center Portsmouth

National Oceanographic and Atmospheric Administration (NOAA)
Atlantic Marine Center

Private Shipyards performing Boat Modification, Maintenance and Repair (various)

Technical evaluations of high performance Combatant Craft require shallow and deep water, open and protected environments, various sea states and often different beaching conditions. The Tidewater area provides quick easy access to all of the conditions through local operating areas in the Atlantic Ocean, Chesapeake Bay, James and Elizabeth Rivers and various lakes. Examples of various conditions obtainable locally include:

Sea States	Beaching	Operational Environments
Sea State 0 to 4	Sand	Open Ocean
including:	Gravel	Protected
Calm Water	Mud	Coastal
Rough Water	Various Slopes	Riverine
Various Wave Periods	Etc.	Surf
Various Wave Heights		Quiet (on-board and far-field noise tests)
Etc.		
	Water	Littoral
	Salt	Etc.
	Fresh	

The area also provides quick easy access to boat yard facilities and services (crane / boat lift, fuel, pier, dry storage, land transport, etc.) required for test and evaluation.

Engineering tests and operational evaluations are part of introducing new boats and craft to the fleet. The close proximity to boat units and activities facilitates active user community input to these tests and operational evaluations and helps to ensure that craft meet mission requirements.

Air transportability is also a requirement for some boats. Naval Air Station Norfolk is C-5A capable for air transportability testing.

Cape Henry Lighthouse radio beacon is one of only ten U.S.C.G. sites currently available for providing the Global Positioning System (GPS) differential correction signal for accurate velocity and position information required for performing speed and maneuvering tests.

There is no other known location which provides all of the conditions noted above. Relocation would have a severe impact on direct fleet technical support response times, in-service engineering, test and evaluation capabilities, communication with the fleet and overall efficiency and costs of the Combatant Craft Department.

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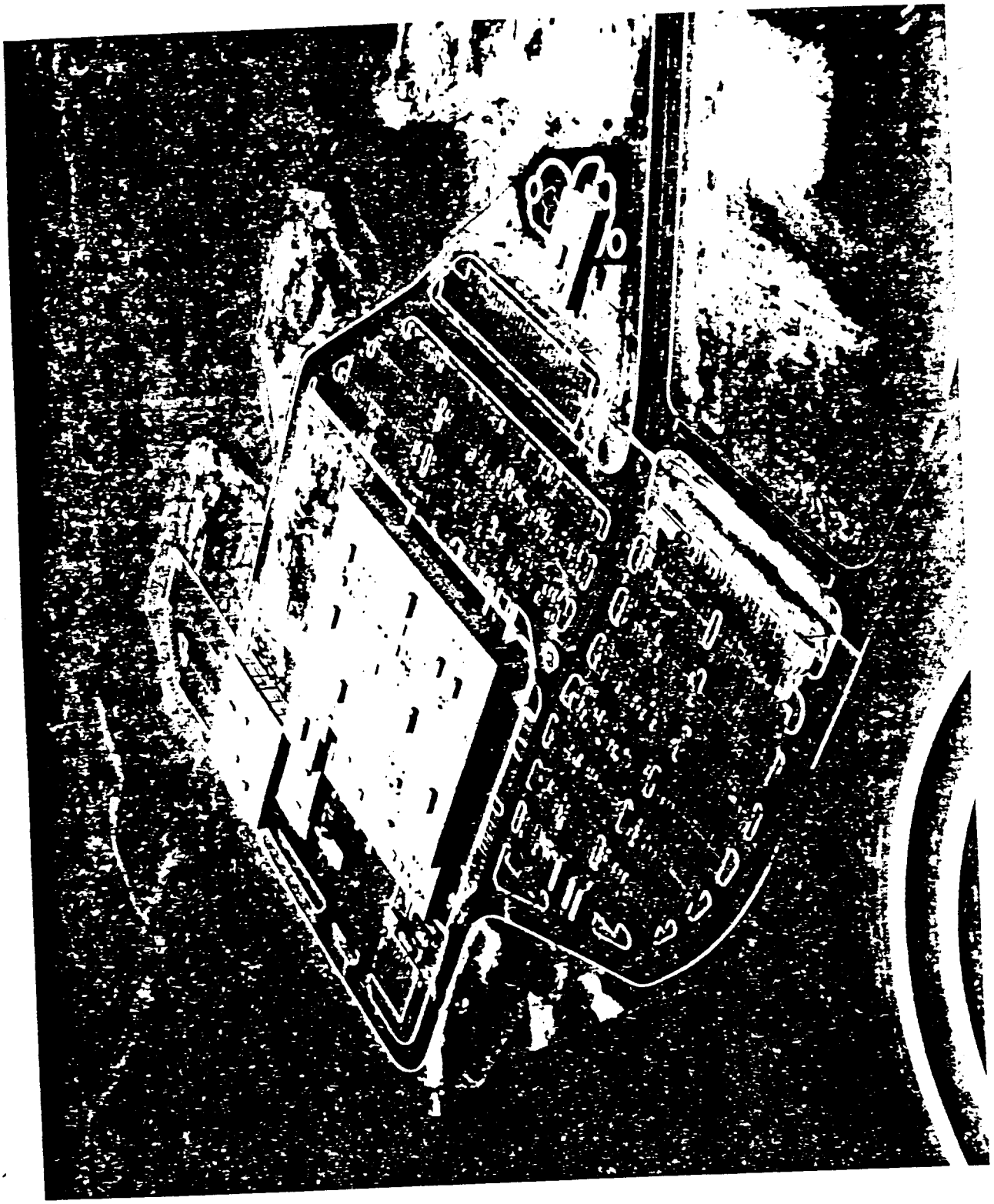
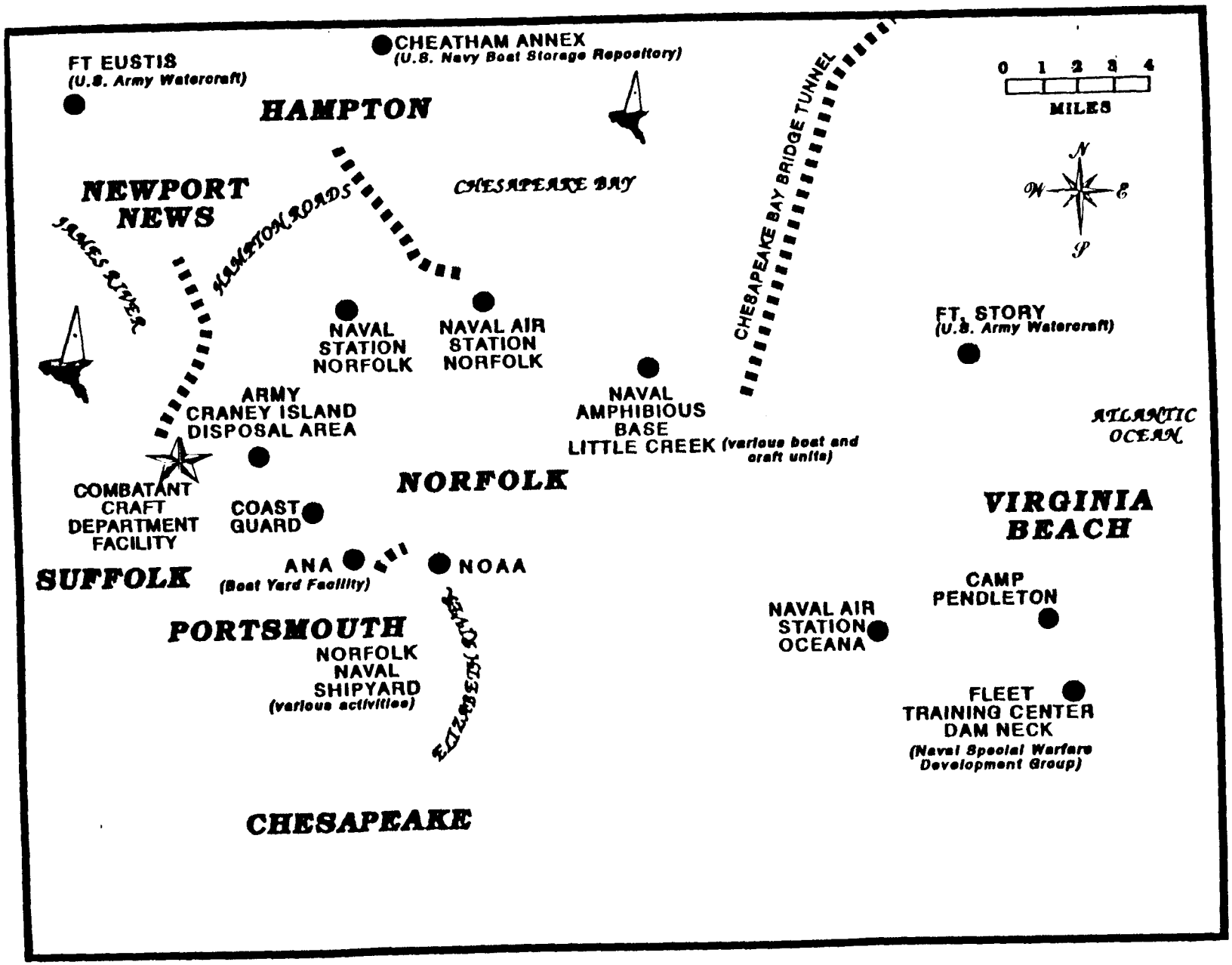


SEABAT Site

SEABAT


FT EUSTIS
(U.S. Army Watercraft)
CHEATHAM ANNEX
(U.S. Navy Boat Storage Repository)
HAMPTON
NEWPORT NEWS
JAMES RIVER
HAMPTON ROADS
CHESAPEAKE BAY
CHESAPEAKE BAY BRIDGE TUNNEL
0 1 2 3 4
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NAVAL STATION NORFOLK
NAVAL AIR STATION NORFOLK
FT. STORY
(U.S. Army Watercraft)
ARMY CRANEY ISLAND DISPOSAL AREA
NAVAL AMPHIBIOUS BASE LITTLE CREEK
(various boat and craft units)
ATLANTIC OCEAN
COMBATANT CRAFT DEPARTMENT FACILITY
NORFOLK
COAST GUARD
VIRGINIA BEACH
SUFFOLK
ANA
(Boat Yard Facility)
NOAA
CAMP PENDLETON
NAVAL AIR STATION OCEANA
PORTSMOUTH
NORFOLK NAVAL SHIPYARD
(various activities)
ELIZABETH RIVER
FLEET TRAINING CENTER DAM NECK
(Naval Special Warfare Development Group)
CHESAPEAKE

Memphis Detachment

Facility Name: **Large Cavitation Channel (LCC)**
Location: **Presidents Island, Memphis, TN**
Location address: **Large Cavitation Channel**
2700 Channel Ave
Memphis, TN
UIC: 48381 (was 48446 until Jan 14, 1994)

The number of civilians is 15 and the number of military personnel onboard is 0.

The Navy detachment is on 88 acres of land on Presidents Island, an industrial park area, in Memphis,TN. There is 880 feet of river front access. The site has a 430,000 sq. ft. building that houses the LCC. Of that total, 300,000 sq. ft. is available for other Navy or governmental use.

The administration building is a 19,300 sq. ft. single floor building which houses the offices of the LCC personnel and the security forces. The detachment is physically constructed and manned to routinely handle programs up to a classification level of Secret. Programs at the level of Top Secret can be accommodated with the addition of a minor number of security personnel.

The waterfront derrick crane has a 1150 ton capability and can rotate a full 360 degrees.

2. The functions performed there:

The purpose of the Large Cavitation Channel (LCC), Memphis Detachment, CDNSWC is to provide the Navy and the maritime industry with the most technically advanced and cost effective hydrodynamic/hydroacoustic test facility, and in this role, to insure the best possible ship designs are produced. The LCC's capability to test large scale models provides significant cost savings in development of advanced ship and submarine propulsor designs, appendages, and hull forms.

The LCC tests the propulsor power, performance, efficiency, and acoustics of large scale ship and submarine models in a controlled environment. With its test section 45 feet long, 10 feet high and 10 feet wide, the LCC test conditions include water velocity up to 35 knots, pressures from 0.5 to 60 psia, and air content from full saturation down to 10% of saturation. Close tolerance flow management systems insure steady, uniform, low turbulence water flow in the test section. The facility uses advanced hydroacoustic silencing techniques for reducing the acoustic reverberation introduced by the flow of water in the tunnel. The LCC includes an extensive data acquisition and analysis system with complete digital and analog recording capabilities, a laser doppler velocimeter, cavitation susceptibility venturi meter, oxygen sensors, broad band and beam-formed acoustic hydrophone arrays, transducers, and video monitoring systems.

For more information on the size and relocation costs of this facility refer to Tab B, Technical Capability and Facility 11 -RDT&E, and Acquisition and Lifetime Support for Surface and Undersea Vehicle Hull Forms and Propulsors.

3. Photographs showing the facilities:
Attached.

One photo of a ship model next to the LCC test section.
One aerial photo of the site at Presidents Island, Memphis TN.

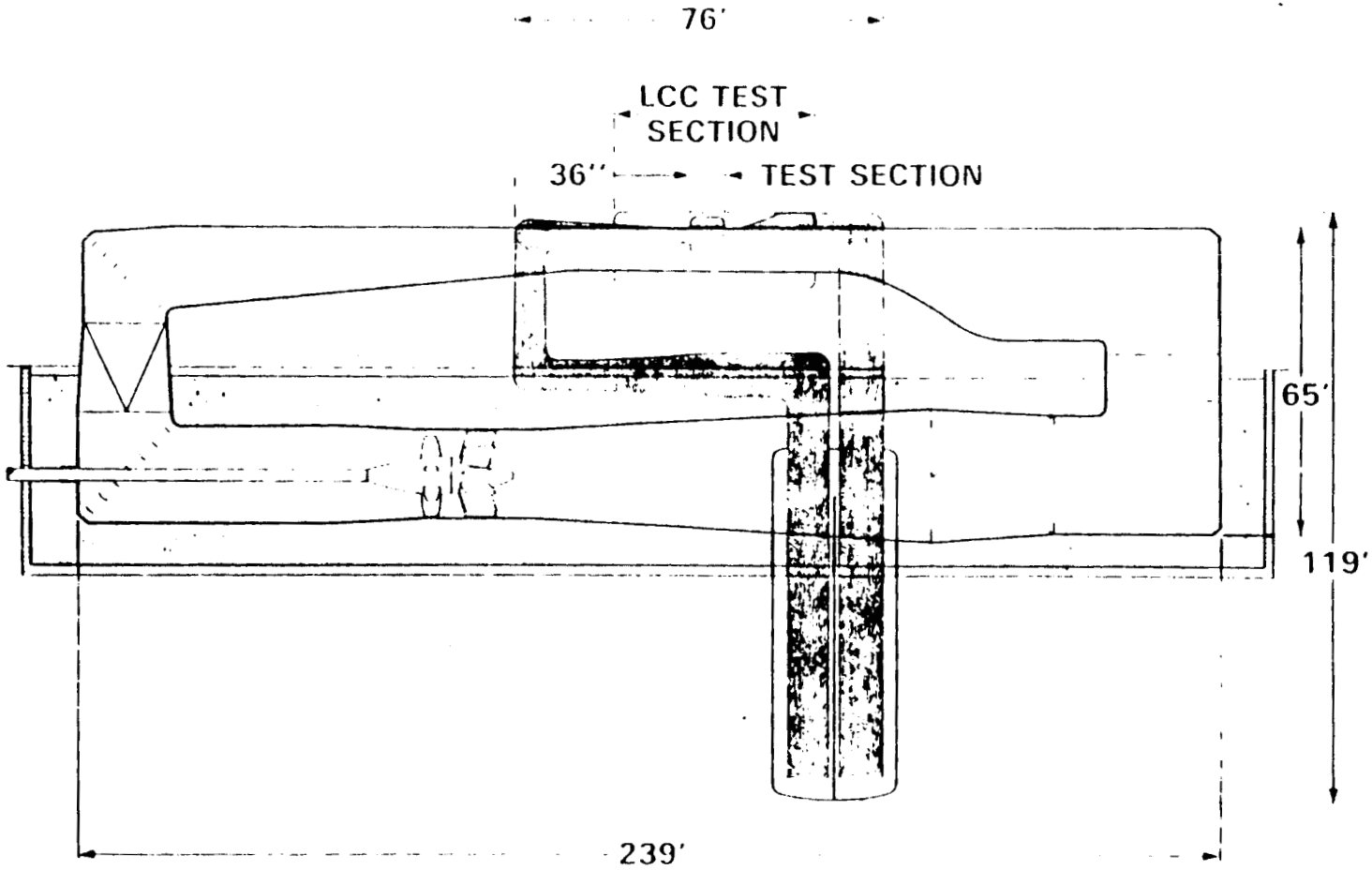
4. State the reason for that site's existence:

The Large Cavitation Channel is designed to test the noise, power, and efficiency of propellers on models of ships and submarines in a realistic but controlled environment. The worst propeller noise is caused by cavitation - the local boiling of water on the low pressure side of a propeller. In the absence of cavitation the propeller is still a dominant noise source. The LCC is the most advanced and largest cavitation channel of its kind in the world for hydroacoustic testing.

5. The necessity for it to be at that location:

It was the most cost beneficial site available to the government at the time of contract negotiations and construction.

LCC Site



36-Inch Water Tunnel Superposed on LCC

LCC

Underwater Explosions Research Department (UERD) - Portsmouth, Virginia

Description of Site: The Underwater Explosions Research Department (UERD) of the Naval Surface Warfare Center, Carderock Division has been located in the Norfolk Naval Shipyard for over 45 years. The facility supporting UERD is an office/laboratory complex for 51 people (as of 31 March 1994), work bench labs for instrumentation, a Technical Reference Center, and a Classified Material Vault. Additionally an Instrumentation Sensor Manufacturing and Calibration Facility, a Shock Test Mobile Instrumentation Facility, and storage areas for test equipment and model outfitting are a part of the UERD facility located in the immediate area.

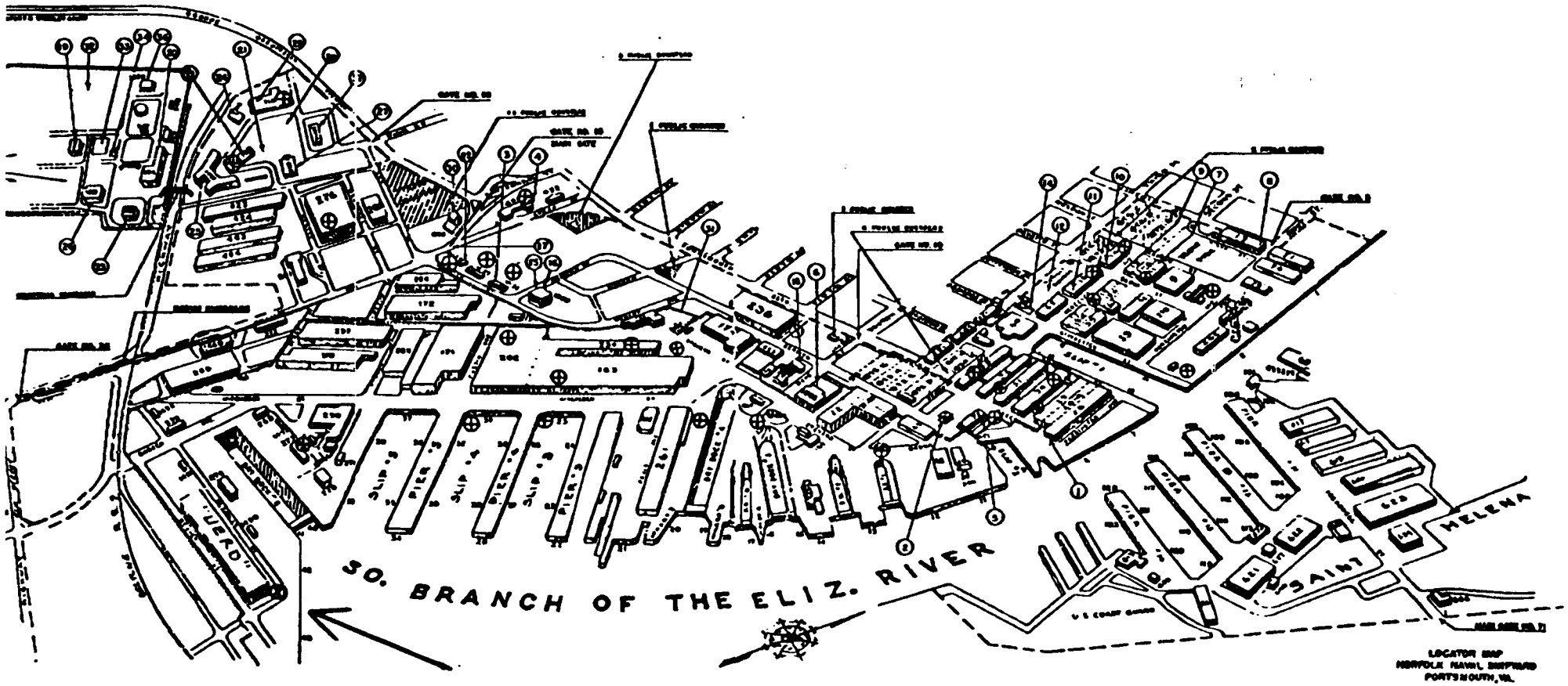
Functions Performed: UERD performs analyses and tests to develop prediction and design methods for enhancing the survivability of surface ships and submarines against underwater weapons and to develop quantitative procedures for assessing the effectiveness of warheads against surface and subsurface targets. An additional function is to operate and maintain Survivability, Structures, and Materials Directorate's test facilities and equipment designed for large-scale and actual ship testing. This includes unique instrumentation packages which provide over 1000 channels of state-of-the-art dynamic recording capability and an Instrumentation Sensor Manufacturing and Calibration Facility. UERD is a full-service testing activity. It integrates its technical expertise for pre-test analytical studies relating theory to experimental results, test planning and direction, post trial analyses, interpretation of experimental results, with its state-of-the-art capabilities in developing advanced data acquisition and data processing systems.

Photos of Site:

1. UERD Location - Locator Map of Norfolk Naval Shipyard
2. Shock Trial of USS KAUFFMANN (FFG-59)

Reason for Site Existence and Necessity of Site Location: UERD's location in the Norfolk Naval Shipyard provides water access via barges to the large industrial base necessary to support large model test programs. Most ships to be tested are homeported in the Norfolk area, which facilitates required test preparation on the ships and working closely with the ship's force and fleet headquarters in planning tests. UERD has a Memorandum of Understanding with NAVSEA to perform all at-sea shock related testing.

UERD LOCATION
LOCATOR MAP OF NORFOLK NAVAL SHIPYARD
PORTSMOUTH, VIRGINIA
(SEE LOWER LEFT CORNER FOR UERD)



MAP SYMBOL NUMBER	NAME
1	SHIPS TRANSPORTATION POOL
2	CHAPEL
3	ADMINISTRATION BUILDING FOR ENLISTED PERSONNEL
4	NAVY EXCHANGE
5	POST OFFICE
6	SUBMARINE REPAIR FACILITY
7	COMPTROLLER
8	TRA MEETING HALL
9	DISBURSING OFFICE
10	BACHELOR OFFICER'S QUARTERS
11	OFFICER'S CLUB
12	OFFICER'S TENNIS COURTS
13	INACTIVE SHIP MAINTENANCE FACILITY
14	OFFICER'S SWIMMING POOL
15	ENGINEERING MANAGEMENT BUILDING
16	COMMANDER'S OFFICE
	I.G. WEEKLY CONFERENCE
	AWARD HALL
	NAVAL TELECOMMUNICATIONS CENTER
	SHIPYARD DUTY OFFICE
17	MAIN GATE - GATE #1
18	DISPENSARY
19	BOWLING ALLEY
20	DISPENSARY
21	SOFTBALL DIAMOND
22	HOT SLIP TAVERN
23	NAVY EXCHANGE GAS STATION
24	PICNIC GROVE
25	BACHELOR ENLISTED QUARTERS-BALL HALL
26	ENLISTED CLUB-THE SPYGLASS
27	GENERAL MESS
28	ENLISTED TENNIS COURTS
29	CALLAWAY CENTER RECREATIONAL FACILITY
30	PASS OFFICE AND POLICE STATION
31	INDUSTRIAL AREA SECURITY FENCE
32	GOLF DRIVING RANGE
33	SCOUT CENTER TENNIS COURTS
34	SCOUT CENTER SWIMMING POOL
35	CALLAWAY CENTER SWIMMING POOL
36	AUTOMOTIVE HOBBY SHOP
37	BACHELOR ENLISTED QUARTERS
38	PUBLIC PAY TELEPHONE

Puget Sound Detachment - Bremerton, Washington

Description of Site: The Signatures Directorate's Puget Sound Detachment was formed in 1984 when the west coast acoustic trials responsibility was assigned to CDNSWC. As a result, the Ship Silencing Division, Puget Sound Naval Ship Yard, with personnel and facilities, was transferred to CDNSWC. Detachment offices, computing facilities, work shops and storage spaces are housed, as they were at the time of the transfer, in two buildings within the controlled industrial area of the Puget Sound Naval Ship Yard. Class 1 and 2 properties located at Fox Island, Washington, were formally transferred to CDNSWC plant account.

Functions Performed: The Puget Sound Detachment is responsible for planning, conducting analysis, and reporting acoustic data for surface ships and submarines. Also within their mission is the definition of requirements for and the development of acoustic measurements facilities, both fixed and portable, to satisfy RDT&E and operational needs of the Pacific Fleet.

Reasons for Site Existence and Necessity of Site Location: The detachment maintains and operates three acoustic ranges on the west coast, one at Santa Cruz Island, California (SCARF); one at Fox Island, Washington (FIAL); and one at Ketchikan, Alaska (SEAFAC). These are the only engineering measurement facilities in the Pacific used to conduct RDT&E quality measurements noise on surface ships and submarines to develop noise mitigation technologies and techniques. SEAFAC is the only site available to the Navy the capability to suspend a submarine, shut down the reactor and provide shore power to conduct detailed diagnostic measurements of machinery related noise sources and transmission paths. The ranges and acoustic data processing facilities are described in Tabs B and C of this Data Call #5.

Table 4.3, Previous BRAC Impact to General Support Resources for (Activity: Carderock Site) (UIC: 00167)

Function	Space allocated	Work Years	Civilian Personnel	Contract Work	Military Personnel Onboard	
					Off	Enl
ADMINISTRATION						
Command (CO/XO/ TD/etc.)						
Comptroller[1]	1,180	2	2			
Admin[1]	1,180	12	12			
Human Resources[2]	3,200	5	5			
OPERATIONS SUPPORT						
Supply Management[1]	1,180	16	16			
Consolidated Computational Computer Support						
Information Systems and Communications						
Safety/OSH/Environmental						
INFRASTRUCTURE						
Physical Security						
Public Works/Staff Civil Engr		40	40			
Fire Protection						
Medical/Dental						
Military Support						
Air/Waterfront Operations						
Other*	10,300					
TECHNICAL STAFF						
Technical Operations			202			
Totals	150,480	75	279			

[1]A 3,540 SF addition will be used by the comptroller, administrative, and supply functions. Additional space was divided evenly for this exercise.

[2]A 3,200 SF annex will be used for classroom training and the integration of personnel from Annapolis Site. The former annex was demolished to accommodate MILCON project (P172/P179-Carderock Site).

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.

Table 5.1, Technical Staff Education Level for (Activity:Carderock Site) (UIC: 00167)

Highest	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		2		1	3	6
High School	1	82	36	32	75	226
B.A./B.S	15	182	55	17	161	430
M.A./M.S	8	106	46	31	79	270
Ph.D./ M.D.	5	32	18	9	25	89
Total	29	404	155	90	343	1021

Table 5.2, Technical Staff Education Level for all Detachments (Parent Activity: Carderock Site) (UIC: 00167)

Highest	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				1		1
High School	2	20	16	11	31	80
B.A./B.S	3	57	32	16	20	128
M.A./M.S		2	4	2	10	18
Ph.D./ M.D.		1			1	2
Total	5	80	52	30	62	229

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:Carderock Site) (UIC: 00167)

Academic field	Number
Physics	25
Chemistry	0
Biology	0
Mathematics/Statistics/ Operations Research	22
Engineering	256
Medical	1
Dental	0
Computer Science	7
Social Science	1
Other Science	15
Non-Science	19
Total	346

Table 5.4, Technical Staff Academic Fields for all Detachments (Parent Activity: Carderock Site) (UIC: 00167)

Academic field	Number
Physics	4
Chemistry	1
Biology	0
Mathematics/Statistics/ Operations Research	1
Engineering	11
Medical	0
Dental	0
Computer Science	0
Social Science	0
Other Science	1
Non-Science	2
Total	20

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

The Carderock Site located in Bethesda, MD, just outside the Washington, D.C Beltway, provides an attractive work environment for employees. With its high concentration of professionals and college graduates and its role as a major cultural and educational center, the metropolitan area is an attractive place to live and pursue a career. Professionally, the Carderock Site is near many excellent universities, Navy headquarters, and offices of other sponsors. The high cost of living is a constraint on recruitment for lower paid positions from the immediate area.

On the minus side, the Carderock Site is in an expensive area. The high cost of housing generally means that we cannot draw employees for lower paid positions from the immediate area. Most employees must rely on private autos or car pools for transportation, as access to public transportation is limited--a Montgomery County Ride-On bus system which transports employees from the Bethesda Metro station.

Summary of Technical Publications, Awards, Patents and Major End-Item Prototypes for Carderock Site (UIC 00167)

TC	Articles	Books	Non-Gov. Awards	Gov. Awards	Patents Awarded	Applied for Patents	Major End-Item Prototypes
1	8						4
2	16	1					11
3	111	8					14
4	10	1					3
11	136	2					7
12	0						1
13	18						17
14	6						26
15	3						
16	19						9
17	26						
18	24						1
20	12						6
Total	389	12	19	79	31	30	99

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.

TC 1: Naval Vehicle Cost Benefit/Analysis Simulation and Modeling

Code 20 - Ship Systems and Programs Directorate

Greenberg, Marc, "Underway Replenishment (UNREP) Highline Systems: Cost Tradeoff of Synthetic Line Systems versus Wire Rope Systems," Proc. 31st Annual Technical Symposium of the Association of Scientists and Engineers (13 Apr 1994).

Jeffers, Michael F., Jr., "The Future of Defense Spending in a New World Order: an Economic Perspective," Proc. 26th Annual DoD Cost Analysis Symposium, Leesburg, VA, September 1992; earlier version presented at the 60th Military Operations Research Society Symposium, Monterey, CA (Jun 1992).

Jeffers, Michael, Jr., "Costing a Smaller Navy: Force Planning, COEAs, and the Challenge of Uncertainty," Proc. MORS-SCEA Second COEA Mini-Symposium, Falls Church, VA (2-4 Mar 1993).

Jones, Robert R., Michael F. Jeffers, Jr., John C. Trumbule and Marc W. Greenberg, "The Price of Performance: Analysis of Naval Ship and Submarine Cost Drivers," 1993 Annual Technical Symposium of the Association of Scientists and Engineers, 26th Annual DOD Cost Analysis Symposium, and 1993 MORS Annual Symposium. (Accepted, but not presented due to subject matter sensitivity).

Milano, Anjali, "A Method for Estimating R&D Cost Using the PRICE H Parametric Cost Model," Proc. 26th Annual DOD Cost Analysis Symposium (Sep 1992).

Smith, Alfred B. LCDR, "Product Oriented Design and Construction: Impact on Operating and Support Costs," 31st Annual Technical Symposium of the Association of Scientists and Engineers (Accepted, but not presented due to subject matter sensitivity).

Towles, William T. and Michael F. Jeffers Jr., "Reality and Long Range Budget Constraints," Proc. 24th Annual DoD Cost Analysis Symposium, Leesburgh, VA (Sep 1990).

Woerner, J., T. Heidenreich, M. Greenbery and P. Goubault, "Fuel Cell Power Plants for Surface Fleet Applications," Proc. American Society of Naval Engineers (27 Apr 1994).

TC 2: RDT&E and Acquisition Support for Surface, Undersea and USMC Vehicle Vulnerability and Survivability Systems

Code 60 - Survivability, Structures and Materials Directorate

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TC 14: RDT&E, and Acquisition and Lifetime Support for Small Surface and Undersea Manned and Unmanned Vehicles including Combatant Craft

Code 20 - Ship Systems and Programs Directorate

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TC 15: RDT&E and Acquisition Support for Marine Corps Vehicle Systems and Components

Code 20 - Ship Systems and Programs Directorate

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TC 16: RDT&E, and Acquisition and Lifetime Support for Surface and Undersea Vehicle Design and Integration Systems

Code 20 - Ship Systems and Programs Directorate

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TC 17: RDT&E and Acquisition Support for Shipbuilding and Manufacturing Technology

Code 20 - Ship Systems and Program Directorate

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TC 18: Experimental Aerodynamics

Code 20 - Ship Systems and Programs Directorate

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Code 50 - Hydromechanics Directorate

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TC 20: Logistics RDT&E, Acquisition and In-Service Engineering

Code 10 - Machinery Systems/Programs and Logistics R&D Directorate

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Vaughters, T. G., "Joint Logistics Over The Shore Operations," in: in: ASNE Day 1994, Published by Naval Engineers Journal, American Society of Naval Engineers, Volume 106, Number 3, pp. 256-263, Washington, DC (1994).

Vaughters, T. G., "New Technology For Joint Logistics Over The Shore Operations," Proc. ASNE Logistics Symposium, Logistics for the 21st Century, Proceedings, 17-18 March 1993, Seattle Washington, American Society of Naval Engineers, pp. C184-C192, Seattle, WA (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.

TC 2: RDT&E and Acquisition Support for Surface, Undersea and USMC Vehicle Vulnerability and Survivability Systems

Code 60 - Survivability, Structures and Materials Directorate

Hansen, I.S., and R.E. Price, "The U.S.S. MAINE: An Examination of the Technical Evidence Bearing on Its Destruction," Appendix A and Addendum to Appendix A of "How the Battleship MAINE Was Destroyed," by H.G. Rickover, new edition, Naval Institute Press (1994).

TC 3: RDT&E and Acquisition Support for Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems

Code 70 - Signatures Directorate

Feit, D., "Sound Radiation from Marine Structures," chapter manuscript submitted for publication in the HANDBOOK OF ACOUSTICS, to be published by John Wiley & Sons, Inc. (1994).

Feit, D. and M. C.Junger, "Sound Structures and Their Interaction," 3rd edition published by the AcousticalSociety of America (1993).

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Kim, M., "Active Control of Fluid-Induced Vibration of Flexible Structural Members," Ph.D. dissertation, The Catholic University of America, 1990.

Groutage, F.D. and D. Bennink, " Control and Dynamic Systems: Advances in 2D and 3D Signal Processing," The Foundation of Acoustic Holography in Terms of Forward and Inverse Problems, by Academic Press, Inc., (Manuscript submitted to Publisher and will be published in 1994).

Groutage, F.D. and A.M. Schneider, "Control and Dynamic Systems: Advances Digital Signal Processing, Fundamentals of Higher Order S-to-Z Mapping Functions and Their Application to Digital Signal Processing," Academic Press, Inc., (Manuscript submitted to Publisher and will be published in 1994).

Strasberg, M., "Acoustical Measurements," in "Encyclopedia of Phisics" (2nd ed) edited by Rita Lerner and Geroge Trigg, VCH Publishers, Inc., NY (1991).

TC 4: RDT&E, Acquisition Support, and In-Service Engineering for Surface and Undersea Vehicle Non-Acoustic Signatures and Silencing Systems

Code 70 - Signatures Directorate

Pierce, R.D., " Application of Higher-Order Spectra to High-Resolution Radar Measurements," Higher Order Statistics, Edited by J.L.Lacoume, Elsevier Science Publishers, Amsterdam, The Netherlands (1992).

TC 11: RDT&E, and Acquisition and Lifetime Support for Surface and Undersea Vehicle Hull Forms and Propulsors

Code 20 - Ship Systems and Programs Directorate

Ohring, S., "Vortex-Ring/Free-Surface Interaction," NAS Technical Summaries, NASA-Ames, p. 134 (1993).

Code 50 - Hydromechanics Directorate

Noblesse, F. and C. Young, "Introduction to Numerical Free Surface Hydrodynamics," Cambridge Press (1995) (In preparation).

f. Identify any Nobel laureates employed at this activity.

None

R

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

Acoustical Society of America

1991 G. Maidanik

1992 C. Richman

Association of Scientists and Engineers

1994 B. Kozlowski: Superior Service Award

American Defense Preparedness Association

1992 D. Sheridan: Bronze Medal

1994 G. Jebsen: Bronze Medal

American Society of Naval Engineers

1990 M. M. Sevik: Gold Medal Award

1991 Captain C. Graham: Gold Medal Award

1991 Fan Hwang: Solberg Award

1994 W. B. Morgan: Gold Medal Award

Draper Laboratories

1991 L. Louie: Engineering VP Annual Award

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

Acoustical Society of America

1991 Gideon Maidanik
1992 Christopher Richman: Best Student Paper

American Defense Preparedness Association

1992 Daniel Sheridan: Bronze Medal
1994 Gary Jebsen: Bronze Medal

American Society of Naval Engineers

1990 Maurice M. Sevik: Gold Medal Award
1994 William B. Morgan: Gold Medal Award
1994 Fan Hwang: Solberg Award

Association of Scientists and Engineers

1994 Brian Kozlowski: Superior Service Award

Draper Laboratories

1991 Lisa Louie: Engineering VP Annual Award (best technical publication

National Security Industrial Association - ASW Committee

1992 Maurice Sevik: Martell Award

Navy League Parsons Award

1991 Walter Zeitfuss
1992 Robert Boswell

Society of Naval Architects and Marine Engineers

1990 William Blake: Linnard Prize
1991 Larrie Ferreiro: Linnard Prize
1991 John Dalzell: Davidson Medal
1992 Justin H. McCarthy, Jr: Davidson Medal

National Security Industrial Association (ASW Committee) R

1992 M. Sevik: Martell Award

Navy League Parson's Award

1991 W. Zeitfuss

1992 R. Boswell

Society of Naval Architects and Marine Engineers

1990 W. Blake: Linnard Prize

1990 J. Dalzell: Davidson Medal

1991 L. Ferreiro: Linnard Prize

1992 J. McCarthy, Jr.: Davidson Medal

Washington Academy of Sciences

1993 D. Fry: Outstanding Achievement Award in "The Engineering Sciences"

1993 H. Lugt: Distinguished Career In Science

1993 H. Lugt: Outstanding Achievement Award

Washington Academy of Sciences

1993 David J.Fry: Outstanding Achievement Award in "The Engineering Sciences"
1993 Hans Lugt: Distinguished Career in Science
1993 Hans Lugt: Outstanding Achievement Award

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

Award of Merit for Group Achievement

1994
James Rice
Robert Bachman
Edward Foley
William Meyers
James Hering
James Hickok
William Dixon

1994
Raymond Gordon
Thomas Laing
Algie Gray
William Hay
Michael Phillips
William Gilbert

David Taylor Award

1990 G. Brunkhart
1991 Robert Boswell
1991 Robert Jones
1991 M. Critchfield

Naval Sea Systems Command Medallion

1992 Joan Suggs-Cooper: member LHD-5 Amphibious Assault Ship Design Team
1994 Brian Kozlowski: work during Persian Gulf Crisis

Naval Sea Systems Command Group Achievement Award

Ricardo Edwards

R

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

David Taylor Award

1990 M. Critchfield

1991 R. Jones

1992 M. Rummerman

Office Chief of Naval Research

1990 P. Shang/P. Zoccola: Best IED Project Award

1991 F. D. Groutage/J. Schempp: Certificate of Commendation for research in Near-Field Acoustical Holography

1992 D. Anthony: Young Scientist Award

1993 P. Shang: Fellow, Council for Excellence in Government

1993 W. Morgan: Robert Conrad Dexter Award for Scientific Achievement

1994 M. Kim: Young Scientist Award

Naval Sea Systems Command Medallion

1992 Joan Suggs-Cooper: LHD-5 Assault Ship Design Team Member

1994 B. Koslowski: Persian Gulf Crisis Support

Richard Gibson
Len Gonzales
James Hebel

Naval Sea Systems Command Group Achievement Award (Continued)

Douglas Henry
Robert Hines
James Otis
Al Partlow
Tammy Satzberg
James Siron
Wayne Wiekert

Group Achievement Award (SEAFAC)

Don Bassler
Glen Bauman
Ray Bjork
Rich Chwaszczewski
Russ Dukek
Teresa Dukek
John Elterich
Dave Harris
Charles Henson
Russ Hill
Tarvo Keskula
John Kriebel
Dottie Kurzrock
Barry Nupen
Rick Rahman
Don Rieg
James Schempp
Mike Schilt
Kime Slater
Bob Supino
Ted Vanauken
Jim Walker
Bob Weaver
Doug Weiland

Navy Superior Civilian Service Award

1990 William Andahazy
1990 Daniel S. Cieslowski

R

Navy Distinguished Civilian Service Award

1994 M. Krenzke

Navy Superior Civilian Service Award

1990 D. Cieslowski

1991 W. Middleton

1993 D. Woolaver

1993 P. Tatro

1994 J. Bjerke

Navy Meritorious Civilian Service Award

1990 W. Andahazy

1990 R. Boswell

1990 W. Conley

1990 R. Stillwell

1991 K. Morris

1992 L. Minor

1992 J. Bjerke

1994 T. Applebee

1994 D. Clark

1994 D. Cozzens

1990 Peter Tatro
1991 William A. Middleton
1994 Dennis A. Woolaver

R

Navy Meritorious Civilian Service Award (Continued)

1994 M. Dipper

1994 K. Goldman

1994 J. Kuny

1994 G. Miller

1994 G. Minard

1994 P. Yarnall

1994 B. Raver

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

UNITED STATES PATENTS

4,998,059 Dual demodulating circuit tracer, Richard T. Nigon et al., Mar. 5, 1991

5,028,210 Propeller unit with controlled cyclic and collective blade pitch, Frank B. Peterson et al., Jul. 2, 1991

5,140,559 Low flow-noise conformal fiber optic hydrophone, Stanley A. Fisher, Aug. 18, 1992

5,145,320 Mass loaded composite rotor for vibro-acoustic application, William K. Blake et al., Sep. 8, 1992

5,146,863 Air cushion displacement hull water vehicle, Allen G. Ford, Sep. 15, 1992

Navy Meritorious Civilian Service Award

1990 Robert Boswell
1990 William Conley
1990 Robert Stilwell
1991 Kenneth Morris
1994 Terrence Applebee
1994 Donald Clark
1994 David Cozzens
1994 Martin Dipper
1994 Kenneth Goldman
1994 James Kuny
1994 Gary Miller
1994 Gordon Minard

Office Chief of Naval Research

1990 Paul Shang and Paul Zoccola: Best IED Project Award
1991 F. Dale Groutage and James Schempp:Certificate of Commendation for Research in Near-Field Acoustical Holography
1992 Douglas Anthony: Young Scientist Award
1993 Paul Shang: Fellow, Council for Excellence in Government
1993 William B. Morgan: Robert Conrad Award for Scientific Achievement
1994 Michael Kim: Young Scientist Award

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

UNITED STATES PATENTS

4,998,059 Dual demodulating circuit tracer, Richard T. Nigon et al., Mar. 5, 1991

5,028,210 Propeller unit with controlled cyclic and collective blade pitch, Frank B. Peterson et al., Jul. 2, 1991

5,140,559 Low flow-noise conformal fiber optic hydrophone, Stanley A. Fisher, Aug. 18, 1992

5,145,320 Mass loaded composite rotor for vibro-acoustic application, William K. Blake et al., Sep. 8, 1992

5,146,863 Air cushion displacement hull water vehicle, Allen G. Ford, Sep. 15, 1992

5,147,731 Stabilized zirconia\cocraly high temperature coating, Charles M. Gilmore et al., Sep. 15, 1992

5,152,366 Sound absorbing muffler, Ronald P. Reitz, Oct. 6, 1992

5,155,707 Omni-directional hydrophone, Stanley A. Fisher, Oct. 13, 1992

5,158,251 Aerodynamic surface tip vortex attenuation system, Robert M. Taylor, Oct. 27, 1992

5,178,085 Wave cancellation multihull ship, Chun-Che Hsu, Jan. 12, 1993

5,189,590 Closed-loop multi-sensor control system and method, Carl S. Schneider, Feb. 23, 1993

5,189,978 Operating at Sea Island Station, Keith R. McAllister, Mar. 2, 1993

5,190,624 Electroheoligical fluid chemical processing, Ronald P. Reitz, Mar. 2, 1993

5,194,181 Process for shaping articles from electrosetting compositions, Ronald P. Reitz, Mar. 16, 1993

5,213,713 Process of shaping an electrorheological solid, Ronald P. Reitz, May 25, 1993

5,215,024 Vessel-capturing berthing facility incoporating relative motion-mitigating apparatus, Keith R. McAllister, Jun. 1, 1993,

5,218,197 Method and apparatus for the non-invasive measurement of pressure inside pipes using a fiber optic interferometer sensor, Gerard P. Carroll, Jun. 8, 1993

5,222,454 Hybrid hydrofoil interface with wet well deck, John R. Meyer, Jun. 29, 1993

5,222,455 Ship wake vorticity suppressor, Roger J. Furey (deceased), Jun. 29, 1993

5,224,436 Multifunction hydrodynamic and buoyant hull extension for planing water craft, John G. Stricker, Jul. 6, 1993

5,227,801 High resolution radar profiling using higher-order statistics, Robert D. Pierce, Jul. 13, 1993

5,227,982 Digital reverberation time measurement system, Blair M. Kipple, Jul. 13, 1993

5,231,403 Moving target indicator using higher order statistics, Robert D. Pierce, Jul. 27, 1993

5,232,639 Process for forming articles with anisotropic properties, Ronald P. Reitz, Aug. 3, 1993

5,237,947 Variable draft hull, Michael F. Manning, Aug. 24, 1993

5,261,344 Self-contained system for surface ship protection against moored contact mines, David M. Pickett, Nov. 16, 1993

5,263,433 Hybrid hydrofoil strut leading edge extension, John R. Meyer, Nov. 23, 1993

5,269,656 High damping limp propeller, Lawrence J. Maga, Dec. 14, 1993

5,280,761 Combined bulbous bow and sonar dome for a vessel, Gabor Karafiath et al., Jan. 25, 1994

5,296,155 Stratified carrier electroviscous fluids and apparatus, Ronald P. Reitz, Mar. 22, 1994

5,311,126 Magnetic field strength threshold indicator for use in a magnetic particle inspection device, John Mittleman, May 10, 1994

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

PATENT APPLICATIONS

CY90 PATENT APPLICATIONS FILED

Navy Case No. 71,851
Serial No. 07/461,586 Filed: 1-5-90
Title: Propeller Unit with Controller Cyclic and Collective Blade Pitch
Inventor: Frank Peterson
Carderock

Navy Case No. 71,108
Serial No. 07/489,931 Filed: 2-14-90
Title: Light Weight Explosive Armor
Inventors: Marcel Salive, Peter Gaus
Carderock

Navy Case No. 71,804
Serial No. 07/500,337 Filed: 3-28-90
Title: Non-Intrusive Circuit Tracer
Inventors: Richard T. Nigon, David P. Bochinski, Ray H. Long, James Kallio
Carderock

Navy Case No. 70,617
Serial No. 07/544,139 Filed: 6-8-90
Title: Triggered Defensive Shaped Charge Array Structural Protection System
Inventors:
Carderock

Navy Case No. 71,197
Serial No. 07/539,950 Filed: 6-18-90
Title: Mass Loaded Composite Rotor for Vibro-Acoustic Application
Inventors: Wm Blake, Aleksander Macander, Jonathan Gershfeld
Carderock

Navy Case No. 72,094
Serial No. 07/573,769 Filed: 8-28-90
Title: Mass Loaded Composite Rotor for Vibro-Acoustic Applications
Carderock

Navy Case No. 70,441
Serial No. 07/614,411 Filed: 11-16-90
Title: Aerodynamic Surface Tip Vortex Attenuation System
Inventor: Robert M. Taylor
Carderock

CY91 PATENT APPLICATIONS FILED

Navy Case No. 70,962
Serial No. 07/702,540 Filed: 5-20-91
Title: Fiber Optic Interferometer Sensor for Non-Invasive Pressure Inside Pipes
Inventor: Gerald P. Carroll

Navy Case No. 71,319
Serial No. 07/779,795 Filed: 10-21-91
Title: Air Cushion Displacement Hull
Inventor: Allen G. Ford
Carderock

CY92 APPLICATIONS FILED

Navy Case No. 71,046
Serial No. 07/923,431 Filed: 9-3-92
Title: Variable Draft Hull
Inventor: Michael Manning
Carderock

Navy Case No 71,541
Serial No. 07/870,082 Filed: 4-17-92
Title: Ship Wake Vorticity Suppressor
Inventor: Roger Furey
Carderock

Navy Case No. 72,342
Serial No. 07/927,991 Filed: 8-11-92
Title: Method of Production of Porous Metallic Materials by Spray Deposition
Inventor: Paul Kelley
Carderock

Navy Case No. 72,476
Serial No. 07/920,731 Filed: 7-28-92
Title: Hybrid Hydrofoil Interface with Wet Well Deck Carrier of Large Objects
Inventor: John R. Meyer
Carderock

Navy Case No. 73,781
Serial No. 07/904,927 Filed: 6-26-92
Title: Coherent Average of Radar Down Range Profiles Using Higher Order Spectra
Inventor: Robert Pierce
Carderock

Navy Case No. 73,782
Serial No. 07/842,303 Filed: 2-26-92
Title: Wave Cancellation Multihull Ship
Inventor: Chun-Che Hsu
Carderock

Navy Case No. 73,785
Serial No. 07/930,936 Filed: 8-17-92
Title: Hybrid Hydrofoil Agility Enhancer
Inventor: John R. Meyer
Carderock

Navy Case No. 73,789
Serial No. 07/953,622 Filed: 9-30-92
Title: A Moving Target Indicator Using Higher Order Spectra
Inventor: Robert Pierce
Carderock

Navy Case 74,381
Serial No. 07/953,341 Filed: 9-30-92
Title: Sail Propulsor
Inventor: Lawrence Maga
Carderock

Navy Case No. 74,385
Serial No. 07/945,041 Filed: 9-15-92
Title: Flexible High Damping Structures
Inventor: Roger M. Crane, Paul Coffin

Navy Case No. 74,391
Serial No. 07/927,992 Filed: 8-11-92
Title: Impact Dynamometer
Inventor: Stephen Zilliacus
Carderock

Navy Case No. 74,393
Serial No. 07/930,940 Filed: 8-17-92
Title: Combined Bulbous Bow and Sonar Dome for Naval Destroyer Ships
Inventors: Gabor Karafiath, Dominic Cusanelli
Carderock

Navy Case No. 71,803
Serial No. 07/968,212 Filed: 10-29-92
Title: Low-Noise Pump Design Method
Inventors: Richard T. Nigon et al.
Carderock

CY93 PATENT APPLICATIONS

Navy Case 75,280
Serial No. 08/127,619 Filed: 9-28-93
Title: Target Detector Using Higher Order Statistics
Inventor: Robert D. Pierce
Carderock

Navy Case No. 75,372
Serial No. 08/104,707 Filed: 8-11-93
Title: A Synthetically Rotated Acoustic Near Field Scanning System
Inventors: Joseph A. Clark, Michael A. Sartori
Carderock

Navy Case No. 75,413
Serial No. 08/129,498 Filed: 9-30-93
Title: Bubble fusion Driven Power Generating System
Inventors: Michael A. Sartori, Joseph A. Clark, Moon H. Cho
Carderock

Navy Case No. 75,416
Serial No. 08/129,499 Filed: 9-30-93
Title: Dimensional SAR from Curvillenear Apertures
Inventors: Kenneth K. Knaell, Glen R. Heidbreder
Carderock

Navy Case No. 75,457
Serial No. 08/127,618 Filed: 9-28-93
Title: Towing Post with Dual Floating Block Gages for the Measurement of Longitudinal and Transverse Forces during Geosim Model Experiments
Inventors: Dominic S. Cusanelli, Jeffrey A. Bradel
Carderock

Navy Case No. 75,585
Serial No. 08/128,411 Filed: 9-30-93
Title: Method and System for Far Field Acoustic Radiation Reduction
Inventors: Michael A. Sartori, Joseph A. Clark
Carderock

Navy Case No. 75,601
Serial No. 08/129,500 Filed: 9-30-93
Title: Coherent Signal Power Detector Using Higher-Order Statistics
Inventor: Robert D. Pierce
Carderock

Navy Case No. 75,467 Filed: 10-13-93
Title: Twisted Rudders
Inventor: Young Shen
Carderock

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

Dr. William B. Morgan
Dr. Maurice M. Sevik (selectee)

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

None

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

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

Items 5m and 5n are combined as follows:
Cooperative Research and Development Agreements

1. Georgia Institute of Technology (POC: Perry Price, X71694)
   Agreement Title: Computer Aided Warehouse Design Project Purpose is to develop and maintain a software program for a Computer Aided Warehouse Design .
   CRADA Number: NCRADA-NSWCCA-90-001, signed in August 1990.

   Income: The Georgia Tech CRADA provides about $10K over the life of the CRADA needed for the "upkeep" of the software package.

2. Ingalls Shipbuilding, Inc. (POC: Jeffrey Beach, X71742)
   Agreement Title: Technology of Building Large Marine Structures with Composite Materials
   Purpose is to perform R&D of composite surface ship structures.
   CRADA Number: NCRADA-NSWCCA-91-003was signed in March 1991.

   Income: No income is expected under this CRADA.

3. Marine Spill Response Corp. (MSRC) (POC: Dr. Eugene Fischer, X2574)
Agreement Title: Use Of Spinning Microfilters To Separate Oil From Water For Abatement Of Marine Oil Spills
Purpose is to develop technology which will enhance the ability of the MSRC to respond more effectively to large oil spills in ocean environments.
CRADA Number: NCRADA-NSWCCA-93-004, signed in September 1993

Income: The MSRC CRADA has provided funding to CDNSWC of $180K to date.

4. University Of Maryland, College Park (POC: James Wood, X71037)
Agreement Title: Technical Extension Service
Purpose is for CDNSWC and the University of Maryland's Technology Extension Service to cooperate in providing CDNSWC consultation to Maryland technology-based companies.
CRADA Number: NCRADA-NSWCCA-94-005, Approved by Navy for signature, to be signed in May 1994.

Income: No income is expected under this CRADA.

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

TC 1: Naval Vehicle Cost Benefit/Analysis Simulation and Modeling

Nuclear Attack Submarine Parametric Analysis Model: This model is currently used in the New Attack Submarine Project Office, PEO SUB-X, during the Phase 0 Cost and Operational Effectiveness Analysis. It assists in understanding the relationship between performance requirements and the size and the cost of nuclear attack submarines. (Code 21)

Jones, Robert R., Michael F. Jeffers, Jr., John C. Trumbule, and Marc W. Greenberg, "Nuclear Attack Submarine Parametric Analysis Model," Carderock Division, Naval Surface Warfare Center, Ship Systems and Programs Directorate Department Report, CRDKNSWC/SSD-93/10 (Sept 1993)

Submarines/Surface Ship Minefield Penetration Model (SUBMINE). This model currently is supporting PEO-SUB-X and NAVSEA 03T during the ongoing COEA process for the new SSN and LHD-7, respectively.

The model quantifies operational effectiveness payoffs to be expected for various signature and mine hunting sonar options. (Code 20)

"SSN Penetration of Littoral Minefields (U)," Carderock Division, NSWC, Department Report CRDKNSWC/SSD-93/10 (Sept 1993) SECRET/NOFORN.

"Payoffs of LX Ship Acoustic and Magnetic Signature Options for Minefield Transition (U)," Carderock Division NSWC Departmental Report CRDKNSWC/SSD-94-001 (Nov 1993) SECRET NOFORN

Modification of SIM-II Monte Carlo Model: A version of the SIM-II Monte Carlo model has been modified to account for submarine hull, mechanical, and electrical system attributes. It currently supports PEO-SUB-X and PMS-350 to support the ongoing COEA process for the New SSN and SSN-21, respectively. The model quantifies operational effectiveness benefits expected from the interaction of HM&E and combat systems technology options for OPNAV-defined submarine operations. (Code 20)

"NAS Propulsor Options Study (U)," Carderock Division NSWC Departmental Report NSWC-SSD-CR-05/93 SECRET.

"SSN Effectiveness in Mining Operations (U)," Carderock Division NSWC Departmental Report NSWC-SSD-CR-07/93 (Jan 1993) SECRET

The Naval Air Battle Evaluation Model II (NABEM II): This CDNSWC-developed battle-force-level Monte Carlo model is used to simulate and evaluate the effect of new or modified platforms, weapons or system capabilities, and command and control concepts. The simulation occurs in the context of multiple platform engagement level analysis. The model is written in ada and consists of 250,000 lines of source code.

Mayo, David L, Brooks L. Moran, and Kenneth Montgomery "Software Requirements Specification," (Dec 1990) and "Software Design Specification," Volumes I-VI (Jan 1991), Carderock Division, NSWC, and The Boeing Co.

TC 2: RDT&E and Acquisition Support for Surface, Undersea and USMC Vehicle Vulnerability and Survivability Systems

Weapons Effects and Ship Vulnerability Assessments: CDNSWC accumulated experimental data on the effects of weapon hits on ships. These data, together with the concurrently developed theories, constitute the current state of technology for predicting such effects. This knowledge is continuously being consulted by OPNAV, the Fleets, NAVSEA, BUMED, and DOD, for planning in connection with Fleet effectiveness, ship vulnerability, casualties and weapons effectiveness. The FAA also uses this technology in their program to harden commercial aircraft against terrorist bombs. The CDNSWC-developed Ship Vulnerability (SVM) model has become the Navy standard tool for quantifying ship vulnerability. It has been applied in support of ship design, Fleet studies and training, and weapons development for a number of years. The model considers the total ship with all its systems and, based on threat warhead characteristics, determines the damage inflicted by each hit. A Monte Carlo procedure is used to derive the probabilities of inactivating components, systems, and entire mission capabilities, as functions of the number of hits by specific threat warheads.

The central part of the SVM consists of the damage models which are based on the latest technology for predicting the damage done by the various weapons phenomena, such as blast, fragments, penetration, shock, whipping, fire, flooding, personnel injury, etc.. The SVM needs to be updated constantly to keep abreast of new damage prediction technologies and the characteristics of new threats. (Code 60)

Short, R., "A New Internal Blast Expansion/Damage Model for the Ship Vulnerability Model (SVM) (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD 89-174-60 (Jun 1989) CONFIDENTIAL

Short, R., "A Unified Formula for Prediction of Holing of Ship Hull Plating from Nearby Explosions (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD 89-174-39 (Apr 1989) CONFIDENTIAL.

Short, R., "Blast Holing Experiments (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD 89-174-40 (Apr 1989) CONFIDENTIAL.

Short, R., "On Transmission of Explosion Blast Pressure Through Openings (U)," David Taylor Naval Ship Research and Development Center Report (in preparation) CONFIDENTIAL.

Wilson, D., "Vulnerability Assessment of a Modular Magazine Subject to Attack (U)," David Taylor research Center, Ship Structures and Protection Department, SSPD-91-174-3 (Oct 1990). CONFIDENTIAL.

Wolk, H., "Damage Prediction for USS Stark (U)," David Taylor Naval Ship Research and Development Center, Ship Structures and Protection Department, SSPD 88-174-18 (Jan 1988) CONFIDENTIAL.

Fulton, J., "Comparison of the Actual Versus the Predicted Damage that Occurred on the USS Reeves (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD 90-174-66 (Aug 1990) CONFIDENTIAL.

Wang, S., et al., "FFG-58 Mine Damage Analysis And Recommendations (U)," David Taylor Research Center, Encl (1) to SER 174-160, C-644 (Dec 1988) CONFIDENTIAL.

Short, R. D., and T. P. Carroll, "U.S.S. TRIPOLI (LPH-10) Mine Damage Correlation (U)," David Taylor Research Cebter, Ship Structures and Protection Department, SSPD 92-174-54 (Mar 1992) CONFIDENTIAL.

Wang, S., "An Assessment of the Whipping Problem for Surface Ships (U)," David Taylor Research Center, Ship Structures and Protection Department SSPD 91-174-11 (Nov 1990) CONFIDENTIAL.

Hawkins, J. T., and C. S. Whitacre, "Estimating Naval Casualties Afloat (U)," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department, SSPD 92-174-10 (Sept 1992) CONFIDENTIAL.

Dudt, P., P. Gaus, and M. Neff, "Crew Casualty Criteria for Ship Vulnerability Analysis (U)," Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, CARDEROCKDIV-C-SSM-68-93/01 (Jan 1993) CONFIDENTIAL.

Roth, P., "Crew Casualties Effects On Vulnerability Of Ship Primary Mission Areas (U)," Carderock Division, Naval Surface Warfare Center Survivability, Structures and Materials Directorate, SSM-68-93/09 (Jul 1993) CONFIDENTIAL.

Wolk, H. L., "The Experimental and Analytical Basis for the Ship Vulnerability Model (SVM) (U)," Carderock Division, Naval Surface Warfare Center, Surface Ship Protection Department, CARDIVNSWC-SSM-68-94/07 (1994) CONFIDENTIAL

"Ship Vulnerability Model Version 12 Users Guide Version 1.1 SVM 12 (U)," Carderock Division, Naval Surface Warfare Center, Surface Ship Protection Division (Sep 1992) CONFIDENTIAL.

Tinker, C., and G. Lawler, "Simulating Underwater Weapons and the Effects of Whipping and Shock in the SVM (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD 92-174-86 (Jun 1992) CONFIDENTIAL

Padgett, M., "Improvements to the Jet Debris Model (U)," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department, SSPD 93-174-18, (Oct 1992) CONFIDENTIAL

Lawler, G. and E. Crowley, "Variation in Predicted Damage Due to Small Changes in Burst Point Location for the SVM (U) ," David Taylor Research Center, Ship Structures and Protection Department, 174/305 (Oct 1991) CONFIDENTIAL.

Barnum, J., and P. Gaus, "Ship Vulnerability Simulator Software Product Specification," Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, CARDEROCKDIV-SSM-68-93/10 (Jun 1993)

International Cooperative Weapons Effects Tests: CDNSWC is involved in a number of international information exchange programs (IEP, TTCP, and NATO programs) and has participated in several cooperative weapons effects tests with the U.K,. the Netherlands, Germany, and Italy. Such cooperative programs offer significant advantages: each participant nation can obtain more test data with a much smaller individual investment than would be required otherwise. (Code 60)

Short, R., "Comparison of Results of HULLVUL with Predictions, Test Number 2 (U)," Carderock Division, Naval Surface Warfare Center Report (in preparation). CONFIDENTIAL.

Wilson, D., "MARTEST: U. S. Navy Test Plan for EX-MARGOTTINI Full-Scale Weapons Effects Trials," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department Report SSPD 92-174-78 (Aug 1992).

"NATO Allied Naval Engineering Publication on Ship Combat Survivability (U)," NATO ANEP-AC/141(IEG/6)SG/7-43 (1992) NATO CONFIDENTIAL.

Ship Design and Live Fire T&E Support: The Congressional Live Fire T&E law, and DODINSTR 5000.2, require that the vulnerability of all defense systems must be addressed at all major acquisition milestones to the satisfaction of the DAB, SECDEF, and ultimately Congress. By law, full-scale production cannot begin until SECDEF can certify that Live Fire requirements have been met. During ship design, CDNSWC provides ship vulnerability analyses as part of the process to determine the best designs. The analyses use the CDNSWC ship vulnerability model incorporating state-of-the-art damage predictions. The vulnerability assessment of the final design becomes part of the Vulnerability Assessment Report, prepared by CDNSWC, which satisfies a significant part of the Live Fire requirements. The Division also supports Live Fire tests of surrogate targets, and the ship shock test which also forms a part of the Live Fire tests. (Code 60)

Hansen, I. S., and H. P. Gray, "Passive Protection and Ship Survivability in Years 2005-2020 (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD 90-174-41 (May 1990) CONFIDENTIAL.

Hansen, I. S., "Passive Protection for Future Aircraft Carriers (U)," David taylor Research Center, Ship Structures and Protection Department, SSPD 92-174-4 (Oct 1991) CONFIDENTIAL.

Wolk, H. L., and M. Padgett, "Live Fire DDG-53 Damage Tolerance Analysis Using the Ship Vulnerability Model (SVM) (U)," Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, S 36/94. SECRET NOFORN.

Wilson, D., "Combined Fragment/Blast Test of a DDG-51 Deckhouse (U)," Carderock Division, Naval Surface Warfare Center Report (in preparation) CONFIDENTIAL.

Ripley, L., and H. P. Gray, "Whipping Response Of The DDG-51 to Underwater Explosions And Preliminary Protection Options (U)," David Taylor Research Center, Ship Structures And Protection Department, SSPD 91-174-88 (Sep 1991) CONFIDENTIAL.

Ripley, D., and E. Crowley, "Vulnerability Analysis of DDG-51 Flight IIA (U)," Carderock Division, Naval Surface Warfare Center, Survivability, Structures and Materials Directorate, 68/031 (Apr 1993) CONFIDENTIAL.

Ripley, D., E. Crowley, and H. L. Wolk, "Analysis of DDG-51 Flight IIA Alternative Torpedo Magazine Locations (U)," Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, 68/002 (Apr 1993) CONFIDENTIAL.

Fulton, J., "A Vulnerability Analysis of the CVN-73 (U)," Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, (in publication) (May 1994) SECRET NOFORN.

Burton, T., "SVM Analyses of LX Preliminary Design Iterations (U),"Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, (in publication), CONFIDENTIAL.

Mahone, R., J. Sikora, and F. J. Fisch, "LX Hardening and Strength Optimization Study (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD92-174-8, CONFIDENTIAL.

Gray, H. P., "Design Threats for Underwater Explosion (UNDEX) Resistant Ship Design (U)," David Taylor Research Center, Ship Structures And Protection Department, SSPD 91-174-49 (Apr 1991) SECRET NOFORN WNINTEL.

Ripley, L. F., and H. P. Gray, "Whipping Response of the Baseline LX (LSD-49) to Underwater Explosions and Preliminary Protection Alternatives (U)," David Taylor Research Center, Ship Structures And Protection Department, SSPD 91-174-96 (Sep 1991) CONFIDENTIAL.

Gray, H. P., L. F. Ripley, and I. S. Hansen, " Proposed Hull Hardening Criteria for Hull Girders Resistant to Whipping from Underwater Explosions (Undex) (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD 92-174-70 (Jun 1992) CONFIDENTIAL.

Ripley, L. F., et al, "Undex Whipping Response of LSD-49 and an HSLA Hardening Option - a Preliminary Assessment (U)," David Taylor Research Center, Ship Structures And Protection Department, SSPD 92-174-75 (Jun 1992) CONFIDENTIAL.

Gilbert, C., and L. F. Ripley, "An Elastic Design Procedure for Hull Girders Subjected to Underwater Explosions (U)," Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, NSWC-SSMD-94-08. CONFIDENTIAL.

"Test Procedures for Undex and Airex Tests Against LPD-17 Surrogate EX-RALEIGH (LPD-1) (U)," NAVSEA Report (Draft), 8 March, 1994. CONFIDENTIAL.

Support for Fleet Training: All ships are required to participate in periodic damage control refresher training conducted by the Afloat Training Groups (AFT). Realistic training requires realistic data on the damage caused by weapon hits on the ship. Data are provided by CDNSWC in the form of a PC-based data system that enables the prediction of damage inflicted on the ship structure and equipment by specific weapon hits. Data have been developed for a large number of Fleet ships. Eventually such data will be available for all ships scheduled to go through refresher training. Data will also be developed for new ships as part of the Live Fire requirements. The Total Ship Survivability damage control test conducted at sea on the first ship of the class forms part of the Live Fire T&E. (Code 60)

Fulton, J., and H. Wolk, "Total Ship Survivability/Fleet Training (TSS/FT) User Guide Version 5.0," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department, SSPD 93-174-7 (Oct 1992).

Pocock, M., J. Fulton, and C. Tinker, "Analyst Manual and Documentation for Total Ship Survivability Fleet Training (TSS/FT)," Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, 68/003 (Jan 1994)

Padgett, M., and H. Wolk, "Total Ship Survivability Fleet Training (TSS/FT) Flooding Model User Guide Version 1.0," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department, SSPD 92-174-80 (Jun 1992)

Padgett, M., and H. Wolk, "Analyst Manual/Documentation for Total Ship Survivability/Fleet Training/Flood Model (TSS/FT/FLOODMOD)," Carderock Division Naval Surface Warfare Center, Ship Structure and Protection Department, SSPD 92-174-102 (Jun 1992)

Tinker, C., and H. Wolk, "Total Ship Survivability Fleet Training (TSS/FT) Fire Model User Guide," David Taylor Research Center, Ship Structures and Protection Department, SSPD, 174/310 (Dec 1991)

Tinker, C., "Analyst Manual/Documentation for Total Ship Survivability/Fleet Training/Fire Model (TSS/FT/Firemod)," David Taylor Research Center, Ship Structures and Protection Department, SSPD, 92-174-29, (Jan 1992)

Development of Damage Tolerant Hull Structures: The damage to the STARK, ROBERTS, PRINCESTON, AND TRIPOLI in the Persian Gulf demonstrated the need for ship hulls that are more resistant to weapons damage. The damage tolerant hull development program being executed by CDNSWC will impact DDG-51 Flight II, the LPD-17, and following ships. For several years, CDNSWC has been conducting a program to develop hulls that are more resistant to damage from both missile hits and mines. The program has included experiments with internal bursts in models and large scale simulated ship compartments; static tests of hull models to better define ultimate bending strength, important in determining whipping responses to mine attacks; whipping tests with models exposed to underbottom bursts, and whipping tests on actual ships. The latter were part of cooperative programs with the British and Italian navies.

Concurrent with the experimental work, new theories have been developed to predict damage from internal explosions, and a new theory has been developed for non-linear whipping responses, such as those observed on both the ROBERTS and the PRINCESTON. The work with internal explosions has resulted in new blast-hardened bulkheads, which have double the resistance of current bulkheads with practically no increase in weight. These are planned for use on the DDG-51 Flight II. This work has also resulted in development of hardened box girders for the shear strakes to prevent hull girder collapse after severe damage by either missile hits or underwater attacks. (Code 60)

"Test Plan for FY 93 Large Article Test Model - Test II," Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, CARDEROCKDIV-SSM-68-93/05 (Apr 1993)

Manny, P., et al, "Test Plan for UNDEX Tests of the Advanced Double Hull Whipping Model," Carderock Division, Naval Surface Warfare Center, Survivability, Structures, and Materials Directorate, CARDEROCKDIV-SSM-68-93/08 (Jun 1993)

Short, R. D., and P Phung, "Tests for Development of Structural Concepts to Confine Blast from Penetrating HE Warheads (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD, 88-174-72 (Sep 1988) CONFIDENTIAL.

Development of Naval Ship Armor and Protection Systems: The Navy is facing threat weapons that are larger and more lethal than those for most land threats. Advanced armor types having the least impact on cost and weight are needed to eliminate serious vulnerabilities for aircraft carriers and other combatants. For a number of years, ship armor development has been a major function of the Division. The CVN-71 class magazine protection system resulted from a large experimental program encompassing 1500 tests with model-scale and full-scale threat warhead replicas. The result was a highly effective and novel type of spaced armor system. Other armor development has included Vietnam boat protection systems, and more recently the advanced fragment armor types for use on the DDG-51 class ships. The Division is now exploring and developing Dynamic Armor, which could increase armor effectiveness by an order of magnitude. (Code 60)

Salive, M.L., et al, "Summary of Carrier Magazine Protection Enhancement Program Test Results (U)," David Taylor Research Center Report 90/006 (Feb 1990) SECRE, NOFORN.

Hansen, I. S., "Passive Protection for Future Aircraft Carriers (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD 92-174-4 (Oct 1991) CONFIDENTIAL.

Hansen, I. S., et al, "New Developments in Ship Armor (U)," Journal of Defense Research, Volume 19, Number 2 (Nov 1988) SECRET NOFORN WNINTEL.

Burton, T., and H. Wolk, "Naval Lightweight Armor Ballistic Evaluations and Design Equations (U)," David Taylor Naval Ship Research and Development Center, Report 85/043 (1985) CONFIDENTIAL.

Burton, T., "FY-85 Ballistic Evaluation of the DDG-51 Spaced Armor System (U)," David Taylor Naval Ship Research and Development Center, Structures Department, SD 86-174-58 (Dec 1985) CONFIDENTIAL

Wolk, H., "Ballistic Evaluation of S-2 GRP for Fragment Protection, Enhanced Naval Composite Structures (U)," Proceedings from the Second Ballistics Symposium on Classified Topics, American Defense Preparedness Association (Oct 1992) CONFIDENTIAL.

Anti-Ship Weapons Effectiveness: The CDNSWC-developed knowledge base and technology on weapon effects on ships is applied in many aspects of the design of future ships and Fleet planning; because of the unbiased position of CDNSWC, it is also used to assess the effectiveness of proposed new weapons and current weapons against new potential targets. These data are developed under weapons development programs, the Foreign Ship and Submarine Vulnerability Program (FSSVP), and programs sponsored by the Joint Technical Coordinating Group for Munitions Effectiveness (JTCG/ME). Such data provide input to planning of tactics for weapons use and associated training. The developed manuals also provide input to other aspects of Fleet planning and readiness. (Code 60)

"Weapon Effectiveness Selection and Requirements (U)," Section IX, Ship/Water Transportation, Joint Munitions Effectiveness Manual, Air to Surface, JTCG/ME 61A1-1-1-1. CONFIDENTIAL

"Effectiveness Estimates for Soviet/Warsaw Pact Non-Nuclear Munitions (U)," Red-On-Blue Manual, Joint Technical Coordinating Group for Munitions Effectiveness, 61 JTCG/ME-77-15, SECRET NOFORN WNINTEL.

"Special Operations Target Vulnerability and Weaponeering Manual (U)," Joint Technical Coordinating Group for Munitions Effectiveness, 61 JTCG/ME-83-8, SECRET NOFORN WNINTEL LD.

Doney, W. A., "Terminal Effectiveness of HARPOON, TASM, and Eleven Guided Weapons Against the SOVREMENNYY Class Guided Missile Destroyer (DDG) (U)," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department SSPD-92-174-94 (Aug 1992) CONFIDENTIAL.

Doney, W. A., "Terminal Effectiveness of HARPOON, TASM, and Eleven Guided Weapons Against the KIEV Class Guided Missile ASW Aircraft Carrier (CVHG) (U)," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department , CARDEROCKDIV-SSM-68-93/04 (Sep 1993) SECRET NOFORN.

Doney, W. A., "Terminal Effectiveness of HARPOON, TASM, and Eleven Guided Weapons Against the SLAVA Class Guided Missile Cruiser (CG) (U)," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department, CARDEROCKDIV-SSM-68-93/11 (Nov 1993) SECRET NOFORN.

Doney, W. A., "Terminal Effectiveness of HARPOON, TASM, and Eleven Guided Weapons Against the TARANTUL Class Guided Missile Corvette (FFLG) (U)," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department, CARDEROCKDIV-SSM-68-94/07 (Apr 1994) SECRET NOFORN.

Doney, W. A., "Terminal Effectiveness of HARPOON and Eleven Guided Weapons Against the KONI Class Frigate (FF) (U)," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department, CARDEROCKDIV-SSM-68-94/06 (Apr 1994) SECRET NOFORN.

Doney, W., "Assessment of Fleetex 2-92 HARPOON Missile Hits (U)," Carderock Division, Naval Surface Warfare Center, Ship Structures and Protection Department , SSPD-92-174-100 (Aug 1992) CONFIDENTIAL.

Doney, W., "Assessment of Fleetex 11-93 HARPOON Missile Hits (U)," Carderock Division, Naval Surface Warfare Center, Survivability, Structures and Materials Directorate, CARDEROCKDIV-SSM-68-94/03 (Jan 1994) SECRET NOFORN.

Wilson, D., "Mass Detonation Hazard Assessment for the APOBS Munition (U)," David Taylor Research Center, Ship Structures and Protection Department , SSPD-91-174-121 (Jan 1991) CONFIDENTIAL.

Wilson, D., "MK 50 (Torpedo) Fragment Hazard Assessment (U)," David Taylor Research Center, Ship Structures and Protection Department, SSPD-92-174-41 (Mar 1992) SECRET NOFORN WNINTEL.

Submarine Protection: The technology developed by CDNSWC concerning the effects of weapons on submarine protection is used in planning for the future design of Fleet submarines, safety assessment of accidental torpedo impacts against target submarines during Fleet exercises, and assessment of effectiveness of our weapons as part of weapons development. Advanced computer analysis techniques developed at the Division, supplemented by physical experiments on both scaled and prototype models, have led to most survivable submarine designs with minimum cost and weight for SSN-21 (SEAWOLF) in recent years and for the New Attack Submarine (NSSN) now being designed. Also, the efforts of CDNSWC personnel have led to certifying safety of three classes of submarines against potential impacts by various torpedoes during Fleet exercises. (Code 60)

The R&D programs executed by the Division personnel have resulted in the following items currently being used by the Navy and by industry:

1. Design Procedure for Submarine End Closures to Withstand Underwater Explosion.[1,2] This procedure resulted in thickening the doubly-curved end closure of SSN-21 (SEAWOLF) to survive a shock severity equal to that which the remainder of the submarine could withstand. The procedure is being used to design the end closure of the New Attack Submarine (NSSN).

2. Hull Damage Prediction Method. The 6.2 Program on Submarine Combat Survivability found the existing experimentally developed damage rules[3] for the stiffened cylindrical portion of the submarine pressure hull to grossly underpredict the hull damage. New advanced computational techniques (EPSA and DYNA3D) were used to analytically predict the standoff (distance between the hull and the explosion) at which the hull will collapse. The prediction matched the experimental results.[4] This led NAVSEA to adopt the procedure to evaluate the dynamic strength of the New Attack Submarine (NSSN) in lieu of the existing Damage Rules.

3. Cost-Effective Shock Design Procedure for Isolated Deck/Equipment in NSSN. Several computer programs (ELBASE, ISOLATE, RAFT, FLEXIRAFT)[5-8] have been developed to support the design of the New Attack Submarine (NSSN). The programs are being used by CDNSWC, as well as Electric Boat and Newport News Shipbuilding, to parametrically study tradeoffs on the shock-isolated deck structure that would mitigate the shock motion of internal equipment and save costs on shock hardening of equipment.

4. SSN-21 (SEAWOLF) Propulsor Shock Qualification. Under CDNSWC leadership, an experimental program was undertaken to validate EB's computer program to analytically shock qualify the SSN-21 (SEAWOLF) propulsor. A 1/4-scale full-length submarine model was used to conduct a series of underwater explosion tests for early-time shock wave effects as well as late-time whipping (bubble pulse) effects. This effort led to the discovery of heretofore-ignored bubble pulse effects on propulsor stators, as well as the discovery of strain-rate effects of non-metallic acoustic decouplers subjected to shock wave loading. This showcase program to shock qualify a submarine component analytically will be used as a model for future shock qualification for generations to come.

5. Torpedo Impact Safety Assessment. CDNSWC personnel have developed analytical and experimental evaluation procedures to determine the impact loading and the response of various submarine target items such as the pressure hull, ballast task, hull penetrations, internal equipment, stern planes and rudder subjected to accidental impacts by full-speed inert torpedoes.[9,10] Using the procedures, CDNSWC personnel provided recommendations to NAVSEA for certifying USS DRUM (SSN 677, SSN 637 Class), SSN-688, and USS DOLPHIN (AGSS 555) for Fleet exercises using such torpedoes as MK-46, MK-48 MOD-1, MK-48 ADCAP and MK-50.[11-13] For SSN-688 Class submarine exercises, the study showed that the planned submarine mods were not required, saving the Navy $130M.

6. Vulnerability Evaluation Model for Submarines. The CDNSWC-developed Submarine Vulnerability Evaluation Model (SUBVEM) has become the Navy's tool for quantifying submarine vulnerability. The model considers the total submarine with all its systems and, based on warhead characteristics, determines the damage inflicted by each hit. A Monte Carlo procedure is used to derive the probabilities of inactivating components, systems, and entire mission capabilities as functions of the number of hits by specific warheads. The SUBVEM consists of damage rules for various components that are constantly updated as new damage prediction technologies are developed at the Division. SUBVEM has been used to estimate warhead effectiveness against potential enemy targets for all ASW weapons, both conventional and nuclear. Efforts in support of the damage rules include: model testing, theoretical development, and software development. SUBVEM analyses have included such Soviet targets as OSCAR, KILO, TYPHOON, and AKULA for MK-48 MOD 4, MK-48 ADCAP and MK-50.[14-17]

1. Gilbert, W. E., "An Interim Design Procedure for Submarine End Closures under Underwater Explosion Loading," DTNSRDC Report DTNSRDC-83/039 (Aug 1983) CONFIDENTIAL.

2. Design Data Sheet, DDS-110-2, "Submarine Structural Design (U)," NAVSEA Document (Jun 1987) CONFIDENTIAL.

3. Murray, W. W., M.W. Hoffman, F.F. Rasmussen, W.R. Conley, and M. Riley, "Submarine Hull Resistance to High Explosive Bursts, Volume I - Shock Wave Effects (U)," DTNSRDC-85/033 (Sep 1985) CONFIDENTIAL.

4. Bond, C. D., F.F. Rasmussen, and W.E. Gottwald, "Experimental Results of Conventional UNDEX Tests Against 15 Machined Stiffened Cylinder Parametric Study Models: PSM-1 through 11 and PSM 21 through 24 (U)," CARDEROCKDIV-92-006 (Aug 1992) CONFIDENTIAL.

5. Gilbert, W. E., "A Computer Program to Calculate the Response of Equipment on a Single-Stage Isolation System with Arbitrary Base Velocity Motion," CARDEROCKDIV/NSWC Departmental Report, SSM-67-93/1 (Feb 1993).

6. Gilbert, W. E., "A Computer Program, 'ISOLATE,' to Calculate the Response of Rafted Equipment on Dual-Stage Isolation Mounts with Arbitrary Base Velocity Motion," CARDEROCKDIV/NSWC Departmental Report, SSM-67-93/6 (Apr 1993).

7. Gilbert, W. E., "A Computer Program, 'RAFT,' to Calculate the Response of Isolated Equipments on a 3-D Rigid Raft Supported by Multiple Isolation Mounts with Base Motion," CARDEROCKDIV/NSWC Departmental Report, SSM-67-93/10 (Aug 1993).

8. Roth, P. N., "A Computer Program to Calculate the Response of Multiple Equipments Isolated on a Flexible Raft," CARDEROCKDIV/NSWC Departmental Report, SM-67-93/16 (Sep 1993)

9. Nappi, N., Jr. and W.E. Gilbert,"A Preliminary Design Procedure for Ballast Tanks and Pressure Hulls under Torpedo Impact Loading (U)," DTNSRDC Report m-85-175-2 (Sep 1984) CONFIDENTIAL.

10. Cornelius, K. T., and W.E. Gilbert, "Further Development of a Method of Predicting the Damped Response of Hull Mounted Submarine Valves to Torpedo Impact," SSPD-88-175-23 (Feb 1988)

11. "Evaluation of the Effects of MK-48 (MOD 1) Exercise Torpedo Impacts on SSN637 Class Submarines (U)," NAVSEC Report 6105-77-1 (Apr 1977) CONFIDENTIAL.

12. Gilbert, W. E., N. Nappi, Jr., R. Richardson, and V. Bloodgood, "Mark 48 ADCAP EDM Exercise Torpedo Impact Against SSN-637 and SSN-688 Class Submarine Ballast Tanks - Test Results (U)," DTNSRDC Report SD-85-26 (Apr 1985) CONFIDENTIAL.

13. "MK-50 Exercise Torpedo Impact Safety Assessment of USS DOLPHIN (AGSS 555)," CDNSWC and GCI (Feb 1944)

14. Conley, W. R., S. C. Walter and R. A. Judge,"Warhead Effectiveness of the Mark 48 ADCAP and MOD 4 Torpedoes Against Seven Soviet Submarine Classes - Live Fire Analysis Support (U)," SSPD-89-175-5 (28 Oct 88) SECRET NOFORN WNINTEL.

15. R.A. Judge and R.E. Baker, "Warhead Effectiveness of U.S. Underwater Weapons Against the TYPHOON Class SSBN Soviet Submarine (U)," SSPD-91-175-35 (Mar 1991) SECRET NOFORN WNINTEL.

16. Walter, S. C., "MK-46/MK-50 Torpedo Warhead Effectiveness Against Six Classes of Soviet Submarines in Support of the MK-50 Live Fire Program - Revision 1 (U)," SSPD-91-175-70 (Jun 1991) SECRET NOFORN WNINTEL.

17. Chrysostom, L. A., "Warhead Effectiveness of U.S. Underwater Weapons Against the KILO Class SS Submarine (U)," CARDEROCKDIV-S-SSM-67-93/22 (Dec 1993) SECRET NOFORN WNINTEL.

Shock Resistance of Surface Ships and Submarines: CDNSWC develops analysis and design methods and test procedures, conducts qualification tests and performs ship shock trials to improve and demonstrate the shock resistance of surface ships and submarines. Shock resistance allows the ship to conduct combat system operations during exposure to underwater shock. The USS GUNSTON HALL (LSD 44), USS MOBILE BAY (CG 53), USS THEODORE ROOSEVELT (CVN 71) and USS JACKSONVILLE (SSN 699) are examples of ships which have undergone shock trials recently. These trials demonstrate the ability of the ships to conduct combat system operations during exposure to underwater shock and provide a basis for refining shock hardening criteria applicable to future ships. (Code 60)

Hall, R. J., M.C. Winnette, M.R. Riley, J.C. Craig, "Guide for Planning and Managing Shock Trials of Surface Ships," NSWC Report TM 69-93/1 (Jun 1993)

"Shock Trials Report, USS WASP (LHD-1)," NAVSEA Report LHD 1 (Apr 1991) CONFIDENTIAL.

"USS KAUFMANN (FFG 59) Shock Trial Report," NAVSEA Report FFG 59 (Jan 1988) CONFIDENTIAL.

"USS JACKSONVILLE (SSN 699) Underwater Explosion Shock Test Report," NAVSEA Report SSN 699R (Apr 1990) CONFIDENTIAL.

"Final Report for USS AVENGER (MCM 1) Shock Trial," NAVSEA Report MCM-1 (Jul 89) CONFIDENTIAL.

"USS GUNSTON HALL (LSD 44) Shock Trial Report," NAVSEA Report LSD 44 (Sep 1990) CONFIDENTIAL.

Stow, R., C. Swager, T. Sides,"Instrumentation Data from the Shock Mounted Landing Craft Air Cushioned (LCAC) on the USS GUNSTON HALL (LSD 44) During Underwater Explosion Trial," SSPD 91-1777-48 (Jul 1991) CONFIDENTIAL.

"Final Report of USS CHANCELORSVILLE (CG 62) Single Shot Shock Test (SSST)," NAVSEA Report CG 62 (Feb 1991) CONFIDENTIAL.

Bunnel, M. L., R. H. Flack, "Analysis of Systems Performance in Shock Trials of USS MOBILE BAY (CG 53)," NSWC TR 90-314 (Sep 90) CONFIDENTIAL.

"USS ARKANSAS (CGN 41) Shock Test Report," NAVSEA Report CGN41R (Mar 1989) CONFIDENTIAL.

"USS YORKTOWN (CG 48) Shock Trials," NAVSEA Report CG48 (Dec 1984) CONFIDENTIAL.

"USS MOBILE BAY (CG 53) Shock Trials," NAVSEA Report CG53 (Sep 1991) CONFIDENTIAL.

Prototype Armor Applique Kit (AAK): The AAK was fielded on the ASAV7A1 Amphibious Assault Vehicle. (Code 202)

In-use and visible on vehicles during Operation Desert Storm.

Light Applique System Technique (LAST) Armor Kit for LAV-25 Light Armored Vehicle. Prototype developed; product improvement continues. (Code 202)

USMC Marine Corps Systems Command Block Program Plan (1992/3)

TC 3: Active and Passive Acoustic Signatures and Silencing Systems

Cavitation Monitor Function for SEAWOLF: CDNSWC wrote the specifications for the algorithm that implements the Noise Monitoring System, which detects cavitation at an early stage and thus ensures stealthy operations. (Code 70)

Propeller On Line Cavitation Analysis Tool (Polcat): This CDNSWC system localizes propeller cavitation in two dimensions. This information is critical in evaluating propeller designs. (Code 70)

Improved Cavitation Monitoring Device: Significant changes to the cavitation monitoring algorithm are incorporated in this CDNSWC-developed device; as a result, it is more sensitive and applicable in a wider range of operations. (Code 70)

Platform Noise Monitoring Analysis for Noise Reduction (NAVSEA MANUAL S9073-AS-PNM-010/(C)): SSN 637 and SSBN 640 class manual used by ships force that provides step-by-step instructions for using hydrophone and towed array data to identify and isolate noise degradations. CD/NSWC authorized. (Code 70)

Fairwater Noise Handbook for SSN 594 Class Submarines (NAVSEA MANUAL S9073-AN-HBK-010/(C)SSN-594 CL): Provides detailed theoretical and practical information on sail area systems, structures and their related noise sources. CD/NSWC updated. (Code 70)

Fairwater Noise Handbook for SSN 637 Class Submarines (NAVSEA MANUAL S9073-AP-HBK-010/(C)SSN-637 CL): Provides detailed theoretical and practical information on sail area systems, structures and their related noise sources. CD/NSWC updated. (Code 70)

Platform Noise Monitoring Analysis for Noise Reduction on LOS ANGELES Class Submarines (NAVSEA MANUAL S9073-AR-PNM-010/(C)SSN-688 CL: Provides step-by-step instructions for using platform noise hydrophone and towed array data to identify and isolate noise degradations. CD/NSWC authorized. (Code 70)

Operating Guidelines to Acquire Beam and Stern Aspect Radiated Noise Signatures Utilizing Los Towing Geometries and the Acoustic Data Acquisition Processor: Provides step-by-step instructions for using a towed array to identify far field acoustic vulnerabilities. Currently applicable to SSN 637 and SSN 688 class ships with AN/BQQ-5B or AN/BQQ-5C sonar systems. Applicability to AN/BQQ-6 and AN/BQQ-5D sonar systems is pending. (Code 70)

Platform Noise Monitoring Analysis for Noise Reduction on OHIO Class Submarines (NAVSEA MANUAL S9073-AT-PNM-010/(C)SSBN-726 CL): Provides step-by-step instructions for using Monitoring Subsystem platform noise hydrophone and AN/BQQ-6 towed array data to identify and isolate noise degradations CD/NSWC authorized. (Code 70)

Monitoring Subsystem Platform Signature Radiated Noise Estimation Technique for USS OHIO Class (CD/NSWC Report CD/NSWC-SIG-S93/94-732, Mar 93): Provides a sophisticated algorithm that estimates far field radiated noise signatures using near field ship installed sensors. (Code 70)

Transient Analysis Program (DTRC LTR, Ser 9073/1933/cbs, 10 Jan 92 3D Transient Localization Software, Scale Submarine Drawings and Users Guide): This localization technique has been used extensively on the U. S. Atlantic Fleet Submarine Force to ensure that deploying submarines are acoustically healthy. (Code 70)

Sound Silencing Videos (Sponsored by the Submarine On-Board Training (SOBT) program at SUBGRU 2 New London): CDNSWC has acted as the primary consultant for a series of four videos that provide an overview of the important components of an effective shipboard noise reduction program. The videos are in draft form and should be promulgated by the end of FY94. (Code 70)

Interim Digital Audio Recording System (IDARS): CDNSWC provided system design specifications that ensured proper shipboard recording capability for our transient noise source localization technique. This system is being installed on attack class submarines and will provide time and cost effective recordings for shore based analysis. (Code 70)

Meeting at NUWC Detachment, Norfolk on 19 March 1993.

Submarines: Submarine sonar domes for the TRIDENT, SEAWOLF, and the New Attack submarines were designed completely and developed at CDNSWC. Division contributions include the dome material and shape; self noise and boundary layer flow work; design and development of the sonar boot, which is a visco-elastic cover for the dome; and design and development of the main ballast tank louver, which accounts for both self and radiated noise. It is installed in 688 class submarines. Every propeller in the fleet was design at CDNSWC. (Code 70)

TC 4: RDT&E, Acquisition Support, and In-Service Engineering for Surface and Undersea Vehicle Non-Acoustic Signatures and Silencing Systems

RCS Reduction: CDNSWC engineers have produced Radar Cross Section Reduction designs for several classes of ships. Efforts have included shaping design, material specification, material placement, combat system RCS requirements, and equipment redesign. Division engineers have produced mathematical prediction models and associated predictions for the ships and their equipment, analyzed full-scale data collected by the Division and other organizations, and recommended design improvements. (Code 70)

O'Brien, Ed, and LCDR Mark Phillips, DTRC/SESD/S-92/01 SECRET Report "Radar Cross Section of the USS Houston (SSN 713) Measured at Santa Cruz Radar Imaging Facility, September 1991."

O'Brien, Ed, LCDR Mark Phillips, and David Etherton, CDNSWC-SESD-S92/08 SECRET Report "Radar and Infrared Signatures of the USS Pasadena (SSN 752) Measured at Santa Cruz Radar Imaging Facility, March 1992."

O'Brien, Ed, LCDR Mark Phillips, CDNSWC-SESD-S92/14 SECRET Report "Radar Cross Section of the USS Tunny (SSN 682) Measured at Santa Cruz Imaging Facility, July 1992."

O'Brien, Ed, LCDR Mark Phillips, CDNSWC-SESD-S92/16 SECRET Report "Radar Cross Section Signatures of Four Submarines Measured at Santa Cruz Imaging Facility, September 1990-July 1992."

Ouimette, Mylene, LCDR Mark Phillips, Ed O'Brien, and David Etherton, CDNSWC-SESD-S92/13 SECRET Report "Radar Cross Section Signatures of Special Warfare Assets Measured at Santa Cruz Radar Imaging Facility, July 1992."

O'Brien, Ed, Mylene Ouimette, LCDR Mark Phillips, and Nicholas Huzil, CDNSWC-SIG-S93/199-762 SECRET Report "Radar and Infrared Signatures of the Special Operations Craft Measured at Santa Cruz Radar Imaging Facility and Junction Ranch Range, May 1993."

O'Brien, Ed, Mylene Ouimette, CDNSWC-SIG-S/94-028-724 SECRET Report "Radar Signature of the USS Asheville (SSN 758) Measured at Santa Cruz Radar Imaging Facility, September 1993."

O'Brien, Ed, and Mylene Ouimette, CDNSWC-SIG-S94/027-724 "Measurements of the Radar Cross Section of Rigid Inflatable Boats (RIBs) February - August 1993 (U)."

The Boundary Layer Induction Stack Suppression System (BLISS): This system cools the top portion of the inner stack of naval surface ships, thus reducing its I/R signature. Completely passive, it consists of a series of concentric rings that divert ambient air flow to form a thermal barrier to the hot inner stack gas flow. BLISS is currently installed on the following ships: CG 47 class, DDG 51 class, DD 963 class and the DDG 992 class. (Code 70)

Passive Counter Measure System (PCMS): This system, installed on the CG class of surface ships, reduces the ship's radar signature. (Code 70)

TC 11: RDT&E, and Acquisition and Lifetime Support for Surface and Undersea Vehicle Hull Forms and Propulsors

Rudder Roll Stabilizers (RRS): CDNSWC developed and implemented successful Rudder Role Stabilizer designs for U.S. Coast Guard and U.S. Navy ships. Resulting improvements in ship systems performance have been validated. (Code 50)

DDG 51 Hydrodynamic Design Development and Performance Validation: CDNSWC developed hull designs in the early 1980s that emphasized a hull form with good seakeeping and powering performance characteristics. The DDGX hull design eventually was modified to be the DDG 51. Design, development, modification and testing processes relied extensively on analytic flow calculations and sophisticated wave cut model tests, laser-doppler wake survey experiments, propulsor design and powering experiments with fixed and

controllable pitch propellers of various sizes, wedge design for increased speed and reduced fuel consumption, propeller cavitation experiments, experimental validation of predicted seakeeping characteristics, and maneuvering experiements. (Code 50)

SEAWOLF Ship Control: CDNSWC developed and documented automatic control algorithms for the SEAWOLF Class submarine Ship Control System; developed accurate mathematical models of submarine dynamics, which were derived from radio controlled and captive model tests; and incorporated the models into a transportable 6 degrees-of-freedom simulation of SEAWOLF dynamics.

Algorithms (documented to DOD-STD-2167) for SEAWOLF include steering/diving, vertical ascent/descent, and variable ballast and trim, which provide the Class with state-of-the-art automatic maneuvering capability during open ocean and under ice operations.

Simulations provide a highly accurate research tool to evaluate Class performance. The simulation is being applied by the lead design yard to design and evaluate the SEAWOLF Class submarine, and it will be used for Operator Trainers.

Division personnel provided technical support to NAVSEA during the concept, contract, and detailed design phases of the SEAWOLF Class. (Code 50)

OHIO Class Control System: CDNSWC developed automatic control algorithms for the OHIO Class Submarine Ship Control System; developed accurate mathematical models of the OHIO Class submarine and incorporated them into 6-degrees-of-freedom real-time simpulations.

The CDNSWC control algorithms provide OHIO Class submarines with automatic steering/diving, hovering, missile compensation and variable ballast and trim prediction capability. OHIO Class Simulation provides a highly accurate research tool for evaluation of OHIO Class submarine performance, including TRIDENT C4 and D5 missile launch scenarios. The simulation is also being used by the OHIO Class Land Based Evaluation Facility and in the OHIO Class Ship Control Trainers, which has provided greatly increased confidence for tactical software certification and realistic training.

CDNSWC also participated in hardware improvement programs for the Ship Control Station's incorporation of low-level white lighting, sound effects systems for OHIO Class SC trainers, an Electronic Module Tester, and digital position controls; and full-scale trials to evaluate the ship control system performance, including C4 and D5 missile launches. (Code 50)

SSN 688 Submarine Propulsor Tip Vortex Cavitation Suppression: CDNSWC has developed propeller blade tip modifications which increased the tip vortex cavitation inception speed by 25 percent. Modifications to propulsor tip shapes were developed using advanced computation codes and were tested in the water tunnels. The new shape eliminates

propulsor tip cavitation as a noise source. When submarines come in for overhaul or repair, the old propulsor tips are cut off and new tips are attached to the propeller. Because the costs of machining new propulsor blades and shipyard installation are avoided, approximately $1 million is saved for each propulsor. These modifications have significantly increased the tactical speed of SSN 688 Class submarines without degradation of acoustic signature. Tip modifications have been or will soon be backfitted to all SSN 688 Class fleet propellers. (Code 50)

TRIDENT Ship Control Team Trainer and Ship Control Operator Trainer: CDNSWC developed and provided the software which simulates the dynamic response of an OHIO class submarine in support of two OHIO Class trainers, the Ship Control Team Trainer (SCTT) and the Ship Control Operator Trainer (SCOT), which have been delivered to the Navy. These trainers are currently being used to train ship control parties.

These trainers are motion-based platforms used to instruct ship control parties in diving, surfacing, ballast control, and casualty procedure for the OHIO Class submarine. They were built by Systems and Simulation, Inc. (SSI), Tampa, Fla., for the Naval Training Center (NTSC). (Code 50)

The CDNSWC software models the propulsion system, the seaway, the static and dynamic effects of weight and buoyancy, and the six-degree-of-freedom equations of motion for the submarine. A simulation of the tactical Ship Control Application Program (SCAP) software which provides automatic depth and course keeping, hovering, and missile compensation was provided as government-furnished information. The remainder of the trainer system software includes modeling of all the submarine subsystems (hydraulics, missile compensation, trim, etc.) and an interactive instructor interface required for the training environment.

CDNSWC personnel worked extensively during the last year with SSI and NTSC to complete integration and testing of these trainer systems. From the Division's perspective, the delivery of these trainers completes a 7-year development effort in which this CDNSWC research tool was adapted for direct fleet support. (Code 50)

TRIDENT Operator Guidance System (EMOGS): CDNSWC developed and implemented the Environmental Monitoring and Operator Guidance System (EMOGS) for the Naval Submarine Base in Kings Bay, Ga. EMOGS provides guidance for TRIDENT submarines that are transiting the entrance channel, which significantly reduces the risk of grounding due to sea state induced motions, variation in tide levels, and sediment in the channel. CDNSWC has been the lead lab during the conception, development, and implementatinon phases, as well as transition of the system to the sub base. (Code 70)

TC 12: RDT&E, and Acquisition and Lifetime Support for Surface and Undersea Vehicle Materials & Processing Technology

Syntactic Foam: In cooperation with private industry, CDNSWC has developed and/or tested the syntactic foams in use in many submarines and deep diving submersibles. Syntactic foam is provides buoyancy to submersibles. Without this material, it would be impractical for deep diving submersibles to operate at depth because the vehicle would become very heavy and ponderous.

With private industry, CDNSWC developed a 34-lb-per-cubic-foot light-weight material incorporating special high-strength glass, binary blend microspheres and high-strength, water resistant resins by 1970. In the mid 1970's further development reduced the cost of syntactic foam from $110/lb to $50/lb. This technology also saved $140K for syntactic foam used in flotation pods of the Deep Submergence Rescue Vehicle (DSRV). The U.S. Navy's deepest diving, operational submersible is the SEACLIFF, which dives to 20,000 ft. The syntactic foam on SEACLIFF was procured to specifications written by CDNSWC. The French Navy was also assisted with their submersible NAUTILE, which uses the same technology.

Recent technology development has focused on lower-cost alternative syntactic foams used on SEAWOLF and LOS ANGELES attack submarines, and the Navy's NR-1 submersible. (Code 60)

Dudt, P., "Prediction of Short-Term Critical Collapse Pressure of Syntactic Foam under Hydrostatic Pressure," DTNSRDC Report 3242 (Nov 1969).

Tinley, T. N., "Certification of Advanced Syntactic Foam for 20,000-Foot Depths," CDNSWC Report 172-157 (Sep 1972).

Krenzke, M., "Advanced Syntactic Foams for DSSV-1," CDNSWC Report 172-133 (Jul 1970).

Bernstein, H. and M. Krenzke, "Lightweight Syntactic Foam as Buoyancy Material for a 20,000 Ft Deep-Sea Vehicle," The Society of Naval Architects and Marine Engineers, Honolulu (May 1971).

Dudt, P., "Evaluation of Reduced-Cost Syntactic Foam for 20,000-Ft Depth Applications - Final Report," TM 75-172-210 (May 1975).

Dudt, P., "Quality Assurance Testing of Syntactic Foam for 6,000-Ft Depth DSRV Pods," TM 75-172-222 (Oct 1975).

Dudt, P., "SEACLIFF Syntactic Foam Evaluation," TM 81-172-57 (Apr 1981).

Dudt, P. and K. Clark, "Evaluation of Syntactic Foam Modules," SSPD-90-175-2 (Oct 1989).

Dudt, P. "Effect of Shock Loading Conditions on Several Types of Buoyancy Foam," SSPD-93-175-8 (Oct 1992).

TC 13: RDT&E, and Acquisition and Lifetime Support for Surface and Undersea Vehicle Structures

Structural Reliability Technology: In-house developed methods for quantifying the probability of structure failures, predominantly from fatigue, have been used to access and correct a number of fleet deficiencies. These include the FFG-7 Class deckhouse cracking; CG-47 Class strength deck failures; DD-963 Class, LHD Class and CVN-71 deficient production welds investigation, etc. (Code 60)

Hay, W, J. Beach, and J. Adamchak "Structural Evaluation of FFG-7 Class Superstructure Modification Based on Full Scale Trials, Finite Element and Fatigue Life Analyses"; Encl (1) to DTNSRDC LTR. 9150 Ser 173/131 of 25 Nov 1986.

Small Waterplane Area Twin-hull (SWATH) Ship Design Methods: During the past three decades, CDNSWC has developed design and analysis methods applicable to SWATH type vessels. These methods have included basic design load algorithms, structural design criteria, and recommended structural analysis applicable to this unique type of ship. The technology developed at CDNSWC has been used by the Navy to design the TAGOS-19 and TAGOS-23 Classes of ships and is currently being used by the American Bureau of Shipping to develop design rules for commercial SWATH vessels. (Code 60)

Sikora, J. and A. Dinsenbacher, "SWATH Structure: Navy Research and Development Applications," Vol. 27, No. 4, Marine Technology (Jul 1990).

Composite Materials Vacuum Assisted Resin Transfer Molding (VARTM) Process: CDNSWC has supported the development of high quality/low cost composite structures for the past two decades. One of the industrial developments in this area has been a privately patented form of VARTM composite materials processing which results in aerospace-quality composite structures at boat building costs. This process has a wide range of potential military applications and is currently being used to produce leisure/sporting boats and deckhouses for commercial air cushion vehicles. (Code 60)

Critchfield, M.O., T.D. Judy, and A.D. Kurzweil, "Low-Cost Design and Fabrication of Composite Ship Structures", Marine Structures - Design, Construction, and Safety, Vol. 7, No. 2-5, pp. 475-495, Elsevier Science Limited, Essex, England (1994).

Corrugated Core Metal Sandwich Structures: CDNSWC has spent several years developing design methods to apply with light- weight corrugated core metal sandwich structure. Earlier, this technology was applied with spot-welded NAVTRUSS panels; the current emphasis is on laser welded LASCOR panels. Successful fleet applications of this technology for weight reduction and improved stiffness include weapons platforms on the LCC-19 and LCC-20, deck-edge elevator doors for the CV-66 and a CIWS enclosure for the DD-984. (Code 60)

Wiernicki, C.J., F. Liem, G. Woods, and A.J. Furio, "Structural Analysis Methods for Lightweight Metallic Corrugated Core Sandwich Panels Subjected to Blast Loads," Naval Engineers Journal (May 1991).

Improved Design GRP Sonar Dome - Building on years of experience in the design/analysis of composite structures, CDNSWC developed an improved design for a keel-mounted GRP sonar dome used on United States Coast Guard (USCG) cutters. This new design eliminated fleet failures occurring early in the life of original domes; also, it is less expensive than original domes and utilizes the previously described VARTM process. The improved design sonar dome is in production as a back-fit for operational USCG cutters. (Code 60)

Nguyen, L., "Structural Evaluation and Guidelines for Repair and New Construction of GRP Sonar Domes," SSMD Research and Development Report, CARDEROCKDIV-U-SSM-66-93/01 (Apr 1993).

Structural Design and Analysis Procedures for Controllable Pitch Propellers: In response to a premature failure of the controllable pitch (CP) propeller on USS BARBEY (FF-1088), CDNSWC completed a comprehensive laboratory and sea trial investigation on CP propeller blade attachment design loads, stresses and materials applications. CDNSWC efforts included: full-scale and model-scale testing of structural adequacy; analyses development and application; at-sea and model testing to predict loads; and material characterization.

Results of these investigations raised serious questions concerning the adequacy of CP propellers being installed on the lead ships of our newest surface ships. Engineering change proposals issued included the blade attachments, blade fillet shapes, crankrings, blade bolts and cover plates; completed backfits on 110 Navy ships saved the Department of the Navy nearly $29,000,000. The potentially disastrous impact on fleet readiness was avoided through timely identification of redesigns and backfits to correct structural inadequacies associated with the CP propellers on USS SPRUANCE Class, USS PERRY Class, and USS TICONDEROGA Class. In addition, the technology developed during the CP propeller research and development program has enabled the follow-on USS BURKE Class to have 50,000 shafthorsepower with the same size hub as the earlier 40,000 shafthorsepower Classes. (Code 60)

Martin, D. L., "Numerical Methods for Investigating Stresses in Controllable Pitch Propeller Blade Attachments," DTNSRDC Report 80/085 (Aug 1980).

Garala, H, "One-Third Scale Model Structural Evaluation of the USS SPRUANCE (DD-963) Controllable Pitch Propeller Blade Attachments," DTNSRDC Report 80/099 (Sep 1980).

Phyillaier, W. and R. Rockwell"Fatigue Behavior of Blade Attachment Bolts of Different Materials for High-Horsepower Controllable Pitch Propellers," DTNSRDC Report 80/043 (Jun 1980).

Rockwell, R. and S. Hersh,"DD 963, FFG 7 and CG 47 Class Propellers - Strength of Blade Bolts and Crank Rings and Overview of Investigations," DTNSRDC Report 80/068 (Jun 1980).

Rockwell, R. and S. Hersh,"Full-Scale Structural Evaluation of the USS OLIVER HAZARD PERRY (FFG 7) Controllable Pitch Propeller Blade Attachment, Phase 1--Application of FFG 7 Blade Forces to the USS SPRUANCE (DD 963) Propeller," DTNSRDC Report 80/066 (Jun 1980).

Gorman, R. W., "Full-Scale Verification of Reduced Stresses in the Blade Attachment of the USS SPRUANCE (DD-963) and TICONDEROGA (CG-47) Controllable Pitch Propellers through Modification of the Blade Fillet and Coverplate," DTNSRDC Report 80/081 (Nov 1980).

"Summary Report of the Controllable Pitch Propeller Research Program," DTNSRDC Report 81/065 (Jul 1982)

Martin, D. L "Structural Evaluation of a Modified CG-47 Class Controllable Pitch Propeller Blade Attachment for Use with the DDG-51 Class Propulsion System," DTNSRDC Report 85/016 (Apr 1985).

Dadley, A. E., "Structural Evaluation of a Controllable Pitch Propeller Blade Attachment for AOE-6," DTRC Report SSPD-88-172-7 (Sep 1987).

Dadley, A. E., "DDG-51 ATD Propeller Blade and Bolt Attachment Analyses," DTRC Report SSPD-92-172-53 (Feb 1992).

Dadley, A. E., "Stress Analysis of a Candidate Low Profile Bolt Design For Attachment of ATD Quiet Blades to a DDG-51 Class Controllable Pitch Propeller," CDNSWC Report SSPD-93-172-33 (Dec 1992).

Design of Open Propellers for Normal Service and Crashback Conditions: Procedures have been developed for the design of controllable pitch propellers and for all surface ship and submarine propellers. These include structural design procedures for ahead conditions and crashback. An important part of these procedures is crashback loading, in

which reverse power is applied to submarine propellers under emergency conditions. Before the development of these procedures, several failures occurred at sea. These procedures are used for all major Navy surface ship and submarine propellers. The are updated as necessary to insure acceptable integrity of these devices. (Code 60)

Harris, Steven G. and Robert D. Rockwell, "Strength Analysis of Submarine Propeller Blades in Steady backing and Crashback Maneuvers," CDNSWC Report, DTNSRDC - 78/008 (Apr 1978) CONFIDENTIAL.

Rockwell, Robert D. and Sidney Hersh, "Structural Design of Propeller Blades for Submarines and Surface Ships," CDNSWC Report DTNSRDC-80/036 (Jun 1980) CONFIDENTIAL.

Submarine Propellers: The SSN-688 propeller structural designs were conducted at CDNSWC. A new generation of banded propellers, referred to as Hybrids, required development of supporting technology to insure the adequacy of their structural design. Necessary technology was developed for use in this type propeller, which is currently on a number of SSN-688 class submarines. (Code 60)

Genalis, P., "SSN 688 Propeller Blade Strength - The Problem and a Program for Its Solution," CSNSWC Report 173-237 (Jan 1973)

Stuber, C. B., "Load - Response Tests of a Full Scale SSN 688 Class Propeller," CDNSWC Report 73-178-M41 (Apr 1973).

Siel, Carl R., Jr., et. al., "Stress Analysis of Hybrid (Banded) Propellers (U)," CDNSWC Report 81-1720-190 (Dec 1981) CONFIDENTIAL.

Seawolf Propulsor Structural Design: By applying technology developed under previous programs, a structural design for the Seawolf propulsor was developed. DTNSRDC had direct responsibility for structural design of the rotor and for technology base development of the stators and shroud. This major departure from past designs would not have been possible without available technology base. (Code 60)

Dadley, Albert E., "SSN-21 Lightweight Rotor Hub - Summary of Designs and Static and Fatigue Tests (U)," CDNSWC Report SSPD 92-172-87 (Jun 1992) CONFIDENTIAL.

Dadley, Albert E., "Evaluation of SSN-21 Lightweight Bolt-on Hub Based on Model Testing and Finite Element Predictions (U)," CDNSWC Report SSPD 92-172-106 (Sep 1992) CONFIDENTIAL.

Design, Analyses and Certification Procedures for Submarine Pressure Hull Structures: CDNSWC has been developing design analysis methods for submarine pressure hull structures continuously since the opening of the David Taylor Model Basin in 1937. The NAVSEA Design Data Sheet for pressure hull structures is based almost exclusively on the analyses developed and validated within the Submarine Structures Department. (86 of the 123 references are CDNSWC reports). Division personnel develop the instrumentation plans and participate in the initial deep submergence trials of the first of each class of submarine and likewise for major structural modifications to a class, such as the SSN 751. The first set of references is a partial list of reports describing these trials.

New concepts for pressure hull structures are proposed and developed. Resulting innovations include the missile compartment of the TRIDENT and the sandwich-type holding bulkheads within the TRIDENT and LOS ANGLES classes.

R&D to introduce new materials and processes which increase performance/reduce costs is proposed and conducted. A recent example is the use of undermatched yield stress weld material in the SEAWOLF pressure hull and its proposed inclusion in the New SSN submarine construction. (Code 60)

Deep Submergence Trial References:

"USS SAN JUAN (SSN 751) Deep Dive Test Results (U)," DTRC SSPD Report 90-172-20 (Feb 1990) CONFIDENTIAL.

McDevitt, D.T., "USS OHIO (SSBN 726) Trident Preliminary Deep Dive Test Results (U)," DTNSRDC SSPD Report 81-172-90 (Sep 1981) CONFIDENTIAL.

McDevitt, D.T., "USS LOS ANGELES (SSN 688) Preliminary Deep Dive Test Results (U)," DTNSRDC SSPD Report 77-172-26 (Dec 1976) CONFIDENTIAL.

Schneider, G.A., "Strength Measurements during Initial Deep-Submergence Tests of USS STURGEON SSN-637 (U)," DTNSRDC Report C-3835 (Dec 1973) CONFIDENTIAL.

Dadley, A.E., "Strength Measurements during Initial Deep-Submergence Tests of the NR-1 (U)," DTNSRDC Report C-3433 (Dec 1970) CONFIDENTIAL.

McDevitt, D.T., "Structural Proof Tests of Deep-Submergence Rescue Vehicles (DSRV-2) Pressure Hull Structure (U)," DTNSRDC Report 3712 (Oct 1971)

Schneider, G.A., "Strength Measurements during Initial Deep-Submergence Tests of USS DOLPHIN (AGSS-555) (U)," DTNSRDC Report C-3277 (Jan 1970) CONFIDENTIAL.

Allnutt, R.B., "Strength Measurements during Deep-Submergence Tests of USS NAUTILUS (SSN571) (U)," DTNSRDC Report C-821 (May 1958) CONFIDENTIAL.

Palermo, P.M., "Strength Measurements during Deep-Submergence Tests of USS SKIPJACK (SSN585) (U)," DTNSRDC Report C-1049 (Apr 1959) CONFIDENTIAL.

Palermo, P.M., "Strength Measurements during Deep-Submergence Tests of USS THRESHER (SSN593) (U)," DTNSRDC Report C-1286 (Jul 1961) CONFIDENTIAL.

Waterman, R.L., "Strength Measurements during Deep-Submergence Tests of USS ROBERT E. LEE (SSB(N)601) (U)," DTNSRDC Report C-1294 (Aug 1961) CONFIDENTIAL.

Palermo, P.M., "Strength Measurements during Deep-Submergence Tests of USS SCORPION (SSN589) (U)," DTNSRDC Report C-1296 (Aug 1961) CONFIDENTIAL.

Waterman, R.L., "Strength Measurements during Initial Deep-Submergence Tests of USS GEORGE WASHINGTON (SSB(N)598) (U)," DTNSRDC Report C-1312 (Jan 1962) CONFIDENTIAL.

McDevitt, D.T., "Strain Measurements during Initial Deep-Submergence Structural Tests of USS LAFAYETTE (SSBN 616) (U)," DTNSRDC Report C-1741 (Feb 1967) CONFIDENTIAL.

Bond, C.D., "Strength Measurements during Initial Deep-Submergence Tests of USS BENJAMIN FRANKLIN (SSB(N)640) (U)," DTNSRDC Report C-2229 (Sep 1966) CONFIDENTIAL.

Sample Experimental Model References:

Wiggs, A.J. and N. J. Tuhlski, "Development of Structural Design Procedures for the TRIDENT Missile Compartment (U)," DTNSRDC SSPD Report 172-168 (Apr 1973) CONFIDENTIAL

Lenderking, R.M., "Scaled Structural Model Tests of the TRIDENT Submarine Missile Compartment (U)," DTNSRDC Report 76-0128 (Dec 1976) CONFIDENTIAL

Lenderking, R.M., "Scaled Structural Model Tests of a Modified TRIDENT Submarine Missile Compartment Design (U)," DTNSRDC Report 80/029 (Jun 1980) CONFIDENTIAL

Brunkhart, G.E., "Weight and Strength Characteristics for Various Stiffened and Unstiffened Submarine Holding-Bulkhead Configurations (U)," DTNSRDC Report 80/001 (Jun 1980) CONFIDENTIAL

Brunkhart, G.E. and R.P. Lerner, "Hydrostatic Collapse Tests and Finite Element Analysis of a 0.113 Scale, Out-of-Round, HY-100, Submarine Engine Room Compartment with Lightweight Deep Frames (Model PER-1) (U)," DTRC Report 87/053 (Dec 1987) CONFIDENTIAL

Cheamitru, M.J. and C. D. Bond, "Design, Hydrostatic Testing and Analysis of Model BHIM - A Ring Stiffened Cylinder Incorporating an Internal Sandwich Holding Bulkhead (U)", DTRC SSPD Report 90-172-23 (Jan 1991) CONFIDENTIAL

Sickles, J.B., "Highlights of Hydrostatic Analysis of HY-100 SEAWOLF having HY-80 Web-to-Shell and Web-to-Flange Welds (U)," DTRC Letter Report SSPD C-173 (14 May 1992) CONFIDENTIAL

Lenderking, R.M. and R. P. Lerner, "Hydrostatic Collapse Tests of the Structural Configuration Models of the HY-100 Steel Version of the SSN 21 Class Attack Submarine (U)," CDNSWC SSPD Report 92-172-77 (Jul 1992) CONFIDENTIAL

Sickles, J.B., "Assessment of the Risk of Using Undermatching Welds in NAS Pressure Hull Structure (U)," CDNSWC SSM Report C-65-93/02 (Mar 1993) CONFIDENTIAL

DSRV Technology Development and Hull Design: Design procedures for spherical deep submergence pressures hulls as well as connected spherical hulls were developed as part of deep submergence programs. This technology was then applied to design the connected spherical pressure hull for DSRV. The design was collapsed at half scale to verify its adequacy. The hulls have operated successfully for several decades. (Code 60)

Senos, J. J., "General Test Program for Half-Scale Model (LRV-1) of DSRV-1," CDNSWC Report 720/69 (Apr 1967).

McDevitt, D. T., "Structural Proof Tests of Deep Submergence Rescue Vehicles (DSRV-2) Pressure Hull Structure," CDNSWC Report 3712 (Oct 1971).

Jones, R. F., "DSRV-1," CDNSWC Report 720-68 (Apr 1967).

Titanium Pressure Hull Technology and Application to SEACLIFF and ALVIN submersible Pressure Hull Designs: An extensive program in titanium pressure hull technology led to several successful applications of titanium in deep submersible pressure hulls, which included hulls for SEACLIFF and ALVIN. The first reference refers to the technology development and the other two refer to the proof tests. Many additional references are available. The hulls have operated successfully for many years. (Code 60)

Kiernan, T. J., "Structural Development of Titanium Oceanographic Vehicle for Operating Depth of 15,000 to 20,000 Feet," CDNSWC Report 1677 (Sep 1969).

Mavor, J. W., "Alvin, 6000-ft Submergence Research Vehicle," CDNSWC Report P-131. (no date in data base)

Dadley, A. E., "Certification Test of the Pressure Hull of the Deep Submersible Seacliff," CDNSWC Report 84/056 (Nov 1984).

Foundation Acoustic Design: In addition to supporting various loads, submarine and surface ship structures provide a path for unwanted vibrations to travel to the pressure hull and radiate, thus compromising the acoustic signature. Technology which reduces this transmission was developed and applied in the Seawolf design. As part of this process CDNSWC and shipyard personnel met regularly to transfer the technology and aid in its effective use in submarine design. (Code 60)

Ritter, O. and T. Tinley, "Submarine Foundation Acoustic Design Program Design Guidance Document (Revision 2)(U)," Tracor Document No. E 91 08 193 C (Jan 1990) CONFIDENTIAL.

NR-1 Composite Fairwater Diving Plane: CDNSWC has developed and demonstrated the technology for composite diving planes and control surfaces for submarines. Composite fairwater diving planes based upon this technology are in service on the NR-1 research submarine. These diving planes are 50% lighter than the steel planes they replace, which reduces a topside weight problem on the NR-1. These planes are also corrosion free and very damage tolerant. This technology is available to apply on all submarine control surfaces and rudders where weight or maintenance associated with steel planes is a problem. (Code 60)

Macander, A. B. and W. Phyillaier, "Design Analysis and Structural Evaluation of an FRP Composite Submarine Control Surface (U)," SSPD-88-172-36 (Feb 1988), CONFIDENTIAL.

Composite Bow Domes: In cooperation with private industry, CDNSWC developed the SSN-21 composite bow dome design. CDNSWC participated in the initial design studies; performed the detailed structural analyses; and conducted tests on joint structural elements and on a 1/5 scale model dome, which the Navy requires to verify structural adequacy. The test results showed that the SSN-21 bow dome design could be simplified without compromising structural adequacy by removing the reinforcement patches on earlier designs. As a result, weight was reduced by an estimated 13,000 lb and cost by $400,000 for each of the three SSN-21 domes purchased. (Code 60)

Crowley, E. A., "Evaluation of a KAMLOOPS Model Type B Composite Bow Dome Repair: An Experimental and Analytical Demonstration Effort," DTRC Report SSPD-91-172-7 (Nov 1990).

Garala, H. and W. Sutliff,"Structural Evaluation of the SSN-21 Bow Dome Design (U)," SSPD-92-172-66 (May 1992) CONFIDENTIAL.

Garala, H., W. Sutliff, and R. Charette, "Stress and Buckling Evaluation of the Axially-Symmetric SSN-21 Bow Dome (U)," SSPD-93-172-1 (Oct 1992) CONFIDENTIAL.

Midas Window (Fairwater HF Array Acoustic Window): A fairwater high-frequency (HF) array acoustic window (MX-10616/BQS) was developed for the SSN 751 - 755 in a program that began in FY84. These structures were required to withstand a loading during Arctic maneuvers, which was developed within this task, and be acoustically transparent. A window was designed as a composite structure fabricated from Kevlar fabric and rubber toughened epoxy. Two prototype structures were made and fully tested both structurally and acoustically in various laboratory settings. As a result of this development, a new window for the SSN 637 class was designed and put into production for the fleet's depleted replacement stock. This design was also used for the SSN 21 window. These windows are accepted in the fleet as the current generation fairwater HF array acoustic window for all Arctic capable submarines. (Code 60)

Baylis, Judy A., "Structural Design Considerations for SSN 751 Bridge Fairwater Window," Ser 172-107 (Sep 1985).

Baylis, Judy A., "Summary of MIDAS Validation Tests," SD-86-172-57 (Apr 1986).

Ice Breakthrough Capability for Submarines: CDNSWC has been developing design criteria for ice-loaded submarine structures and has defined operational and emergency limits for submarines operating under the ice as part of the Arctic Structures Program. The program involves full-scale testing in the Arctic, small- scale model tests in ice basins to explore beyond current operational limitations, and theoretical development to support these tests and to provide a convenient tool for future design and operational concepts.

Results of the program have influenced submarine design and operation. Design was influenced by quantifying ice loading for the SSN 21 fairwater, fillet, and bow dome. In addition, a design ice load for the SSN 688I fairwater acoustic window was developed and used on all Arctic capable submarines. A test procedure was developed to simulate ice loading on Advanced Special Hull Treatment (ASHT) tiles to qualify the structure of these materials and the method of bonding to the hull. Recommendations were made to NAVSEA for updating the Naval Warfare Plan (NWP) for Arctic operations. Initial impact of the ice by the submarine is no longer part of the ice penetration maneuver as a result of full scale tests and quantification performed in this program. (Code 60)

Nishida, K. "Research Needs for Design and Analysis of Submarines for Ice Breakthrough (U)," DTRC Report SD/C-79-172-41 (Feb 1979) CONFIDENTIAL.

Brindley, K. S., J. Cormier, and K. Nishida, "Analysis and Design of Submarine Sail and Superstructure for Ice Breakthrough (U)," DTRC Report DTNSRDC-82/115 (Jan 1983) CONFIDENTIAL.

Nishida, K., "Ice Loading on Submarine Structures (U)," DTRC Report SD/C-85-4 (Feb 1985) CONFIDENTIAL.

J.A. Baylis, "Dynamic Impact Experiments Associated with Ice Breakthrough Involving a 1/37-Scale Model (U)," DTRC Report SD-86-172-34 (Jan 1986) CONFIDENTIAL.

Martin, K. S., "Submarine Sail Ice Breakthrough (U)," DTRC Report DTNSRDC-86/062 (Nov 1986) CONFIDENTIAL.

Nishida, K., "Executive Summary - Ice Properties for the Submarine Penetration Problem (U)," DTRC Report SD-87-172-11 (Nov 1986) CONFIDENTIAL.

Nishida, K., "Progress Report on Structural Concepts (U)," DTRC Report SD/C-87-172-8 (Dec 1986) CONFIDENTIAL.

Kaminski, M. L., "Preliminary Design Criteria for Ice-Breakthrough Loads Based on a 1/37-Scale Model (U)," DTRC Report DTRC/C-SSPD-88-172-11 (Dec 1987) CONFIDENTIAL.

Kaminski, M. L., "Ice Sampling Procedures During ICEX-88 (U)," DTRC Report DTRC/C-SSPD-88-172-60 (Jul 1988) CONFIDENTIAL.

Baylis, J., M. Kaminski, and K. Nishida, "Progress Report on Design Criteria for Submarine Ice Loads (U)," DTRC Report SSPD-89-172-51 (May 1989) CONFIDENTIAL.

McNamara, M. K., "Novel Concepts to Increase Ice Penetration Capability - Mechanically Aided Methods (U), DTRC Report DTRC/SSPD-90-172-6 (Nov 1989) CONFIDENTIAL.

McNamara, M. K., "Preliminary Dynamic Ice-Impact Forces on a Submarine Fairwater Obtained from Tests of a 1/37-Scale Model (U)," DTRC Report DTRC/C-SSPD-91-172-12 (Dec 1990) CONFIDENTIAL.

TC 14: RDT&E, Acquisition and Lifetime Support for Small Surface and Undersea Manned and Unmanned Vehicles Including Combatant Craft

40-ft Plane Personnel and Rescue Boat (PPRB): The 40' PPRB was developed by the CCD primarily for offshore rescue of downed aircraft pilots and crew. The secondary missions for the craft include fire fighting, personnel transport and patrol operations. The craft was developed in 1990, and two craft were delivered to the Navy in 1993 under contract no. N00024-90-C-2201. (Code 23)

40-ft Personnel Boat MK7 (PE): The 40' PE was developed by CCD for use as an Admirals Barge or Officers GIG. The boat is often a shipboard carried boat used for transport of officer personnel from ship to shore. The boat was developed in 1990 and six were delivered to the Navy in 1992 and 1993 under contract no. N00024-90-C-2201, at a total contract cost of $2M (includes 2-40' PPRB's). (Code 23)

170-ft Patrol Coastal (PC): The 170' PC was designed for the primary mission of coastal patrol and interdiction; the secondary mission is Naval Special Warfare Operations. The 170' PC's were changed from "boats" to "commissioned ships" during the acquisition. There are 13 Cyclone Class Ships in production under contract no. N00024-90-C-2293, at a total cost of $234M. (Code 23)

56-ft Target Drone (TD): The 56' TD was developed by CCD as an expendable high speed target and missile platform in both manned and remote control operations. It was designed as a launch platform for aerial targets. The development occurred in 1990; a prototype was fabricated in 1992 under contract no. N00024-91-C-2120, with an additional 18 boats under production for delivery to the Navy at a total cost of $10M. (Code 23)

26-ft Motor Whaleboat (MWB): The 26' MWB was developed by CCD for primary use as a lifeboat carried on board ship. The boat is also used for secondary missions as an officers, shore party, or mail boat. The development occurred in 1990; 16 boats were delivered to the Navy in 1992 and 1993 under contract no. N00024-91-C-2303, at a cost of $1M. (Code 23)

65-ft Explosive Ordnance Disposal Support Craft (EODSC): The 65' EODSC was developed by CCD for the primary mission of Area Point Search (APS) to locate and identify underwater objects. The second mission is diver support during disposal of objects identified by APS as ordnance. The development occurred in 1990; three boats were delivered to the Navy in 1992 and 1993 under contract no. N00024-91-C-2304, at a total cost of $6.5M. (Code 23)

24-ft Rigid Inflatable Boat (RIB): The 24' RIB was developed by CCD for multiple mission possibilities. The boat is used as a ship-carried lifeboat and personnel boat. The boat is also used by Special Warfare as a multi-purpose platform, including ship to shore transport. The development occurred in 1990; 106 boats have been delivered since 1991 under contract no. N00024-91-C-2314, at a total cost of $9M. (Code 23)

8-meter Personnel Boat (PE): The 8m PE is a planing craft developed by CCD for missions as a ship-to-shore transport boat, ship mail carrier and small cargo ferry. The development occurred in 1991; 46 boats have been delivered or are under construction since 1992 under contract N00024-92-C-2300, at a total cost of $5M. (Code 23)

12-meter Utility Boat (UB): The 12m UB was developed by CCD for its mission as a shipboard or shore station transport vessel for personnel or cargo. The development occurred in 1991; 10 boats have been delivered or are under construction since 1992 under contract N00024-92-C-2301, at a total cost of $2M. (Code 23)

11-meter Landing Craft Personnel (Large) LCP(L): The 11m LCP(L) was developed by CCD as a guide and control boat for the early invasion waves of landing during amphibious assault operations. The boat was designed in 1991 and is in production, with a total of 13 boats scheduled to be delivered to the Navy under contract N00024-92-C-2341, at a total cost of $5M. (Code 23)

12-meter Personnel Boat (PE): The 12m PE is a shipboard carried boat developed by CCD for missions as a ship-to -shore transport boat, ship mail carrier and small cargo ferry. The development occurred in 1991; 9 boats have been delivered since 1992 under contract no.N00024-92-C-2322, at a total cost of $2M.
(Code 23)

15-meter Work Boat (WB): The 15m WB was developed by CCD for its mission as a harbor work boat. The boat was designed in 1991 and is in production; a total of 25 boats are scheduled to be delivered to the Navy under contract N00024-92-C-2344, at a total cost of $6.7M. (Code 23)

7-meter Rigid Inflatable Boat (RIB): The 7m RIB was developed by CCD for multiple mission possibilities. The boat is used as a ship carried lifeboat and personnel boat. The boat is also used by Special Warfare as a multi-purpose platform including ship-to-shore transport. The development occurred in 1992; 104 boats are scheduled for delivery to the Navy under contract N00024-93-C-2001, at a total cost of $10M. (Code 23)

10-meter Naval Special Warfare Rigid Inflatable Boat (NSW RIB): The 10m NSW RIB was developed by CCD for its primary mission as a SEAL ship-to-shore platform. The craft is also designed for other Naval Special Warfare mission requirements. The boat was designed in 1992 and is in production; with a total of 18 boats are scheduled for delivery to the Navy under contract N00024-93-C-2009, at a total cost of $8M. (Code 23)

15-meter Utility Boat MK1 (UB): The 15m UB was developed by CCD for its mission as a shipboard or shore station transport vessel for personnel or cargo. The development occurred in 1992; the boats are in production and a total of 29 boats are scheduled for delivery to the Navy under contract N00024-93-C-2020, at a total cost of $6M. (Code 23)

42-ft Patrol Craft Coastal (PCC): The 42' PCC was designed for Foreign Military Sales (FMS) for missions of coastal combatant patrol and limited deep river patrol. The development occurred in 1992 and the boats are in production; a total of 12 boats are scheduled for delivery to the Navy under contract N00024-93-C-2021, at a total cost of $9.8M for foreign military sales. (Code 23)

10-meter Utility Boat (UB): The 10m UB was developed by CCD for its mission as a shipboard or shore station transport vessel for personnel or cargo. The development occurred in 1992 and the boats are in production; a total of 29 boats are scheduled for delivery to the Navy under contract N00024-93-C-2043, at a total cost of $6M. (Code 23)

24-ft Boom Handling Boat (BHB): The 24' BHB was developed by CCD for its mission in Navy salvage and oil spill cleanup operations. The boat is used to tow the open seas oil containment boom and/or skimmer boat. The development occurred in 1992 and the boats are in production; a total of 4 boats are scheduled for delivery to the Navy under contract N00024-94-C-2000, at a total cost of $1M. (Code 23)

10-meter Personnel Boat (PE): The 10m PE is a shipboard carried boat developed by CCD for missions as a ship to shore transport boat, ship mail carrier and small cargo ferry. The development occurred in 1991 with 29 boats scheduled to be delivered to the Navy under contract N00024-93-C-2013, at a total cost of $6M. (Code 23)

74-ft Landing Craft Mechanized (LCM(8)): The 74' LCM(8) was developed by CCD for its mission to beach tanks or heavy vehicles during amphibious operations. Other uses include conversions to dive support boats, ferries, mini floating drydocks or pusher boats. The development occurred in 1990; 12 boats were delivered to the Navy in 1992 and 1993 under contract no. N00024-90-C-2212, at a cost of $10.6M. (Code 23)

41-ft High Speed Patrol Craft (HSPC): The 41' HSPC was developed by CCD for the U.S. Army for its mission as an all weather, high speed patrol craft. The development occurred in 1990, and 2 boats were delivered to the Army under contract no. DAAK01-91-C-0172. (Code 23)

71-ft MK5 Special Operations Craft (PBI): The 71' MK5 SOC is a prototype craft being evaluated for coastal patrol interdiction and SEAL insertion missions. The prototype was constructed under contract no. MDA911-93-C-0016 for the Special Operations Command. (Code 23)

82-ft MK5 Special Operations Craft (HM-A): The 82' MK5 SOC is a prototype craft being evaluated for coastal patrol interdiction and SEAL insertion missions. The prototype was constructed under contract no. MDA911-93-C-0019 for the Special Operations Command. (Code 23)

82-ft MK5 Special Operations Craft (HM-B): The 82' MK5 SOC is a prototype craft being evaluated for coastal patrol interdiction and SEAL insertion missions. The prototype was constructed under contract no. MDA911-93-C-0015 for the Special Operations Command. (Code 23)

Bilge Oily Water Separator: CCD developed, tested and assisted in certifying the Navy Model 3 Oily Water Separator for Navy Small Combatant Craft 170' or less and under 500 tons. This is the only small Combatant Ship/Craft Oily Water Separator which fully complies with DOD Directive 6050.15 "Prevention of Oil Pollution from Ships Owned and Operated by the Department of Defense". The system has been successfully installed on 135' LCU's, 170' PC, MCM's and is targeted for backfit on the new Army Large Tugs. (Code 23)

Torsional Vibration Computer Program: CCD has developed a computer program to analyze and predict the torsional vibration compatibility of the propulsion drive system of boats, craft, ships and other vehicles for the U.S. Navy, Department of Defense and industry. CDNSWC and Carnegie Mellon University have teamed in organizing a Torsional Vibration Consortium of Government, Industry and Universities to maintain the program. To date six large industry members have joined and many others are expressing interest. (Code 23)

TC 16: RDT&E, and Acquisition and Lifetime Support for Surface and Undersea Vehicle Design and Systems Integration

NASHUA (NASTRAN-Helmholtz Underwater Acoustics): This CDNSWC infinite element computer program was developed to predict acoustic radiation and scattering. NASHUA had been distributed widely throughout Government and industry to organizations working in the subject area. (Code 204)

Everstine, G.C., and J.A. Quezon, "NASHUA User's Guide for Acoustic Radiation and Scattering," Carderock Division, Naval Surface Warfare Center, Systems Department Report CDNSWC-SD-92/17 (Apr 1992)

DTNS (David Taylor Navier-Stokes) Reynolds-Averaged Navier-Stokes (RANS) computer program: This program predicts flow about and within generalized bodies. It has been distributed widely and performed very well in national and international efforts to benchmark and predict flows about ships and submarines. (Code 204)

Gorski, J.J., "TVD Solutions of the Incompressible Navier-Stokes Equations with an Implicit Multigrid Scheme," Proc. of the 1st National Fluid Dynamics Congress, Vol, 1, PP, 394-401, 1988.

McPOW (Mechanical POWer): This post-processor for the finite element program NASTRAN computes structure-borne noise quantities in vibrating structural systems. McPOW is currently used by CDNSWC and Ford Motor Company, Hambric, S.A. (Code 204)

"Power Flow and Mechanical Intensity Calculations in Structural Finite Element Analysis," ASME Journal of Vibration and Acoustics, Vol 112, No. 4 (October 1990).

XYZFS Potential Flow fluid dynamics computer program: This computes the wave resistance and patterns of surface ships and has special capability for transom stern ships. (Code 204)

Cheng, B.H. and J.S. Dean, "User's Manual for the XYZFS Free Surface Program," David Taylor Naval Ship R&D Center Report DTNSRDC-86/029.

Small Waterplane Area Twin-Hull (SWATH) Ship design and performance: For the past three decades, CDNSWC has conducted hydrodynamic R&D efforts in the area of SWATH design and performance. Analytic tools were developed to predict resistance, powering, maneuvering, and seakeeping characteristics. Extensive model experiments increased the level of confidence in the use of these tools. The T-AGOS 19 (Victorious) and T-AGOS 23 (Impeccable) designs relied heavily on CDNSWC expertise. T-AGOS 19 recently underwent operational trials. (Code 22)

"Buoyantly Supported Multi-Hull Vessels", Intersociety
High Performance Marine Vehicles Conference and Exhibit, 24-27 June 1992, Published by Flagship Section, American Society of Naval Engineers, pp MH1-MH17.

"Swath Ships, Chapter III," Naval Engineers Journal, Modern Ships and Craft Special Edition, Published by American Society of Naval Engineers (Feb 1985)

Amphibious Assault Landing Craft (AALC) Program: The Landing Craft Air Cushion (LCAC) Vehicle provides revolutionary new amphibious assault capabilities in both full-scale warfare and littoral conflicts. The Navy's LCAC program was a product of the Amphibious Assault Landing Craft (AALC) Program, technically managed by CDNSWC. the Division also provided design, development, and test and evaluation of models and two full-scale experimental prototypes, JEFF (A) and JEFF (B). The AALC Program provided the technical base needed for the low-risk acquisition of the Navy's new high-speed amphibious landing craft, LCAC. (Code 22)

"Hovercraft Development," Intersociety High Performance Marine Vehicles Conference and Exhibit, 24-27 June 1992, Published by Flagship Section, American Society of Naval Engineers, pp ACV1-ACV8 and ACV16-ACV38.

"Air Cushion Vehicles, Chapter VII," Naval Engineers Journal, Modern Ships and Craft Special Edition, Published by American Society of Naval Engineers (Feb 1985)

Mantle, Peter J., "Air Cushion Vehicle Development," DTNSRDC Report 80/012 (Jan 1980)

Technology Base for Hydrofoil Patrol Craft: The CDNSWC-developed technology base for fully submerged hydrofoil ocean going craft was translated into the Navy's PHM Squadron. These craft were recently retired following various fleet assignments, including Key West, Fla., where they provided reliable high speed/quick reaction naval presence in the Caribbean and Florida Straits. CDNSWC's Hydrofoil Office served as Technical Manager of the PHM Program from the 1960s through the 1980s. CDNSWC was active during the design and testing of PHM-1 and the follow-on design and testing of PHM-3 series

hydrofoils and subsystem equipment such as the Collision Avoidance and Tracking System. The Division continued to provide logistics support, technical problem solving and improvements until the Squadron's retirement.
(Code 22)

"Hydrofoil Development and Applications," Intersociety High Performance Marine Vehicles Conference and Exhibit, 24-27 June 1992, published by Flagship Section, American Society of Naval Engineers, pp HF1-HF36.

"Hydrofoils, Chapter V," Naval Engineers Journal, Modern Ships and Craft Special Edition, Published by American Society of Naval Engineers, Feb 1985.

Ellsworth, Wm. M., "Twenty Foilborne Years," DTNSRDC Study, (1986).

Surface Effect Ship Program: CDNSWC developed the design, and hydrodynamic powering, stability and motions technology base which led to numerous U.S. Navy and foreign Navy surface effect ship designs and to the Navy's operational SES 200. The SES 200 has participated in NATO deployments and, working with the Coast Guard, performed drug interdiction operations. CDNSWC staff served as the nucleus for the Navy's SES Program Office. The SES 200 continues to serve the Navy as an operational test craft, to evaluate various high-speed marine vehicle systems (e.g. lightweight diesels and waterjet systems) and weapon systems. (Code 22)

"Hovercraft Development," Intersociety High Performance Marine Vehicles Conference and Exhibit, 24-27 June 1992, Published by Flagship Section, American Society of Naval Engineers, pp ACV8-ACV15 and ACV16-ACV38.

"Surface Effect Ship, Chapter VI," Naval Engineers Journal, Modern Ships and Craft Special Edition, Published by American Society of Naval Engineers (Feb 1985).

The Advanced Surface Ship Evaluation Tool (ASSET): ASSET is a family of interactive computer programs for use in the exploratory and feasibility design phases of naval surface ships. A distinct, but similar, program exists for each of several types of surface ships. The ASSET programs currently available include:

Current ASSET-Based Ship Design Synthesis Programs

Monohull Surface Combatant Ships	MONOSC Ver 3.3
Monohull L (Amphibious) and A (Auxiliary) Ships	MONOLA Ver 1.0
Small Waterplane Twin Hull Ships	SWATH Ver 1.0
Surface Effect Ships	SES Ver 0.0

Within each ship-type program exists a series of computational modules. Each module performs computational functions pertaining to a specific domain of naval architecture, such as hull geometry, hull structure, resistance, propulsion, machinery, weight, space, hydrostatics, seakeeping, manning, or cost. These modules provide both design synthesis and analysis capability. Some ship-type programs also have one or more modules of a second type called input/output support modules. Each input support module provides the user with a simplified means to assemble and modify input data for a computaional module. Output support modules export ship data from an ASSET ship-type design synthesis program to other CAD modelers or analysis programs.

To provide ease of use of the entire ASSET system, each ship-type program shares a common executive program, which provides not only a friendly user-computer interface, but also a unique data management system which simplifies the storage, recall, and use of ship data by the ASSET user. Other key features of the ASSET executive include, online help, a screen editor, query/menu mode, and automated prompting of user for required input data. Additional shared features of ASSET include printed and graphical output, use of either English or metric units, and extensive documentation. The ASSET documentation not only provides instruction in the use of ASSET, but also describes the theoretical basis for the engineering computations performed within ASSET. The ASSET ship-type programs can be run on a variety of computer systems.

The ASSET family of ship design synthesis programs are the principle early stage design tools used by the U.S. Navy for total ship design and the assessment of new ship-related technologies. They are also used for naval ship design by the governments of Canada and France. The Carderock Division, Naval Surface Warfare Center is responsible for the development and maintenance of ASSET. (Code 24)

"Advanced Surface Ship Evaluation Tool, Monohull Surface Combatant Program, ASSET MONOSC Version 3.3," Ship Systems & Programs Directorate, Design Tools and Analysis Branch, Carderock Division, Naval Surface Warfare Center (Aug 1993).

"Advanced Surface Ship Evaluation Tool, Monohull L and A Type Ship Program, ASSET MONOLA Version 1.0," Ship Systems & Programs Directorate, Design Tools and Analysis Branch, Carderock Division, Naval Surface Warfare Center (Aug 1993).

"Advanced Surface Ship Evaluation Tool, Small Waterplane Twin Hull Ship Program, ASSET SWATH Version 1.0," Ship Systems & Programs Directorate, Design Tools and Analysis Branch, Carderock Division, Naval Surface Warfare Center (Jun 1990).

"Advanced Surface Ship Evaluation Tool, Surface Effect Ship Program, ASSET SES Version 0.0," Ship Systems & Programs Directorate, Design Tools and Analysis Branch, Carderock Division, Naval Surface Warfare Center (Dec 1991).

TC 18: Experimental Aerodynamics

Circulation Control (CC) Aerodynamics: CDNSWC has developed a mature, validated methodology for the design of efficient airfoils/hydrofoils having revolutionary high-lift and lift control capabilities. Major full-scale proof-of-concept demonstrations were conducted with a fleet aircraft (A-6/CCW) and a full-scale X-wing (convertible rotorcraft) aircraft model. This development has provided the foundation for simpler, more effective, and lower cost short- and vertical-take-off and landing aircraft and for a host of high-payoff ship and submarine applications.

TC 20: Logistics RDT&E, Acquisition and In-Service Engineering

Interactive Electronic Technical Manual (IETM) Technology: CDNSWC has formulated concepts, developed prototype systems, and conducted laboratory and Fleet tests to prove the benefit of computer-base electronic documentation. As the DoD leader for IETMs, the Division directed a tri-service that produced three specifications for the acquisition of IETMs (MIL-M-87268, M-D-87269, MIL-Q-87270). In comparison to paper-based manuals, the electronic versions have been shown to reduce maintenance time and errors, and manpower requirements, and increase weapon-system availability and Fleet readiness. IETMs are currently being implemented on AEGIS, AN/BSY-1, AN-BYS-2, SSN-21, NAS, V-22, F/A-18, IUSS/FDS, and Gas Turbine Systems.

Military Specification MIL-M-87268; Manuals, Interactive Electronic Technical: General Content, Style, Format, and User-Interaction Requirements 20 Nov 1994).

Military Specification MIL-D-87269; Data Base, Revisable: Interactive Electronic Technical Manuals, for the Support of 20 Nov 1994.

Military Specification MIL-Q-87270; Quality Assurance Program: Interactive Electronic Technical Manuals and Associated Technical Information; Requirements for 20 Nov 1994.

Navy Print-on-Demand (NPODS): CDNSWC developed Function Description and System Specifications for the Navy Print-on-Demand System (NPODS), a repository of digital raster images of military specifications, standards, handbooks, and bulletins. NPODS development was completed in 1988, and it was installed at the Navy Publications and Forms Center in Philadelphia. NPODS accepts electronic orders for MILSPECS/STDS and prints and mails requested copies on demand. More than 50,000 sq. ft. of warehouse storage space and 1.8 million pages of paper shelf stock have been saved during the 5 years of NPODs successful operation. CDNSWC has worked on system design specifications to apply the technology to all Navy technical manuals.

"Navy Print on Demand System (NPODS) Request for Proposals," prepared for the Navy Publications and Printing Service by CDNSWC Computer Sciences and Information Systems Division (19 Feb 1985).

Computer-Aided Warehouse Design Project: This system was developed at CDNSWC to assist the Navy determine an effective methodology for selecting the least cost warehouse from alternative designs, based on costs for construction, operations and maintenance, on a life cycle basis, to satisfy specific requirements. The key component of CAWD is Computer Model 529 (CM-529). This interactive model allows Navy warehouse planners to work at their computer terminals and determine quickly the least cost warehouse given the requirements and conditions that must be met. CM-529 also allows for "what if" analysis so that the impact of contingencies can be determined.

The Chief of Naval Research has estimated that the CAWD software system saves up to $20 million annually on the cost to construct, maintain, and operate Navy warehouses. Navy Supply System Command Instruction 4450.28 of March 1987 requires that CM-529 be used in the design of all Navy warehouses. The savings to the Department of Defense is now even more significant because the Air Force, the Marine Corps, and the Defense Logistics Agency are also using the CAWD system, as is the General Services Administration. A Cooperative R&D Agreement is being established with the Material Handling Research Center (MHRD) at the Georgia Institute of Technology so that the Navy's warehouse design system can be used in its research. The MHRC's results will be shared with the Navy. (Code 10)

"Computer Aided Warehouse Design," NAVSUPINST 4450.28, 4 Mar 1987

Underway Replenishment (UNREP) Improvements. The Navy is developing new technology and innovative hardware systems to improve its capability to transfer dry and liquid cargo at sea. The improvements are needed to reduce costs, improve the speed of UNREP, and enable the safe transfer of cargo, including weapons, in rough seas and hostile weather conditions. An Omni-Directional Vehicle (ODV), developed at CDNSWC, represents a unique technology which will vastly improve the shipboard movement of dry cargo, missiles, and other products normally moved by forklift. A prototype ODV was designed, build and tested under CDNSWC program management. CDNSWC has also developed a vastly improved fueling-at-sea system (Tensioned Hose Refueling System), which eliminates the need for a spanwire, hauling winches, ram tensioner, high-pressure air system, and other existing fuel UNREP hardware. This technology will benefit UNREP operations greatly. Both dry cargo and fuel transfer at sea will be possible in environmental conditions that make such transfers impossible with today's hardware. (Code 10)

Navy Exploratory Development Program, FY 1990 and 1991 Block Plan, Logistic Block (ND2A); Replenishment Project, Carderock Division, NSWC.

Joint Logistics Over the Shore (JLOTS): CDNSWC has been an active participant in developing JLOTS merchant marine logistics cargo delivery systems now being used in joint service operations to move both containerized cargo and military vehicles from ships off-shore to an undeveloped beach. The Roll-on/Roll-off (RO/RO) Discharge Facility (RRDF) was developed at CDNSWC to safely off-load military vehicles from merchant RO/RO vessels anchored off-shore. Both the Army and Navy approved the RRDF system for service use and production, and a $96M acquisition program resulted. Several other JLOTS systems have been developed at CDNSWC, including a Cantilever Lift Frame which enables LASH merchant vessels to transport and off-load critical lighterage and outsize cargo during JLOTS, and unique alterations to SEABEE vessels that allow these heavy lift merchant vessels to support JLOTS operations.

These JLOTS technology developments will allow the Navy and the Army to use more than 50 different RO/RO vessels, 18 LASH vessels, and three SEABEE vessels to transport the critical logistics cargo needed to sustain Marine Corps and Army power projection missions. (Code 10)

"Joint Logistics Over the Shore (JLOTS)," JCS Joint Service Publication 4.01.6.

"JLOTS III Ocean Venture 93 Initial Report," DoD Joint Test Director, JLOTS III, Ft. Story, Va., message number 221900 z (Oct 93).

"SEABEE LOTS Interface Design," CDNSWC report SSD-CR-08/93 (Mar 1993).

"SEABEE Loading, Lashing, and Unloading Procedures for LOTS Watercraft," CDNSWC report SSD-CR-09/93 (Mar 1993).

Material Handling, Strikedown, and Stowage (MHS&S) Design Tools: CDNSWC has developed the MHS&S Performance Analysis Tool which automates the design, layout, and evaluation of handling, strikedown, and stowage systems on Navy ships. CDNSWC has also upgraded three ship synthesis models (small combatants, aircraft carriers, and auxiliary and amphibious ships), which provide accurate MHS&S space and weight estimations. Using these models, designers can examine alternative MHS&S concepts and determine their effect on total ship design. (Code 10)

"User's Guide to the Material Handling, Strikedown, and Stowage Performance Analysis Tool (PAT)," CDNSWC-CR-102-94/03 (Mar 1994).

"Material Handling, Strikedown, and Stowage Upgrade to the MONOLA Amphibious and Auxiliary Synthesis Model," CDNSWC-CR-102-94/04 (Apr 1994).

"Material Handling, Strikedown, and Stowage Upgrade to the CV03 Aircraft Carrier Design Synthesis Model," DTRC-SD-CR 21/91 (Sep 1991)

"Material Handling, Strikedown, and Stowage Upgrade for the ASSET/MONOSC3 Ship Design Synthesis Model," DTRC-SD-CR-19/91 (Aug 1991)

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.

SEE TAB B

SPECIAL FACILITIES AND EQUIPMENT
(TAB B)

1 - Technical Facilities for Naval Vehicle Cost/Benefit Analysis, Simulation and Modeling

Simulation Planning and Analysis Research Center (SPARC)

2 - Technical Facilities for RDT&E and Acquisition Support for Surface, Undersea and USMC Vehicle Vulnerability and Survivability Systems

Deep Submergence Pressure Tanks
Explosives Test Pond
Shock Trials Instrumentation

3 - Technical Facilities for RDT&E and Acquisition Support for Surface and Undersea Vahicle Active and Passive Acoustic Signatures and Silencing Systems

Anechoic Flow Facility
Acoustic Data Analysis Center
Acoustic Data Processing Center

4 - Technical Facilities for RDT&E and Acquisition Support and In-Service Engineering for Surface and Undersea Vahicle Non-Acoustic Signatures and Silencing Systems

Radar Image Measurement System
Infrared Measurement System

11 - Technical Facilities for RDT&E, and Acquisition and Lifetime Support for Surface and Undersea Vehicle Hull Form and Propulsors

David Taylor Model Basin
Large Cavitation Channel, Memphis Detachment
Maneuvering and Seakeeping Basin & Rotating Arm Basin
Circulating Water Channel
Athena Research Ship System

13 - Technical Facilities for RDT&E, and Acquisition and Lifetime Support for Surface and Undersea Vehicle Structures

Deep Submergence Pressure Tanks
Structural Evaluation Laboratory
Explosives Test Pond

14 - Technical Facilities for RDT&E, Acquisition, and Lifetime Support for Small Surface and Undersea Manned and Unmanned Vehicles including Combatant Craft

Combatant Craft Department

15 - Technical Facilities for RDT&E and Acquisition Support for Marine Corps Vehicle Systems and Components

Model Test Equipment/Fixtures
Mobile Data Collection and Analysis Station

16 - Technical Facilities for RDT&E, Acquisition and Lifetime Support for Surface and Undersea Vehicle Design and Systems Integration

CAD Workstations/Network

17 - Technical Facilities for RDT&E and Acquisition Support for Shipbuilding and Manufacturing Technology RDT&E

Shipbuilding Technology Office Automation Network
Shipbuilding Technology Office Research Network
Continuous Acquisition and Life Cycle Support Network

18 - Experimental Aerodynamics

Subsonic Wind Tunnel
Transonic Wind Tunnel

20 - Logistics RDT&E Acquisition and In-Service Engineering

CALS Technology Integration Facility

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.

None.

b. What MILCON projects are currently programmed to be completed by the end of FY1995?

None

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

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

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

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

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

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

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

Ships Materials Technology Facility
Project: P-172S/P-179S
Description:

This facility will ba a three-story frame building including basement and will be composed of concrete precast curtain walls, concrete floors and a built-up roof over concrete on metal decking. The building includes all utilities, fire protection, heating, air conditioning, hazardous waste mitigation, special and environmental ventilation exhaust systems for safety and pollution control, vibration and noise isolation, radiation shielding, secure vault and explosion-proof fixtures, parking and fenced, paved area for outside storage. Features of the building include primary engineering spaces in one wing and three laboratory wings for metals, welding and non-destructive evaluation, non-metallic materials, and chemical and physical processes laboratories; first floor engineering spaces to support heavy metallic testing devices, manufacturing and assembly processes, high bay for full size prototypes, including elastomeric engineering spaces; and the third floor will be dedicated for chemical and point laboratories.

The project will also include new Navy research and development capabilities in advance composite material science and technology, to meet the increasing need for composite materials aboard Navy ships. The project also provides specialized shop space areas, bench laboratory space, freezer storage and required support space.

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

1.1 Undersea
1.3 Surface
11.5 Materials and Processes

(3) The identified installed equipment to be provided based on the threshold guidance of paragraph 6, page 12, of this data call: **Weight Handling Equipment (2.9M)**

(4) The additional square footage this project will provide to the functional support area(s): **135,000 SF**

(5) CWE & planned BOD: **$23.5M, April 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.

Bolling Air Force Base: 25 miles
Anacostia Naval Station: 25 miles

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?

Certified magazines: 1
Total explosive weight storage: 89 lb

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, the Carderock Site has a number of very large and unique facilities that, because of their size and replacement cost, would be extremely impractical to relocate. These facilities, many of which are considered national assets, are essential to assure that ship systems and subsystems have the best possible hydromechanics and propulsive characteristics to achieve their missions; to assure that ships and submarines incorporate the most advanced structural concepts for protecting structures, equipment and personnel; and to assure that U.S. surface ships and submarines are acoustically and non-acoustically superior to ships and submarines of other navies.

Because of the unique facilities and expertise resident at each site within the Carderock Division, a number of technical capabilities (TC) of the Division are jointly executed across sites. They are:

TC 2 - Surface, Undersea and USMC Vehicle Vulnerability and Survivability Systems RDT&E, Acquisition, and In-Service Engineering

Carderock--Shock/Damage Analysis, Modelling and Trials
Annapolis--Fire Survivability and Machinery Shock Harding R&D
NAVSSES--Damage Control

TC 3 - Surface and Undersea Vehicle Active and Passive Acoustic Signatures and Silencing Systems RDT&E, Acquisition, and In-Service Engineering

Carderock--Hull and Propulsor Silencing
Annapolis--Machinery Silencing & Silencing Materials
Bayview --Model Testing

TC 4 - Surface and Undersea Vehicle Non-Acoustic Signatures and Silencing Systems RDT&E, Acquisition, and In-Service Engineering

Carderock--Radar and IR Signatures
Annapolis--Stealth Materials & Machinery Magnetic/Electric Signatures

TC 5 - Surface and Undersea Vehicle Propulsion Machinery Systems and Components RDT&E, Acquisition, and In-Service Engineering

Annapolis--R&D/Model-Scale Tests
NAVSSES--ISE/Full-Scale T&E

TC 6 - Surface and Undersea Vehicle Auxiliary Machinery Systems and Components RDT&E, Acquisition, and In-Service Engineering

Annapolis--R&D/Model-Scale Tests
NAVSSES--ISE/Full-Scale T&E

TC 7 - Surface and Undersea Vehicle Electrical Machinery Systems and Components RDT&E, Acquisition, and In-Service Engineering

Annapolis--R&D/Model-Scale Tests
NAVSSES--ISE/Full-Scale T&E

TC 19 - Environmental Quality Science and Systems RDT&E, Acquisition, and In-Service Engineering

Annapolis--RDT&E and Acquisition Support
NAVSSES--In-Service Engineering

TC 20 - Logistics RDT&E, Acquisition and In-Service Engineering

Carderock Site--Information Systems & Logistics Over-the-Shore R&D
Annapolis--Machinery Systems R&D
NAVSSES--T&E and In-Service Engineering

FACILITIES

The largest of the Carderock facilities, the David Taylor Model Basin Complex, which is approximately 0.6 miles long, houses three water basins with carriages capable of towing large models up to 50 knots. To meet the requirements for uniformity in the speed of the carriages which tow the models, the tracks must be machined to follow the curvature of the earth. Thus, the Basin walls upon which they rest are of massive concrete construction, laid directly on bedrock. It was to obtain this firm and unyielding natural foundation that the Carderock Site was originally selected.

Other crucial facilities at the Carderock Site include the United States' largest free-surface circulation water channel; the Rotating Arm Basin which provides performance and turning data for ships, submarines and other vehicles; the Structures Evaluation Laboratory; and the Maneuvering and Sea Keeping Basin (MASK), with its wavemaker which models full-scale motions of ships, platforms and mooring systems. Replacement costs of these and other Carderock facilities surpass $1.7B.

PERSONNEL

The Carderock Site has an outstanding reputation in surface ship and submarine HM&E R&D because of its facilities and personnel. The scientists, engineers and naval architects here have created a synergy of talents which makes Carderock the origin of and

first stop for all new ship and submarine concepts. The Carderock Site, just outside the Capitol Beltway, is a magnet for attracting highly talented professionals. These scientists and engineers view the metropolitan Washington area, with its cultural attractions and many nationally recognized colleges and universities offering unlimited opportunities for continuing their education, as an ideal working location.

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

Most of the customers supported by the Carderock Site are headquartered in Washington, D.C., Crystal City, Ballston, the Pentagon, or Alexandria. All of these locations are approximately a 30-minute drive from Carderock.

This proximity to Headquarters, Navy and other Service activities in the Washington, D.C. area, make it possible for Carderock Site personnel to provide management and technical support on an urgent/time critical basis.

The Carderock Site is centrally located on the east coast near many Navy Fleet and support activities. Carderock detachments located at Bremerton, WA and Norfolk, VA allow rapid access to the Fleet, as do a number of quick reaction people at the main site itself.