DCN 1073

DATA CALL 66
INSTALLATION RESOURCES

Activity Information:

Activity Name:	Glendora Lake Test Facility
UIC:	None Assigned (NWSC Crane Division UIC:N00164)
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 (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: Glendora Lake Test Facility		**UIC:** N/A	
Category	**FY 1996 BOS Costs ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:	N/A	N/A	N/A
1a. Maintenance and Repair			
1b. Minor Construction			
1c. Sub-total 1a. and 1b.			
2. Other Base Operating Support Costs:			
2a. Utilities			
2b. Transportation			
2c. Environmental			
2d. Facility Leases			
2e. Morale, Welfare & Recreation			
2f. Bachelor Quarters			
2g. Child Care Centers			
2h. Family Service Centers			
2i. Administration			
2j. Other (Specify)			
2k. Sub-total 2a. through 2j:			
3. Grand Total (sum of 1c. and 2k.):			

NOTE TABLE 1.A: The Glendora Lake Test Facility operating expenses are direct funded. Naval Surface Warfare Center Crane does not submit costs for Glendora Lake in the Base Operating Support budget.

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	

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..

DATA CALL 66
INSTALLATION RESOURCES

Table 1B - Base Operating Support Costs (DBOF Overhead)			
Activity Name: Glendora Lake Test Facility		**UIC:** N/A	
Category	**FY 1996 Net Cost From UC/FUND-4 ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:	N/A	N/A	N/A
1a. Real Property Maintenance (>$15K)			
1b. Real Property Maintenance (<$15K)			
1c. Minor Construction (Expensed)			
1d. Minor Construction (Capital Budget)			
1c. Sub-total 1a. through 1d.			
2. Other Base Operating Support Costs:			
2a. Command Office			
2b. ADP Support			
2c. Equipment Maintenance			
2d. Civilian Personnel Services			
2e. Accounting/Finance			
2f. Utilities			
2g. Environmental Compliance			
2h. Police and Fire			
2i. Safety			
2j. Supply and Storage Operations			
2k. Major Range Test Facility Base Costs			
2l. Other (Specify)			
2m. Sub-total 2a. through 2l:			
3. Depreciation			
4. Grand Total (sum of 1c., 2m., and 3.) :			

DATA CALL 66
INSTALLATION RESOURCES

NOTE TABLE 1.B: The Glendora Lake Test Facility operating expenses are direct funded. The Naval Surface Warfare Center Crane does not submit costs for Glendora Lake in the Base Operating Support budget.

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: Glendora Lake Test Facility	**UIC:** N/A
Cost Category	**FY 1996 Projected Costs ($000)**
Travel:	1.5
Material and Supplies (including equipment):	5.0
Industrial Fund Purchases (other DBOF purchases):	0
Transportation:	0.5
Other Purchases (Contract support, etc.):	0
Total:	7.0

NOTE TABLE 1.C: Supplies and Services for the Glendora Lake Test Facility do not appear in the NAVCOMPT OP-32 or NAVCOMPT UC/FUND-1/IF-4 Budget Exhibits. The operating expenses are direct funded and are provided to the best of our ability to estimate for FY1996.

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: Glendora Lake Test Facility	**UIC:** N/A
Contract Type	**FY 1996 Estimated Number of Workyears On-Base**
Construction:	0
Facilities Support:	0
Mission Support:	0
Procurement:	0
Other:*	0
Total Workyears:	0

* **Note:** Provide a brief narrative description of the type(s) of contracts, if any, included under the "Other" category.

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)):

0

2) Estimated number of workyears which would be eliminated:

0

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

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.)
0	

DATA CALL #66
SULLIVAN 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)

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

7/28/94
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. STERNER
NAME (Please type or print

Signature

Title

8-4-94
Date

Commander
Naval Sea Systems Command
Activity

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

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)
J. B. GREENE, JR.

NAME (Please type of print

Signature

ACTING
Title

15 AUG 1994
Date

Glendora Lake Test Facility
Naval Surface Warfare Center
Crane Division
Data Call #66

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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

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

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

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

ACTIVITY COMMANDER

S. HOWARD
NAME (Please type or print)

Signature

COMMANDER
Title

7/28/94
Date

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
Activity

202

DATA CALL 66
INSTALLATION RESOURCES

Activity Information:

Activity Name:	NAVAL SURFACE WARFARE CENTER CRANE DIVISION
UIC:	N00164
Host Activity Name (if response is for a tenant activity):	N/A
Host Activity UIC:	N/A

General Instructions/Background. A separate response to this data call must be completed for each Department of the Navy (DON) host, independent and tenant activity which separately budgets BOS costs (regardless of appropriation), and, is located in the United States, its territories or possessions.

1. Base Operating Support (BOS) Cost Data. Data is required which captures the total annual cost of operating and maintaining Department of the Navy (DON) shore installations. Information must reflect FY 1996 budget data supporting the FY 1996 NAVCOMPT Budget Submit. Two tables are provided. Table 1A identifies "Other than DBOF Overhead" BOS costs and Table 1B identifies "DBOF Overhead" BOS costs. These tables must be completed, as appropriate, for all DON host, independent or tenant activities which separately budget BOS costs (regardless of appropriation), and, are located in the United States, its territories or possessions. Responses for DBOF activities may need to include both Table 1A and 1B to ensure that all BOS costs, including those incurred by the activity in support of tenants, are identified. If both table 1A and 1B are submitted for a single DON activity, please ensure that no data is double counted (that is, included on both Table 1A and 1B). The following tables are designed to collect all BOS costs currently budgeted, regardless of appropriation, e.g., Operations and Maintenance, Research and Development, Military Personnel, etc. Data must reflect FY 1996 and should be reported in thousands of dollars.

a. Table 1A - Base Operating Support Costs (Other Than DBOF Overhead). This Table should be completed to identify "Other Than DBOF Overhead" Costs. Display, in the format shown on the table, the O&M, R&D and MPN resources currently budgeted for BOS services. O&M cost data must be consistent with data provided on the BS-1 exhibit. Report only direct funding for the activity. Host activities should not include reimbursable support provided to tenants, since tenants will be separately reporting these costs. Military personnel costs should be included on the appropriate lines of the table. Please ensure that individual lines of the table do not include duplicate costs. Add additional

lines to the table (following line 2j., as necessary, to identify any additional cost elements not currently shown). Leave shaded areas of table blank.

Table 1A - Base Operating Support Costs (Other Than DBOF Overhead)			
Activity Name: NSWC, CRANE DIVISION		**UIC: N00164**	
Category	**FY 1996 BOS Costs ($000)**		
	Non-Labor	**Labor**	**Total**
1. Real Property Maintenance Costs:			
1a. Maintenance and Repair	42	91	133
1b. Minor Construction	13	18	31
1c. Sub-total 1a. and 1b.	55	109	164
2. Other Base Operating Support Costs:			
2a. Utilities	89	0	89
2b. Transportation	0	0	0
2c. Environmental	0	0	0
2d. Facility Leases	0	0	0
2e. Morale, Welfare & Recreation	103	117	220
2f. Bachelor Quarters	154	25	179
2g. Child Care Centers	0	0	0
2h. Family Service Centers	0	0	0
2i. Administration	0	10	10
2j. Other (Specify) 1. RETAIL SUPPLY 2. OTHER BASE	188	696	884
2k. Sub-total 2a. through 2j:	534	848	1382
3. Grand Total (sum of 1c. and 2k.):	589	957	1,546

DATA CALL 66
INSTALLATION RESOURCES

TABLE 1A - ROW 2(j) OTHER

1. RETAIL SUPPLY - HOUSEHOLD MOVES, INVENTORY CONTROL (SERVICE WIDE SUPPLY)
2. OTHER BASE - MEDICAL, INTRA-STATION MOVES, CUSTODIAL SERVICE, PEST CONTROL

b. Funding Source. If data shown on Table 1A reflects more than one appropriation, then please provide a break out of the total shown for the "3. Grand-Total" line, by appropriation:

Appropriation	Amount ($000)
ALL O&M	

c. Table 1B - Base Operating Support Costs (DBOF Overhead). This Table should be submitted for all current DBOF activities. Costs reported should reflect BOS costs supporting the DBOF activity itself (usually included in the G&A cost of the activity). For DBOF activities which are tenants on another installation, total cost of BOS incurred by the tenant activity for itself should be shown on this table. It is recognized that differences exist among DBOF activity groups regarding the costing of base operating support: some groups reflect all such costs only in general and administrative (G&A), while others spread them between G&A and production overhead. Regardless of the costing process, all such costs should be included on Table 1B. The Minor Construction portion of the FY 1996 capital budget should be included on the appropriate line. Military personnel costs (at civilian equivalency rates) should also be included on the appropriate lines of the table. Please ensure that individual lines of the table do not include duplicate costs. Also ensure that there is no duplication between data provided on Table 1A. and 1B. These two tables must be mutually exclusive, since in those cases where both tables are submitted for an activity, the two tables will be added together to estimate total BOS costs at the activity. Add additional lines to the table (following line 21., as necessary, to identify any additional cost elements not currently shown). **Leave shaded areas of table blank.**

Other Notes: All costs of operating the five Major Range Test Facility Bases at DBOF activities (even if direct RDT&E funded) should be included on Table 1B. Weapon Stations should include underutilized plant capacity costs as a DBOF overhead "BOS expense" on Table 1B..

DATA CALL 66
INSTALLATION RESOURCES

Table 1B - Base Operating Support Costs (DBOF Overhead)			
Activity Name:NSWC, CRANE DIVISION		UIC:NOO164	
Category	FY 1996 Net Cost From UC/FUND-4 ($000)		
	Non-Labor	Labor	Total
1. Real Property Maintenance Costs:			
1a. Real Property Maintenance (>$25K)	2,115	0	2,115
1b. Real Property Maintenance (<$25K)	3,967	2,668	6,635
1c. Minor Construction (Expensed)	25	0	25
1d. Minor Construction (Capital Budget)	N/A	N/A	N/A
1c. Sub-total 1a. through 1d.	6,107	2,668	8,775
2. Other Base Operating Support Costs:			
2a. Command Office	387	1,300	1,687
2b. ADP Support	5,090	3,640	8,730
2c. Equipment Maintenance	496	0	496
2d. Civilian Personnel Services	403	1,796	2,199
2e. Accounting/Finance	68	1,332	1400
2f. Utilities	622	0	622
2g. Environmental Compliance	1,827	333	2,160
2h. Police and Fire	205	3,518.8	3,723.8
2i. Safety	153	571	724
2j. Supply and Storage Operations	639	5,327	5,966
2k. Major Range Test Facility Base Costs	0	0	0
2l. Other (Specify)	(1,759.2)	19,143	17,384.4
Military Labor	0	943	943
Base Communications	422	0	422
FECA	1,956	0	1,956

Other Engineering	1,434	0	1,434
2m. Sub-total 2a. through 2l:	11,942.8	37,904.4	49,847.2
3. Depreciation	3,020.6	0	3,020.6
4. Grand Total (sum of 1c., 2m., and 3.) :	21,070.4	40,572.4	61,642.8

TABLE 1B - ROW 2(l) OTHER

Other category consists of:

- **Public Affairs**
- **Workoad Information Systems**
- **Print Shop**
- **Industrial Fund Purchases**
- **Morale, Welfare and Recreational Services**
- **Equal Employment Opportunity functions**
- **Medical**
- **Pollution Prevention Planning**
- **Transportation**
- **Defense Finance and Accounting Service**
- **Consulting Services**
- **Rents/Leases**

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: NSWC, CRANE DIVISION	**UIC: NOO164**
Cost Category	**FY 1996 Projected Costs ($000)**
Travel:	10,698
Material and Supplies (including equipment):	73,623
Industrial Fund Purchases (other DBOF purchases):	13,113
Transportation:	668
Other Purchases (Contract support, etc.):	55,820
Total:	153,922

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: NSWC, CRANE DIVISION	**UIC: NOO164**
Contract Type	**FY 1996 Estimated Number of Workyears On-Base**
Construction:	25
Facilities Support:	313
Mission Support:	220
Procurement:	0
Other:*	0
Total Workyears:	558

* **Note:** Provide a brief narrative description of the type(s) of contracts, if any, included under the "Other" category.

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)):

220

2) Estimated number of workyears which would be eliminated:

151.5

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):

186.5

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.)
14	Architectural and Engineering Contractor

No. of Additional Contract Workyears Which Would Be Relocated	General Type of Work Performed on Contract (e.g., engineering support, technical services, etc.)
279	Engineering, logistic, and technical support; Mechanical/electronic fabrication; Pollution prevention/testing

CRANE SITE
DATA CALL #66

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

NEXT ECHELON LEVEL (if applicable)

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 | 7/28/94
Title | 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. STEINER
NAME (Please type or print) | Signature

Commander | 8-4-94
Title Sea Systems Command | 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 | 15 AUG 1994
Title | Date

NAVAL SURFACE WARFARE CENTER
CRANE DIVISION
DATA CALL #66

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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

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

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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

S. T. HOWARD
NAME (Please type or print)

Signature

COMMANDER
Title

7/25/94
Date

CRANE DIVISION, NSWC
Activity

"LAB" JOINT CROSS-SERVICE GROUP GUIDANCE PACKAGE

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
CRANE, INDIANA SITE

See Revised DC

Section I: Taskings
1.1 Guidelines
1.2 Standards
1.3 Assumptions
1.4 Measures of Merit
1.5 Activities
1.6 Common Support Functions

Section II: Capacity of DOD Components
2.1 Workload
2.2 Excess Capacity

Section III: Capability of Activities to Perform Common Support Functions
3.0 Mission
3.1 Location
3.2 Personnel
3.3 Workload
3.4 Facilities & Equipment
3.5 Expansion Potential

Section IV: Appendices
A. Macro Process Schedule
B. List of Activities
C. Common Support Functions

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 ($M)	245.6	268.7	191.0	253.0	302.2	322.1	322.1	316.3	352.9	317.9	331.7	320.0
Total Actual Funds ($M)	232.3	255.8	282.2	277.0	295.8	347.6	382.3	402.7				
Programmed Workyears	3210	3505	3490	3708	3671	4002	3867	3648	3796	3609	3163	2973
Actual Workyears	4010	3785	3860	3997	4124	4298	4299	4178				

- 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

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.

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.

As reported in BRAC95 Data Call #1, the technical program at the Crane Division is managed and described in terms of seventeen Technical Capabilities (TC's) recognized by the Naval Surface Warfare Center. They are:

1. Electronic Warfare
2. Microelectronic Technology
3. Electronic Module Test & Repair
4. Microwave Components
5. Electrochemical Power Systems
6. Acoustic Sensors
7. Small Arms
8. Conventional Ammunition
9. Pyrotechnics
10. Night Vision/Electro-Optics
11. Mine Countermeasures
12. Radar Engineering & Industrial Support

The following mission is presented for the applicable TC's at the Crane Site.

Air Vehicles (Avionics) CSF

* The mission related to this CSF is to perform the following tasks in the **Electronic Warfare** Technical Capability:

- In-Service Engineering for Airborne and Surface Ship Electronic Warfare

- Logistics Support for Airborne and Surface Electronic Warfare

- Depot Maintenance for Airborne and Surface Electronic Warfare

- Microwave Tube Test, Evaluation and Repair

- Failure Analysis Laboratory

- Materials Analysis Laboratory

- Solid State Devices Facility

- Printed Circuit Card Facility

- Electrochemical Power Systems Facility

- Electronic Module Test and Repair Facility

* The mission related to this CSF is to perform the following tasks in the **Night Vision/Electro-Optic** Technical Capability is:

- Specialized Thermal Imaging Test Equipment

- Proximity of Surface Navy Electro-Optics ISEA

- Proximity of Special Warfare Electro-Optics ISEA

- Engineering Investigation Procedures Established

Weapons CSF

* The mission for the **Pyrotechnics** Technical Capability is:

- Perform research, design, development, test and evaluation and engineering support for navy pyrotechnics

- Provide technical support to pyrotechnic producers to assure safe, reliable and effective pyrotechnics for fleet use

- Provide program management support to headquarters for pyro technics

- Technical support focal point office for airborne expendables and aircraft self-protection

* The mission of the **Small Arms** Technical Capability is:

- Full life-cycle support including design, development, acquisition, engineering, test and evaluation, logistics management and maintenance.

- Secure storage areas for weapons and ammunition.

- Rapid prototyping capability.

- Prototype ammunition loading facility.

- 100-meter underground firing range with capability to test up to 25mm guns in addition to lasers and night-vision equipment under controlled lighting and temperature conditions. Climatic test cell to fire under temperature/humidity extremes and freezing rain.

- 1000-yard outdoor firing range with capability to test up to 25mm guns in addition to lasers and night-vision equipment. Six computer-controlled automatic targeting system stations from 50 yards to 1000 yards. Full range of ballistic test equipment including doppler radar, IR video, flash photometer, and ballistic computer.

Electronic Devices CSF

* The mission for **Microelectronics** Technical Capability is:

- Provides capability for the design, selection and application of electronic/photonic components to assure that Navy systems meet reliability, maintainability and supportability requirements.

- Performs research, development, test, and evaluation of weapons system electronics designed to be tolerant to nuclear radiation effects.

- Perform radiation effects work which focuses on the development of total dose, dose rate, neutron, and single event upset hardening techniques for electronics.

- Performs failure analysis and modeling of nuclear effects on electronic devices and have been active in this field since 1972 beginning with US Navy Fleet Ballistic Missile hardened electronics development work.

Advanced Materials CSF

* Also, a mission of the **Microelectronics** Technical Capability is:

- Designs and develops electronic packaging for systems and equipment.

- Performs analysis of advanced materials and electronic cooling techniques for electronic packaging systems.

Multiple CSF

* The mission for the **Electrochemical Power Systems** Technical Capability is:

- To assure affordable, safe, and reliable Electrochemical Power sources (batteries).

- Meet current and future performance requirements in operational environments; for the Navy & Marine Corps, the Army & Air Force, and other government agencies.

- Provide a full spectrum of support for batteries and related equipments from Research and Development (R&D) through system retirement.

3.1 Location:

3.1.1 Geographic/Climatological Features: Describe any Geographic features in and around your activity that are relevant to each CSF.

TECHNICAL ADVANTAGES - The following technical advantages exist at the Crane Division and are applicable to the Common Support Functions of this data call. They are considered requirements for the accomplishment of the mission.

1000 Yard Outdoor Firing Range - Removal from high density population centers allows for the testing of small arms weapons, mounts and ammunition without restrictions based on noise pollution requirements. Also, **this location reduces security risks due to infiltration or threat of urban riot.**

Low Background Radiation - As an ordnance storage and control facility, radio frequency radiators are controlled internally, enabling testing that requires low background noise (large acreage and remote rural area with no large commercial radiators).

High Level Radiation Testing - This remote geographic location, with its low population density, has reduced FCC requirements and regulations for radiation of energy. Our "Blue Sky" facility, located in a valley and directed straight into space (thus the facility name "Blue Sky") has a restricted fly zone that provides the free space that high power microwave radiation testing requires. The valley location, surrounded by large indeciduous trees, minimizes outside interference and blocks horizontal radiation. In addition, large available acreage allows adaptability for all DoD antenna range requirements.

Night Vision - An additional advantage of the rural location of this facility is the ability to test and evaluate Night Vision and Electro-Optic devices and systems **under true "natural" light conditions** at the outdoor test range. As no urban areas are near the facility, urban "back lighting" of the sky is not present to adversely affect testing to simulate operational conditions.

Environmental Compliance - From an environmental standpoint, the geographic location of this facility is a key to its successful operation and the continuation of missions which other facilities are being forced to close. Crane Division is remote, with little encroachment from residential or private industry. **The facility occupies land which, due to the topography and soil types, is of little value for farming, residential development, or private industry.**

EPA Region V and the Indiana Department of Environmental Management work well with the people and operations at Crane. Furthermore, the communities surrounding the Division are extremely supportive of the facility and its programs. **In other words, there is almost no antagonistic opposition from the public or regulators to environmental permits and related activities.** This favorable relationship is extraordinary among Department of Defense facilities.

PERSONNEL ADVANTAGES - The following advantages exist at the Crane Division, are applicable to the Common Support Functions, and are considered enhancements for the accomplishment of the mission.

Educational Support and Recruitment - Although Indiana is noted as a major producer and exporter of consumer and industrial electronic goods, **Crane Division has little local competition for people with technological skills.** The Division is centrally located with respect to some of the world's largest and most highly regarded schools of engineering. In addition, a number of nearby schools and universities offer two year Associate degrees in engineering technology.

Quality of Life - Crane Division is the largest employer of engineers in Southern Indiana. The quality of life, low cost of living (including cost of housing), and ease in getting to work lead to extremely low attrition rates. **Thus far there has been no need to offer recruitment or retention bonuses to either acquire or retain technical personnel.** The low cost of living is supported by the fact that we are covered under RUS (Rest of United States) insofar as locality pay is concerned.

Recruitment - There are a number of reputable engineering schools within a 100-150 mile radius of Crane, for example: Purdue University, the University of Evansville, Rose-Hulman Institute of Technology, the University of Cincinnati, IUPUI, and the University of Louisville. **We have had approximately 1,000 engineering applications in our files within the past two-three years.** In addition, there are a number of technical schools in the local areas which furnish a substantial supply of electronic, electrical, and mechanical engineering technicians. These technical programs include both two-year and four-year curricula.

3.1.2 Licenses & Permits:

Electronic Devices CSF

There are currently two licenses which this activity holds which are required for the Radiation Effects testing to be done at the Crane site:

a. Navy Radioactive Materials Permit for two (2) Cobalt 60 Irradiators used to perform total dose gamma testing of electronic devices. (13-00164-Q1NP)

b. Navy Radioactive Materials Permit for Irradiated Electronic Components which is required to perform the radiation test on electronic devices. (13-00164-WINP)

Advanced Materials CSF - No special licenses or permits required.

Weapons CSF

Ordnance Test Area - the activity has a variance from open burning regulations of the State of Indiana. The variance is needed to allow the activity to perform cook-off testing. Cook-off testing involves open burning of JP fuel. State of Indiana Regulations 326 IAC 4 prohibits open burning in general. Variances are issued for special needs with approval by the Commissioner of the State Environmental Office.

3.1.3 Environmental Constraints:

Weapons CSF

The Ordnance Test Area (OTA) is a RCRA solid Waste Management Unit (SWMU). The site was a relatively low priority to the U.S. EPA. RCRA Facility Investigations Release Assessment for groundwater, surface water, and soil should begin within the next two years. Although the SWMU designation and need for sampling dictates caution when expanding the site's volume or spectrum, it is not anticipated that the scope of work at the OTA would be deleteriously constrained.

3.1.4 Special Support Infrastructure:

Electronic Devices CSF

a. The Linear Accelerator Facility requires 208 volt/3 phase power, 700 gallons/hour of chilled water with a 705 gallon reservoir for cooling of system electronics, and 100 psi dry, oil free compressed air for control valves. It also requires about 100 tons of special shielding and occupies about 12,000 square feet in a custom building located at a remote location at the Crane site. Cobalt 60 sources require isolation by special shielding. Cryogenic testing of electronic devices being developed for use in infrared sensor space applications requires liquid nitrogen (1500 gallon tank) to achieve the extremely low temperatures.

b. Much of the equipment in use in the Electronic/Photonic Component Engineering and Test Facility requires special utility support; especially those equipments used in environmental test and evaluation. In these areas, the utilities supply must include 3 phase 240V power, along with provisions for compressed air, CO_2, and both distilled and deionized water. Equipment used in photonic component evaluation requires 3 phase 240V power and must be furnished with special non-laser reflecting wall coverings. In addition, 8" concrete floors are required to support the optical tables. One or more rooms must be rated safe for class IV laser testing to include entrance door safety power disconnects.

Weapons CSF

Ranges - Operational ranges exist for ordnance demolition, ordnance burning, ordnance test area which includes the capability to do various drop tests from 250' towers, destructive tests of ordnance items and pyrotechnics, flare test operations, inside small arms firing range for environmental control and night vision tests, outside small arms firing ranges which includes a 1000 yard range, antenna ranges (for the test of large shipboard antennas and small antennas', and a 120 foot deep by 4000 feet long lake for the test of acoustic devices and other devices as required. These ranges in conjunction with the extensive testing laboratories and equipment gives the Center a extensive testing laboratories and equipment gives the Center a full range of capability to do all tests except for full operation testing of shipboard and aircraft ordnance and electronics at this one location. This virtually eliminates shipping hazards and costs.

Ordnance Storage - The Crane site has 1679 explosive ordnance storage magazines. Most of these magazines are leased to the Crane Army Ammunition Activity who stores navy and Army conventional ammunition. the storage f conventional ammunitions and pyrotechnics has been essential to the testing and evaluations of the products. The site has the ability to store a full spectrum of ammunition products with expansion capability.

Multiple CSF

Utilities - The Crane site has excess capacity of all utilities available for the expansion of operations at the facility. Water and sewer capacities are at 50% utilization and are totally controlled by the facility. Electric and gas are supplied by utility companies to the base infrastructure and supplies may be expanded by more than 50% from the present usage.

Roads and Railroads - The Crane site has an extensive network of well maintained roads and railroads. This network allows for the safe and efficient transportation of all materials on the facility and the opportunity to transport materials by whatever means is most cost effective to the government.

Warehouse Storage - The Crane site has 980,000 sf of warehouse space directly controlled by the navy with another 1.3 million sf controlled by the Crane Army Ammunition Activity. This storage capacity has allowed the Center to support many of the Navy's inert material storage requirements.

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
All CSF's	Crane TC's	Technical support	Co-located	various	various
Electronic and Advanced Materials	N/A				
Space	N/A				
C4I	N/A				
Air Vehicle	EA-6B/A-6E	Universities/Colleges	100 Miles	5	5
Weapons	Comarco	Engr Support	8 Miles		35 Est.
Weapons	CAAA	AMMO Production	1 Mile		15 Est.

This relationship is described in the following paragraphs.

All CSF's

ADVANTAGE OF SYNERGIES IN CO-LOCATION

Many of the functions performed at the Crane Division, Naval Surface Warfare Center **require access to other facilities and capabilities co-located on the base** in order to accomplish their missions. These facilities/capabilities are considered vital and include:

- *Environmental simulation facilities such as humidity, temperature cycling, vibration, shock, altitude, sun/rain, sand/dust, salt spray, jolt, and jumble;*
- *X-ray facilities including real-time capability;*
- *Ordnance materials analysis lab;*
- *Battery engineering and test support;*
- *Failure Analysis of components;*
- *Firing Ranges and Range Support for Lasers and/or Weapon Sights/Fire Control Testing;*
- *Circuit card engineering and repair support;*
- *System interface testing;*

As an example of the benefits of co-location, the Electronic Warfare (EW) Technical Capability at Crane is collocated at the Crane Division with seven other complimentary TCs (Microwave Components, Radar, Electrochemical Power Systems,Naval Gun Weapon System, Electronic Module Test and Repair, Microelectronics Technology and Pyrotechnics). The skills, knowledge, equipment and facilities of these seven TCs are utilized extensively in EW TC support. Examples of this support is the Radar TC's antenna personnel and equipment; Microwave Component TC's traveling wave tube expertise; Electrochemical Power Systems TC's chemical battery knowledge and test capability support for expendable EW devices; etc. The EW TC's also supports the other TC's indicated by performing system analysis on products being developed in those TCs.

These facilities are unique from the standpoint they are Navy owned and operated. This gives complete control over physical security. Another advantage is that test and evaluation activities can be controlled and executed with **no**

interference from civil marine traffic unlike test facilities in densely populated coastal areas. The result is effective execution of test processes with minimal cost due to the avoidance of down time and **freedom from excessive public relations complications.**

Weapons CSF

Co-location of engineering functions supporting surface ship, air launched and Marine Crops ammunition (e.g., acquisition, ammunition logistics management, surveillance, modification, maintenance, testing, demilitarization and disposal) provides a synergism and efficiency that would be unavailable if these efforts were dispersed among several activities. Co-location of the Program Management and engineering functions with a major DOD ammunition production, storage, maintenance, and disposal activity, the Crane Army Ammunition Activity (CAAA) provides rapid response capability throughout the life cycle to major regional conflicts such as Operation Desert Shield/Desert Storm. Fifty-eight percent of CAAA's magazine storage (1.9 Million sq ft) contain Navy/marine Corps Ammunition assets.

Co-location of Navy acquisition, maintenance, and demilitarization and disposal engineering functions with SMCA production operations at Crane offers excellent opportunities commodities.

Air Vehicles CSF

Purdue University, Indiana university, University of Louisville, Notre Dame plus several others universities are located nearby and provide critical technical support. Example of this type of activity is the support provided by Purdue University for design and development of a wind tunnel to test critical design elements of an airborne EW system.

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)

CSF- Space

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	11	0	0	0
Management (Supv)	1	0	0	0
Other	0	0	0	0

CSF- C4I

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	2	0	0	0
Management (Supv)	0	0	0	0
Other	0	0	0	0

CSF- Air Vehicles

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	86	0	0	0
Management (Supv)	6	0	0	0
Other	4	0	0	0

CSF - Weapons

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	212	0	0	0
Management (Supv)	18	0	0	0
Other	0	0	0	0

Pervasive Function 1 - Elect. Devices

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	4	0	0	0
Management (Supv)	24	0	0	0
Other	1	0	0	0

Pervasive Function 8 - Adv. Matls

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	3	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	90	3	27
Associates	20	1	8
Bachelor	93	17	78
Masters	14	5	6
Doctorate (include Med/Vet/etc.)	5	2	1

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	**3**	**57**	**41**	14	108
Management (Supv)	**0**	**2**	**2**	0	24
Total	**3**	**59**	**43**	14	132

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)

CSF	Disclosures	Awarded	Patent Titles (List)
Not Applicable	**0**	0	
	0	0	
Total	**0**	0	

3.2.4.2 How many papers were published in peer reviewed journals? (BRAC Criteria I)

CSF	Number Published	Paper Titles (List)
Weapon CSF	18	Integrated Vulnerability & Weaponeering Model Navy User Briefing The U.S. Navy Small Arms Program Crane, the Best Kept Secret in the Navy A Consolidated Need for Frangible Ammunition 40MM High Velocity Canister Cartridge Small Caliber Gun Mount Improvements 5.56 Frangible Ammunition Evaluation for Multi-Service Use Navy Primary & Secondary Batteries Design and Manufacturing Guidelines

CSF	Number Published	Paper Titles (List)
Weapon CSF	(Cont)	Handbook of Batteries Navy Power supply Design and Manufacturing Guidelines Analysis of Flouboric Acid for Free Flouide Ion Content Materials Science Characterization of a Thermal Battery Special Sample Cell for Determining Surface Area of Whole Battery Plates Correlation of Whole Plate Surface Area with Plate Capacities for Silver and Zinc Plates Krypton vs. Nitrogen in surface Area Measurements of Silver-Zinc Battery Plates Measurements on Filed-Qualified 10,000 Amp-Hr Lithium/Thionyl Chloride Submodules Measuring Surface Area of Whole Battery Plates Using the ASAP 2000
Air Vehicles	9	Reducing Aircraft Battery Maintenance Costs in the U.S. Navy Evaluation of a Type "D" Maintenance-Free Sealed Lead-Acid Cell for a Dipping Sonar Application High Power Vented Nickel-Cadmium Cells Designed for Ultra-Low Maintenance Navy Primary & secondary Batteries Design and Manufacturing Guidelines Standard Power Supply Applications Handbook

CSF	Number Published	Paper Titles (List)
Air Vehicles	(Cont)	State-of-the-Art Research and Development Projects: Environmental Issues, Safety Issues,Degree of Maturity Aircraft Battery Standardization Handbook of Batteries Navy Power Supply Design and Manufacturing Guidelines
C4I	6	Standard Power Supply Applications Handbook Navy Primary and Secondary Batteries Design and Manufacturing Guidelines Handbook of Batteries Improved Control Technique for Fast Output Charging of a Boost DC-DC Converter improved Control Technique for Optimum Charging of Boost Converter Capacitance Navy Power Supply Design and Manufacturing Guidelines

CSF	Number Published	Paper Titles (List)
Space Systems	10	Sealed Nickel-Cadmium Cell performance and Optimization of Battery Design Navy Primary and Secondary Batteries Design and Manufacturing Guidelines Air Force NiCd Cell qualification Program NSWC Crane Aerospace cell Test History Handbook of Batteries Space Station Freedom NiH Cell Testing Program Navy power Supply Design and Manufacturing Guidelines Analysis of Residual Charged Nickel in Cathods from Secondary Nickel Cells Analysis for Residual Charged Nickel in Nickel-Cadmium Cell Plates Evaluation of Nickel Electrode Surface Properties as a Function of State-of-Charge

CSF	Number Published	Paper Titles (List)
Electronic Devices	19	Long Term Ionization Response of Several BICMOS VLSIC Technologies Trends in the Total-Dose Response of Modern Bipolar Transistors Single Event Burnout of Power Bipolar Junction Transistors Response of Advanced Bipolar Processes to Ionizing Radiation Effects of Ionizing Radiation on the Noise Properties of DMOS Power Transistors Total Dose and Transient Radiation Effects on a Tuneable Bandpass Filter Operating at Liquid Nitrogen Temperatures Development of a Test Chip for Radiation-Hardened FPA Readout Electronics Process Effects on the Ionizing Radiation Hardness of Trench Isolation Radiation-Hardened Electronics Thermomechanical Shock Testing on the DISKO ELM UGT (Classified) Radiation Hardened Electronics Thermomechanical Shock Testing on the Mission CYBER Underground Test (Classified) Total Dose Hardening of Cryogenic Analog CMOS

CSF	Number Published	Paper Titles (List)
Electronic Devices	Cont	Radiation hardening of a High Voltage IC Technology Understanding Single Event Phenomena in Complex Analog and Digital Integrated Circuits Accelerated Testing of Plastic IC's HAST-It's Use in Accelerated Stress Testing Reliability Technology to Achieve Insertion of Advanced Packaging (RELTECH)Program Overview of U.S. Government Advanced Packaging Programs Plastic Encapsulated Microcircuits in Military Applications
Advanced Materials	1	An Overview of Navy Composite Developments for Thermal Management
TOTAL	**63**	

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	**53.6**	**0**	0	0
Engineering Development	**55.8**	**0**	0	0
In-Service Engineering	**217.9**	**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	None	None	None
ACAT ID	None	None	None	None
ACAT II	None	None	None	None
ACAT III/IV	Offensive Handgun	7.5	1,009K	The program is to provide the United States Special Operations Command with an offensive Handgun Weapon system. The system is for use by Special Operations Forces in close-quarter battle during target site infiltration. The system will include an enhanced .45 caliber pistol with detachable suppressor and detachable laser aiming model.
ACAT III/IV	Riflemans Breaching Munit	4.1	65K	The Rifleman's Breaching Munition (RBM) program conducted evaluation testing on a candidate Non-Developmental Item munitions system intended to fulfill the requirements of the U.S. Marine Corps. The evaluation effort determined that additional design efforts were required to enable the RBM system to meet the type classification requirements.

Engineering Development	Name or Number	Workyears (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
Other	4	0.8 11.6 7.9 2.8	164K 2,755K 475K 174K	Conventional Munitions Special Purpose Munitions Navy Small Arms Craft Life Improvement Program (CLIP)
Other	7	9.7	1,241K	F-14D F/A-18E/F F-22 P-3 V-22 H-60 C-5
Other	4	1.0 14.6 0.5 0.6	6.0K 1,827K 93.0K 93.0K	Surf Ammo Marine Corps Ground Equip Marine Corps Ammo Ordnance Reclam

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	
Weapons	Engr In Supp Prod	6,357.0K	38.9	Surf Gun Ammo
Weapons	Engr In Supp Prod	634.0K	7.2	Air Launched Ord
Weapons	Prod Engr/ILS	2,725.0K	15.6	Marcorp Grd Equip
Weapons	Prod Engr/ILS	740.0K	2.8	Marcorp Ammo
Weapons	Ord Demil/Disposal Engr	565.0K	11.3	Navy/Marcorp Ord
Weapons	Prod Engr/ILS	2,096.0K	21.7	Marcorp Missiles
Weapons	Prod Engr/ILS	2,246.0K	20.2	Surf Launched Ammo
Weapons	Prod Engr/ILS	1,121.0K	6.9	Air Launched Ammo

Common Support Functions	In-Service Engineering Efforts (List)	FY93 Actual		Weapon System(s) Supported
		Funds Received (Obligation Authority)	Workyears	
Air Vehicle Avionics	Engr Investigations	5,917K	42.03	AN/ALQ-99 AN/ASQ-155
Air Vehicle Avionics	Integrated Logistics Support	5,699K	22.05	AN/SLQ-99 AN/ASQ-155
Weapons	Life Cycle Support	1518K	16.5	Small Caliber
Weapons	Prod Engr Supp	75K	1.1	Bomb Pyro
Weapons	Prod Engr Supp/ILS	555K	3.2	Markers
Weapons	Prod Eng Supp/ILS/FMS	60K	2.0	Decoys
Weapons	Prod Eng Supp/ILS	379K	3.1	Target Flare
Avionics	Night Eagle Flir	$40K	.16	

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)

CSF	FY94	FY95	FY96	FY97
Air Vehicles-Avionics	0	0	0	0
Electronic Devices	0	0	0	0
Advanced Material	0	0	0	0
Space Systems	0	0	0	0
C4I	0	0	0	0
Weapons	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 Vehicles-Avionics	7,481K	8,793K	9,659K	10,053K
Weapons	15,762K	13,191K	14,396K	17,485K
Space Systems	677K	324K	730K	515K
C4I	50K	50K	50K	50K
Electronic Devices	8,200K	8,000K	7,000K	5,900K
Advanced Materials	0	220K	250K	180K

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)

Common Support Function	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
		DOD	Federal Gov't	U. S.	
Weapons	Ord Envr Test Fac				15,100K
Weapons	Ord Rad Test Fac				5,200K
Weapons	Demil Eval Fac				6,000K
Weapons	Missile Fuze Test Fac				11,800K
Weapons	Prox Fuze Test Fac				400K
Weapons	Ord Comp Test Lab (Bldg 142)				3,000K
Weapons	Ord Comp Test Lab (Bldg 365)				1,100K
Weapons	FBM Ord Comp Test Lab				14,700K
Weapons	Missile Main Fac				6,300K
Weapons	MARCOR Wpn Com & Ctrl				900K
Weapons	Missile Storage Fac				10,000K
Weapons	Ord Ready Mag Storage				7,600K

Common Support Function	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
		DOD	Federal Gov't	U. S.	
Weapons	Weapons Development & Test Facility				2,995K
Weapons	Weapons Development /Administrative				338K
Weapons	Outdoor Firing Range (100 yard)				523K
Weapons	Automated IR Test Facility			X	3,000K
Weapons	Transient Velocity Windstream Facility			X	700K
Weapons	Ordnance Prototype Manufacturing Facility			X	10,100K
Weapons	Ordnance Material Characterization laboratory			X	7,400K
Weapons	Ordnance Test Area			X	5,700K
Weapons	Electrochemical Power Systems Facility			X	35,000K

Common Support Function	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
		DOD	Federal Gov't	U. S.	
Air Vehicles - Avionics	Cleanroom	X			$250K
Air Vehicles-Avionics	Office Area				$100K
Air Vehicles - Avionics	Test Equip	X			$1500K
Air Vehicles-Avionics	Bldg 41				$920.4K
Air Vehicles-Avionics	Bldg 40				$374.8K

Common Support Function	Major Facility or Equipment	Unique To			Replacement Cost ($K)
		DOD	Federal Govt	U.S.	
Electronic Devices	Radiation Effects Facility			X	$12,200K

Note: The Linear Accelerator equipment included in this facility is unique because the radiation dose rates achievable on it are not available elsewhere in the United States

Common Support Function	Major Facility or Equipment	Unique To			Replacement Cost ($K)
		DOD	Federal Govt	U.S.	
Electronic Devices	Electronic/Photonic Component Engr & Test Facility:				$7,800K

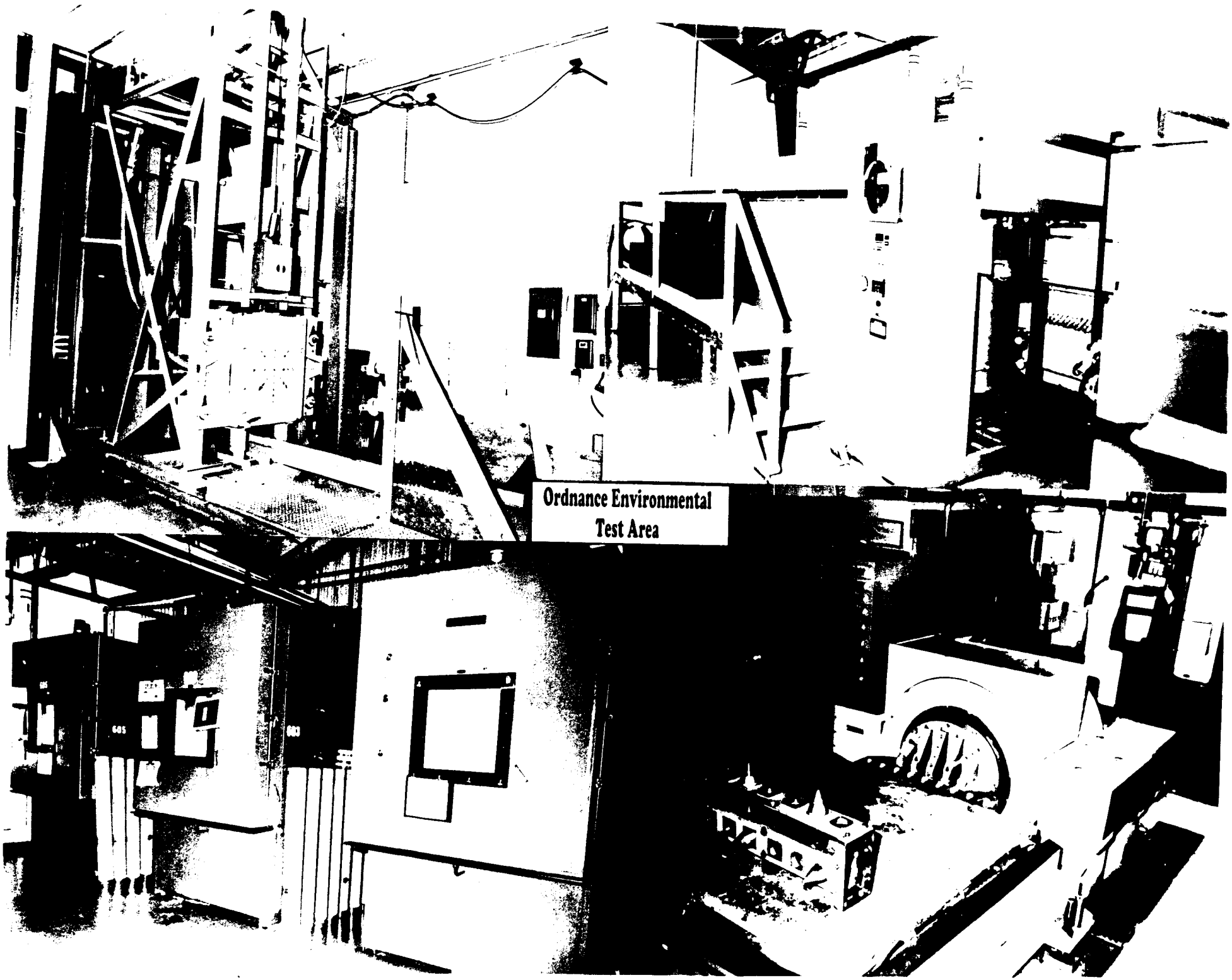
Common Support Function	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
		DOD	Federal Gov't	U. S.	
Advanced Materials	Electronic Packaging & Thermal Analysis Facility				$1,700K

Common Support Function	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
		DOD	Federal Gov't	U. S.	
All	Electrochemical Power Systems Facility			X	$35,000K

Weapons CSF

Ordnance Environmental Test

In these facilities the design, selection and procurement of test equipment and facilities have been made with the test and evaluation of explosive and other hazardous materials in mind. Environmental test facilities and equipment are available to do vibration, shock, temperature, humidity, altitude, jolt, jumble, sunshine and rain, sand and dust, and salt spray. Environmental test facilities are contained in four buildings with 20,000 square feet. This facility is used approximately 10 percent of the time in support of "laboratory" operations. The remainder of the usage is for acquisition support.


Ordnance Environmental
Test Area

Weapons CSF

The **Ordnance Radiographic Facility** provides radiographic testing of ordnance items for the three Services. Radiographic inspection capabilities include both real time and conventional X-ray. A special high bay exposure room with a high energy accelerator is available for radiographic inspection of very large items, e.g. 2,000 pound bombs, that can be brought in on trucks/trailers and X-rayed without unloading. The radiographic facilities are in two buildings with 7,100 square feet. This facility is used approximately 10 percent of the time in support of "laboratory" operations. The remainder of the usage is for acquisition support.

Ordnance Radiographic Facility

Weapons CSF

The **Demilitarization Evaluation Facility** is a new facility just being completed that allows for remote disassembly of various ordnance devices up to 500 lbs. The facility has the capability of pilot operations for the demilitarization of conventional and hazardous ordnance items. The facility's design is such that all waste is contained and disposed of without escaping to the environment.

Demil Evaluation
Facility

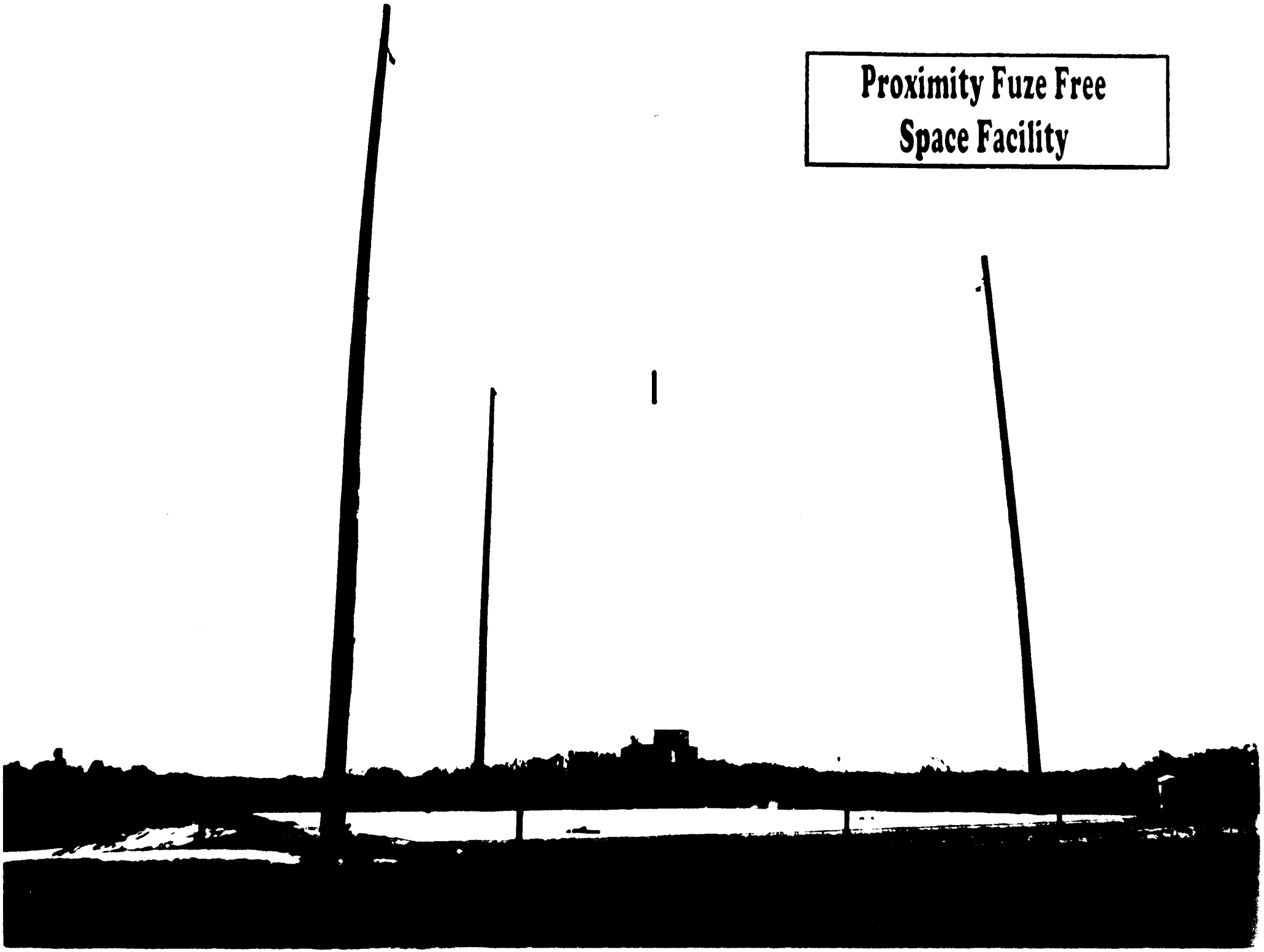
Weapons CSF

The **Missile Fuze Test Facility** provides for testing a wide variety of missile fuzing components (warhead section components). Equipment used includes centrifuge, burn rate/velocity tester, active optical test ranges, leak detectors and many specialized pieces of equipment. This test equipment supports production acceptance, surveillance, and maintenance of these fuzing components. Approximately 25 missiles are supported including STANDARD, TOMAHAWK and SIDEWINDER. This effort supports the Navy as well as joint programs with the Air Force, Army, Foreign Military Sales and private parties.

Missile Fuze
Test Laboratory

Weapons CSF

The **Proximity Fuze Free Space Facility** (10,000 ft reflectivity plane) is the certified Navy Standard used to establish the electronic values of Radio Frequency Fuze Standard Monitors. These Standard Monitors are used for correlation of systems used in production and testing of Proximity Fuzes by both the private and public sectors. Radio Frequency Proximity Fuzes are used on all the major caliber ammunition in the Navy stockpile.


Proximity Fuze Free
Space Facility

Weapons CSF

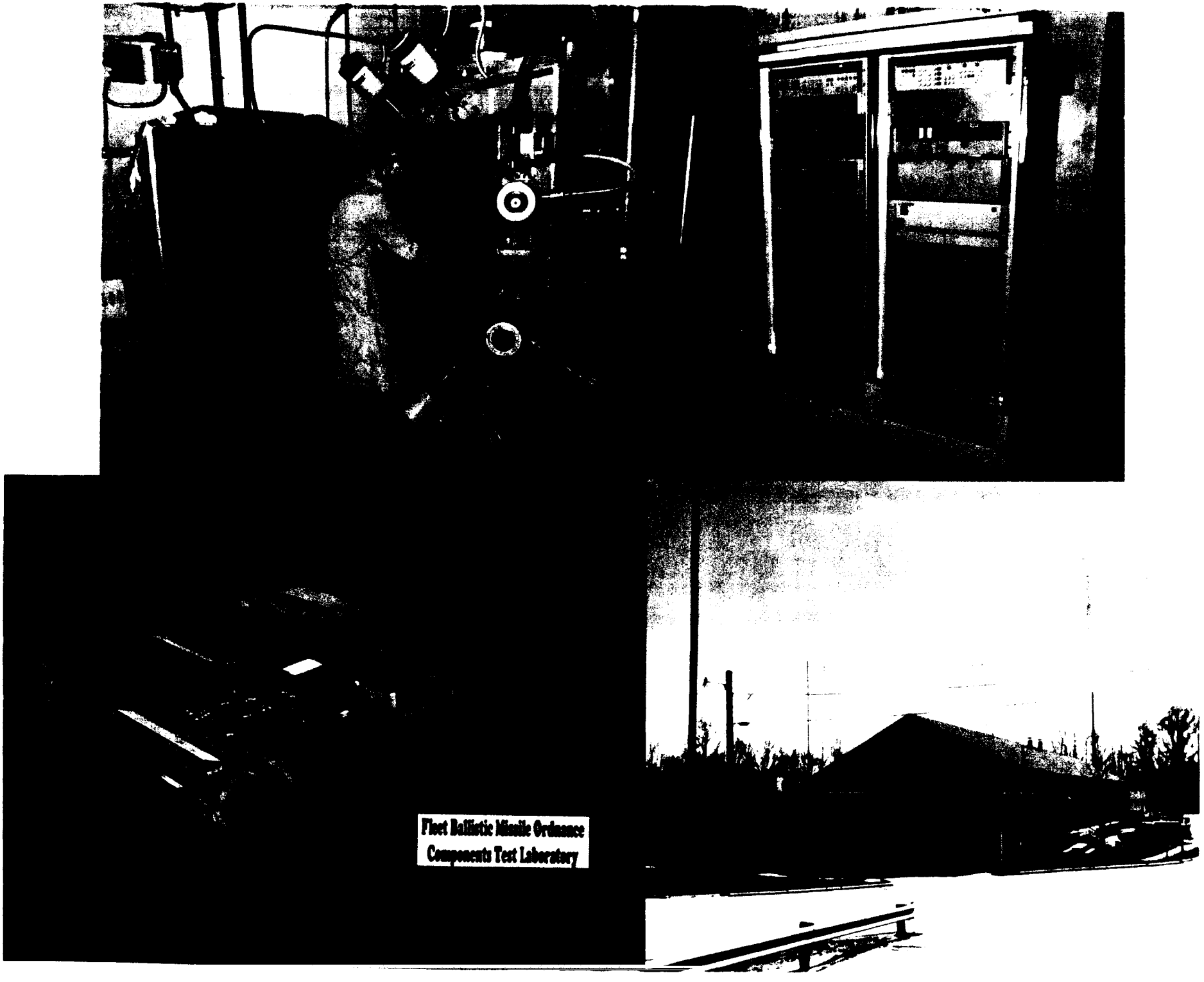
The Ordnance Components Test Facility (Buildings 142/365) provides lot acceptance and surveillance testing of numerous ordnance components and sub-assemblies as well as small explosives devices. The facility has test cells which provide capability for controlled and monitored function testing of components. Test cells are also equipped with capability for remote breakdown and dissection of ordnance components for failure analysis. Ordnance items tested in the facilities include demolition devices, fuzes, linear explosives, detonators and offboard countermeasures.


Ordnance Components Test
Laboratory, B-142


Ordnance Components Test
Laboratory, B-365

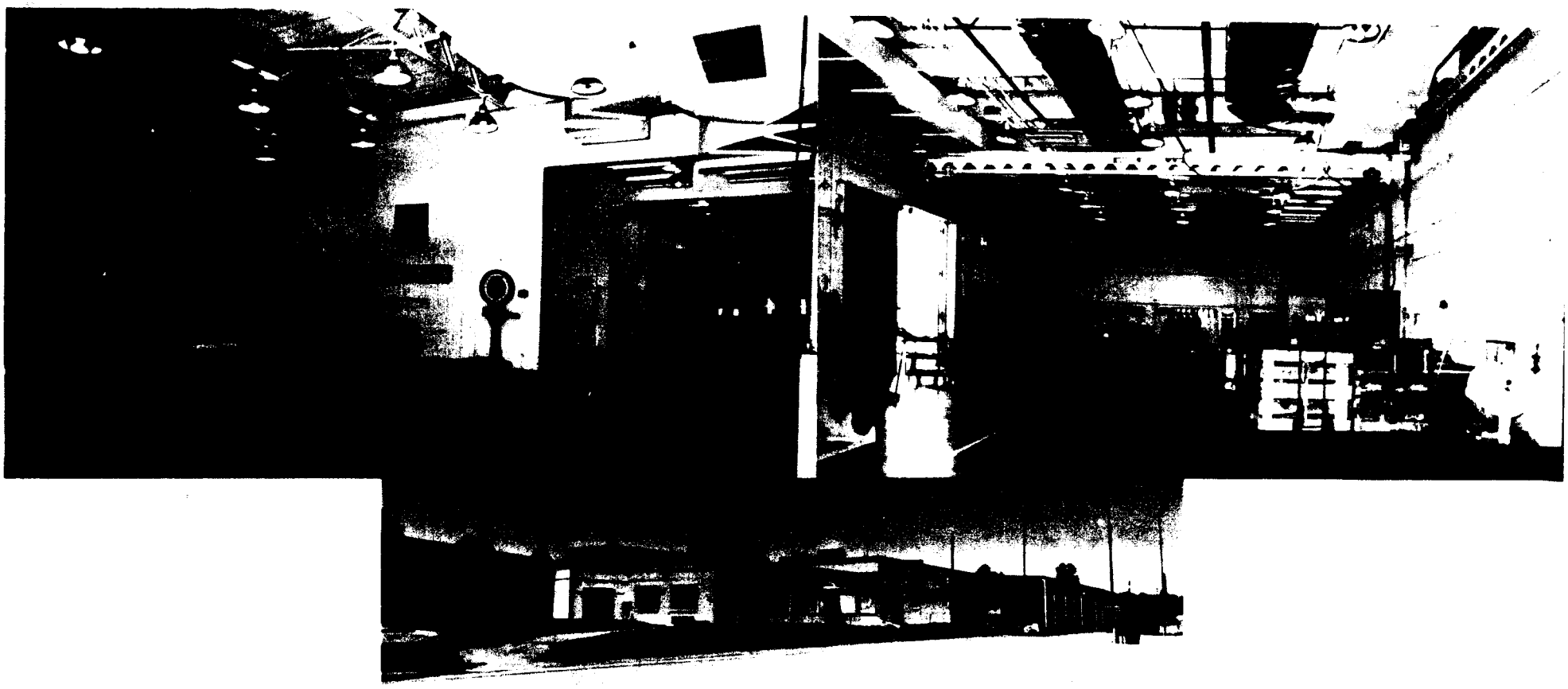
Weapons CSF

Fleet Ballistic Missile, Ordnance Components Test Facility provides support to the Fleet Ballistic Missile Strategic Weapons System ordnance evaluation programs throughout the life cycle of the Trident I and II Missiles. This is accomplished through the design manufacture of ordnance test systems and the test and evaluation of missile ordnance components utilized in the Launch, Missile Body and Reentry Systems. This facility is unique in respect to its design, construction and safety site approval which allows ordnance components and assemblies to be destructively tested safely. This building allows explosive operations and still meets the quantity-distance requirements of NAVSEA OP-5.


Fleet Ballistic Missile Ordnance
Components Test Laboratory

Weapons CSF

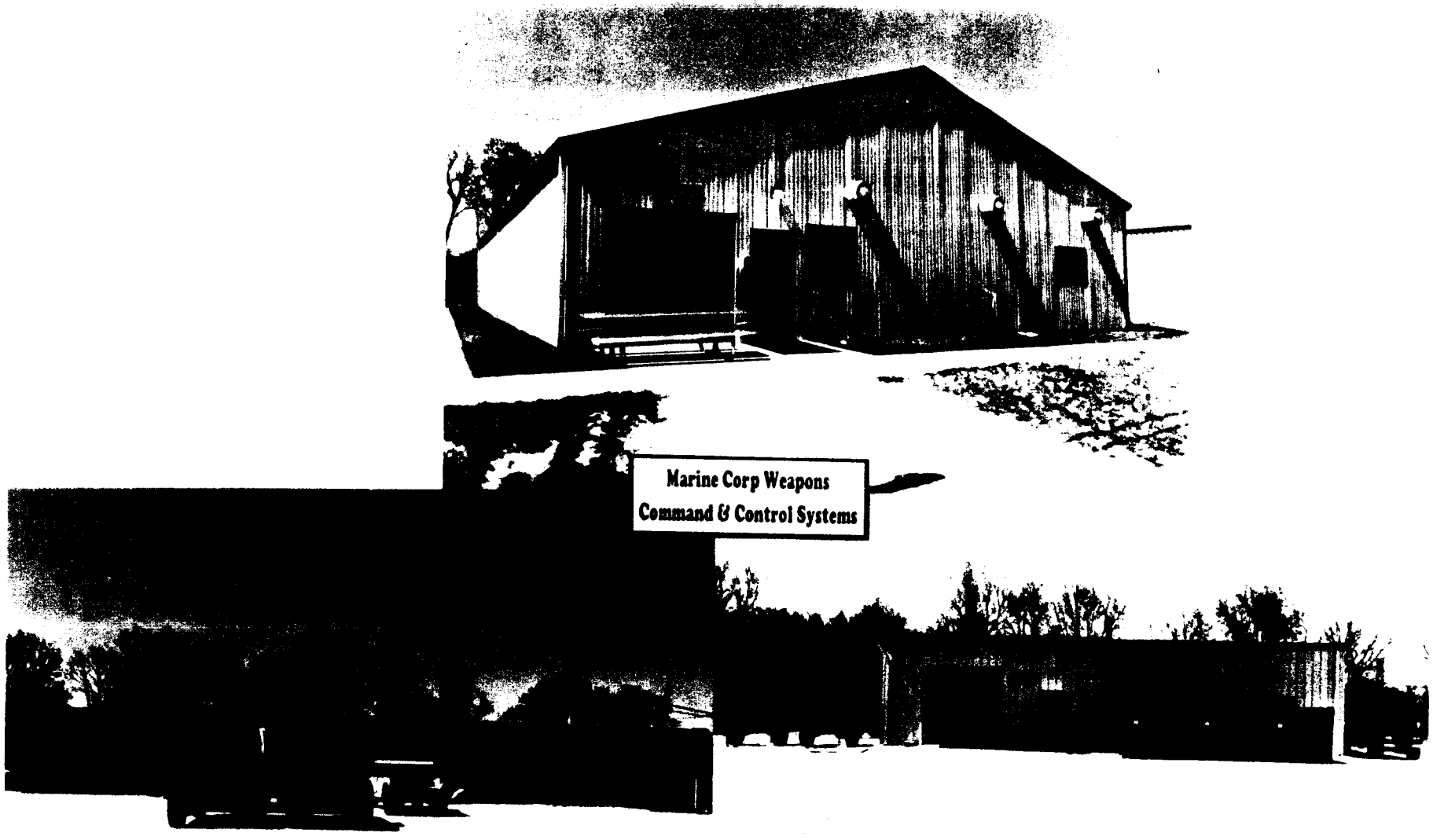
Missile Maintenance Facility performs intermediate level maintenance on STINGER air defense missiles and TOW and DRAGON anti-armor missiles. Engineering support services are available for test equipment and test fixture design, maintenance line layout and missile configuration monitoring and control. The larger of two facilities is a 19,000 square foot reinforced concrete multi-bay structure designed to minimize personnel injuries and capability loss in the event of an explosive incident. A second smaller facility is a 5,000 square foot earth covered structure designed to allow performance of minor maintenance and double as a shipping and receiving facility. Both structures are protected by static and ordnance grounding systems and lightning protection systems. Both facilities are DOD safety site approved and with no explosive operating waivers or exemptions.



Missile Maintenance Facility

Weapons CSF

Marine/Corps Weapons Command and Control Systems Development and Production performs prototype development and low rate initial production of Command and Control electronics shelters. Engineering support services available for systems integration and configuration control. Three separate facilities comprise the prototype complex. A 5,000 square foot facility is used for subsystem assembly and checkout. Two 4,000 square foot facilities are used for complete system assembly and checkout. All three facilities are pre-engineered steel structures. No special equipment or utilities are required.


Marine Corp Weapons
Command & Control Systems

Weapons CSF

Missile Storage Facilities perform storage of preposition war reserve Navy and Marine Corps Stinger Missiles and Marine Corps Tow and Dragon Missiles. Perform receipt, storage, and issue of training missiles for the Marine Corps. Urgent missile delivery capability to operational areas worldwide is provided via Wright Patterson Air Force Base, Dayton, Ohio. Total storage space for Risk Category 1 arms, ammunition and explosives (AA&E) is 45,000 square feet. Total storage space for Risk Category 2 AA&E is 50,000 square feet.

Missile Storage
Facility

Weapons CSF

Ordnance Ready Magazine Storage in Support of Ordnance Engineering Directorate provides ordnance receiving, shipping and storage for the various Programs of the Directorate. The facilities are used to receive a wide variety of ammunition and explosives for the Directorate. After receipt, the ordnance is either forwarded immediately to the user or placed in storage magazines temporarily until ready for evaluation. Total number of magazines is 37 with 57,400 square feet of storage space.

Ordnance Ready
Magazine Storage

Weapons CSF

The **Automated Infrared Test Facility** is identified as the Navy Standard for the measurement of infrared decoy flare intensity performance. The facility is used for development, first article, lot acceptance, surveillance and qualification testing of infrared decoy flares. The facility is contained in Building 366 and consists of a burning chamber capable of burning decoy flares up to 1000 grams, a 70 meter measurement tunnel with an environmentally controlled measurement room and several support rooms adjacent to the tunnel. Because of the many variables associated with infrared intensity measurements a single standard measurement facility is required to provide a legally defensible measurement of decoy flare performance. This facility is used approximately 20 percent of the time for "laboratory" measurements. The remainder of the time is used for acquisition engineering support efforts.

The facility provides at least three unique capabilities that are non-existent at any other facility in the United States. The most significant is that measurements in the facility have been correlated with actual air to air measurements of the intensity and effectiveness of infrared decoys thus providing a baseline for all future development efforts. This baseline allows us to be able to minimize the amount of costly air to air testing required during the development of new devices. The facility provides a controllable air stream profile. In this facility we can change the air stream profile to simulate different flare launch conditions and different profiles for our more advanced flares. The facility also provides for robotic loading of the pyrotechnic devices - the most hazardous operation in the testing. This robotic loading provides an extra measure of safety for the operator in that he/she is not exposed to the combustion products of the flare burnings.


CINCINNATI
MILACRON
Automated Infrared
Test Facility

Weapons CSF

The **Transient Velocity Windstream Facility** is a free jet expansion windstream apparatus designed to provide adjustable air velocity versus time profiles to simulate the launch of decoy flares from a moving aircraft. The outdoor apparatus consists of several air compressors, a bank of air storage tanks, a computer controlled valve to control air flow and a nozzle and can produce air flows from 0.1 to 0.9 Mach at either a constant velocity or, under computer control, a variable velocity versus time profile to simulate the observed velocity versus time behavior experienced by a decoy flare when ejected from an aircraft. Radiant and spectral radiant intensity are measured at distances of 30, 80 and 500 meters and at angles from 10 - 300 degrees around the device. The facility is also equipped to measure thrust and drag from next generation flares which might have some kinematic or aerodynamic design properties.

This combination of space, facility and measurement equipment is unique in the United States and is used by all of DOD and several private contractors to assess the performance of decoy flares and concepts in a test apparatus that is much less expensive to operate than an actual air-to-air test. The facility use is 100% "laboratory" testing.

Transient Velocity
Windstream Test Apparatus

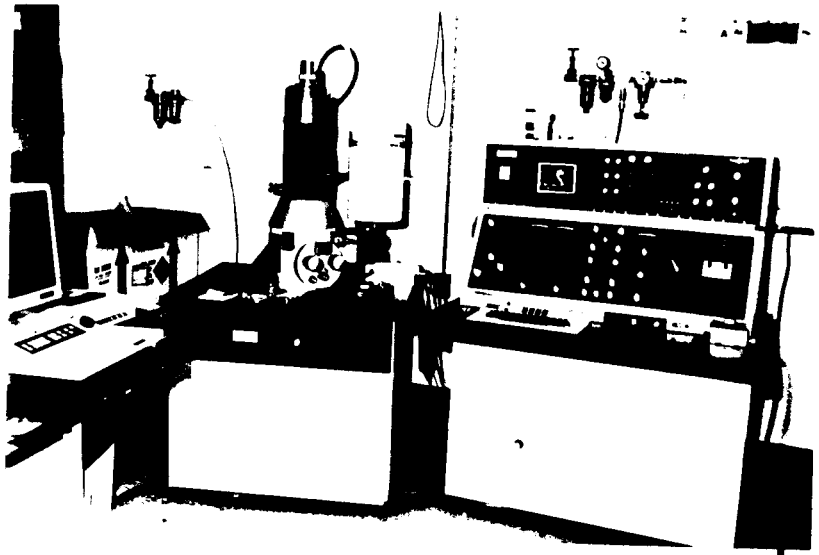
Weapons CSF

While not a "laboratory" in the strictest definition, the **Ordnance Prototype Manufacturing Facility** is used for the development and production of prototype models of new designs and product improvements of pyrotechnic devices and explosive components. Mixing, blending and consolidation equipment allows the development and production of a large range of pyrotechnic compositions for infrared, colored and illuminating flares, colored smokes and other devices. Virtually any pyrotechnic composition in the DOD inventory can be made in this facility. Capabilities include remotely operated extruders and presses for consolidating compositions which can then be remotely cut and machined to required configurations. Hardware components from either plastic or metal are fabricated internally with capabilities including vacuum forming machines, foam fabrication equipment, injection molding, lathes, milling machines, etc. Hardware and compositions are assembled into devices to allow test and evaluation to be performed to evaluate the new or modified design. The facility has been used for limited production and low rate initial production during both Vietnam and Desert Storm to produce infrared decoy flares in a short time for Fleet use. The facility is contained in four buildings - two of which are specially constructed with explosive containment cells with blow out walls to allow the production of pyrotechnic compositions - occupying approximately 30000 sq. ft. This facility is used to support "laboratory" operations approximately 50 % of the time. The remaining 50% is used for acquisition engineering support functions.


Ordnance Prototype
Manufacture

Weapons CSF

The **Ordnance Material Characterization Laboratory** provides chemical and metallurgical laboratories for performing failure evaluations, thermal characterization analyses, physical and chemical properties of materials and materials compatibility of explosives, propellants, pyrotechnics, metals, polymers, ceramics, adhesives, coatings and compositions. Accelerated aging studies of ordnance materials complete with temperature controlled environments for isothermal studies as well as temperature cycling studies are provided in an ordnance qualified facility. In addition to the normal quality evaluation and safety tests of ordnance materials such as impact, friction and electrostatic sensitivity, vacuum and thermal stability, self-heating and ignition the Division operates a complete thermal characterization laboratory. This laboratory has six microcalorimeters to infer long term aging characteristics, an Accelerated Rate Calorimeter and numerous thermal analyzers and differential scanning calorimeters. The facility is used approximately 20% for "laboratory" functions. The remaining efforts include acquisition engineering support, normal analytical chemistry functions and process control testing of ordnance production.



Ordnance Materials
Analysis Laboratory

Weapons CSF

The **Ordnance Test Area** provides test ranges and facilities for first article, lot acceptance, surveillance, qualification and safety testing of pyrotechnic, demolition and conventional ammunition items. The test areas have a total of 88 unencumbered acres and are supported by eleven buildings (5600 square feet). In addition to normal function testing the ranges also support Insensitive Munitions Testing on All-Up-Rounds (pyrotechnic, demolition and conventional ammunition) including Fast and Slow Cookoff, Bullet Impact and Sympathetic Detonation. Specialized equipment includes a Remote Ammunition Breakdown Facility, a Rockeye Bomblet Drop and Air Launch Facility, a Forty Foot Drop Tower, a Grenade Launch Range and 100 and 300 foot Towers for suspension and testing of Aircraft Parachute Flares, Practice Bombs, Infrared Decoy Flares and Obscurants. The facility is used approximately 20% of the time for "laboratory" functions. The remainder of the time is in support of acquisition engineering efforts.


Ordnance Test Area

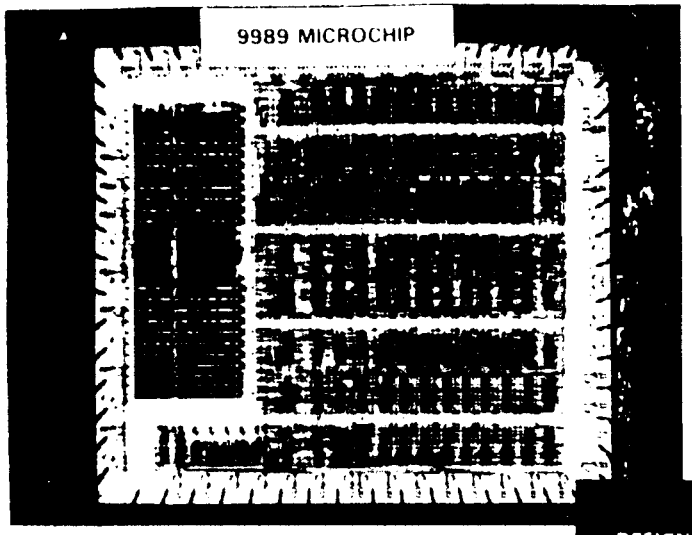
Electronic Devices CSF

Radiation Effects Facility

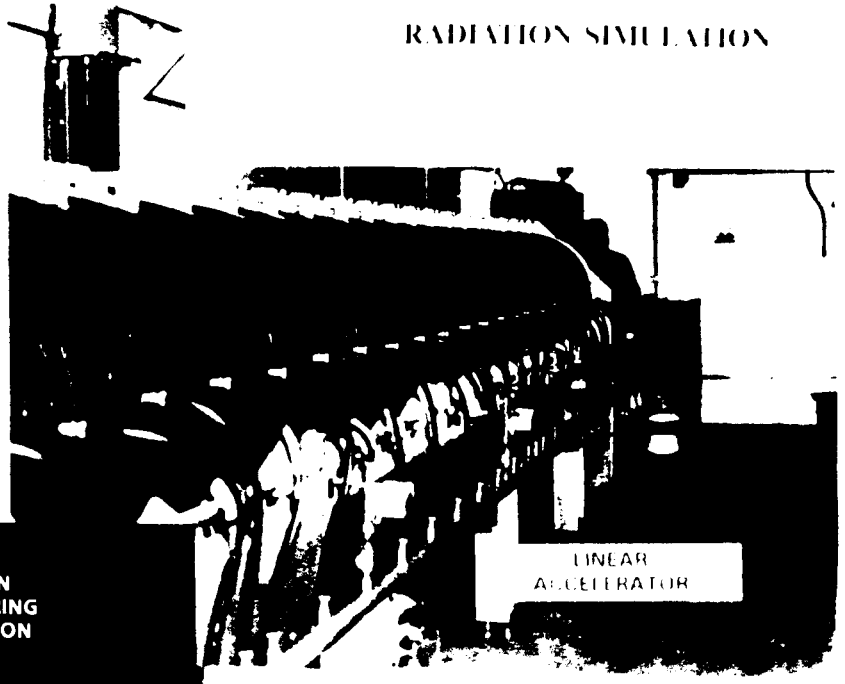
Consists of Linear Accelerator, Cobalt 60 Gamma Sources (2), 10 KeV X-ray Sources (2), Electrical Automatic Test Equipment, Data Acquisition Systems, and Computer Aided Design/Modeling Equipment. Facility is shared (this CSF uses 30%) with private customers (15%) and U.S. Navy Strategic Systems Acquisition surveillance of electronic parts (55%).

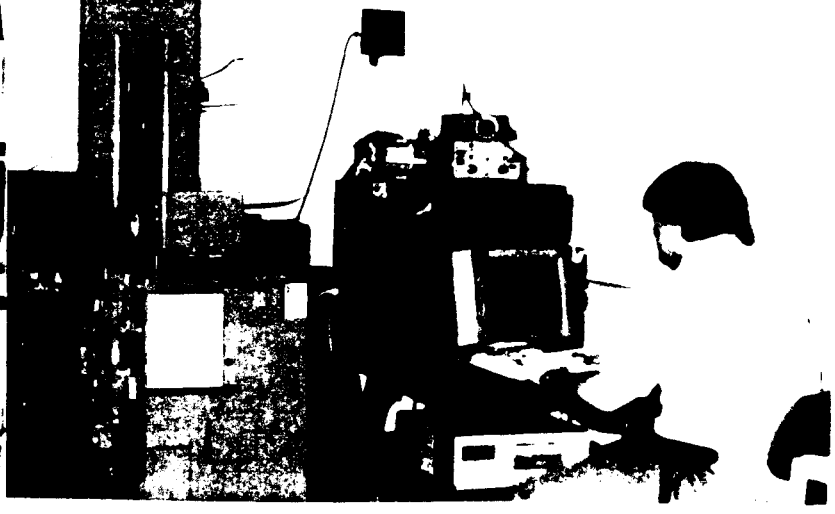
Note: The Linear Accelerator Equipment included in this facility is unique because the radiation dose rates achievable on it are not available elsewhere in the United States.

RADIATION SIMULATION



- DESIGN VALIDATION
- PROCESS MONITORING
- PRODUCT VALIDATION





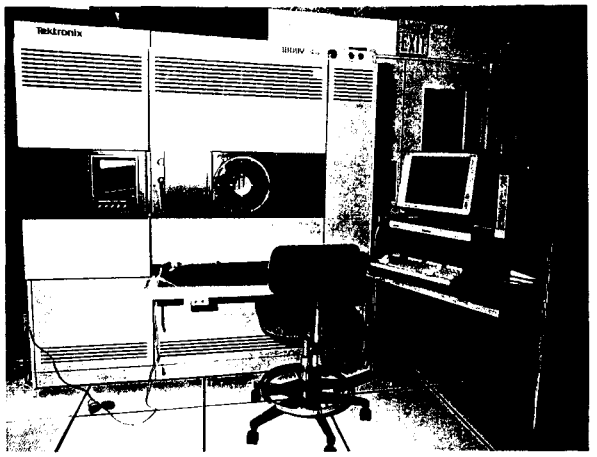
Electronic Devices CSF

Electronic/Photonic Component Engineering & Test Facility

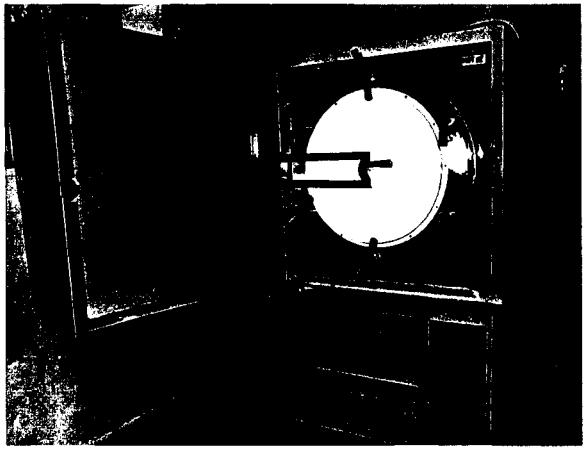
Consists of Automated and Bench Electrical Test Systems, environmental test chambers and special photonic test equipment. Facility is used 10% for S&T work. 90% of work supports major surface and undersea acquisition programs.

ELECTRONIC/PHOTONIC ENGINEERING & TEST FACILITY

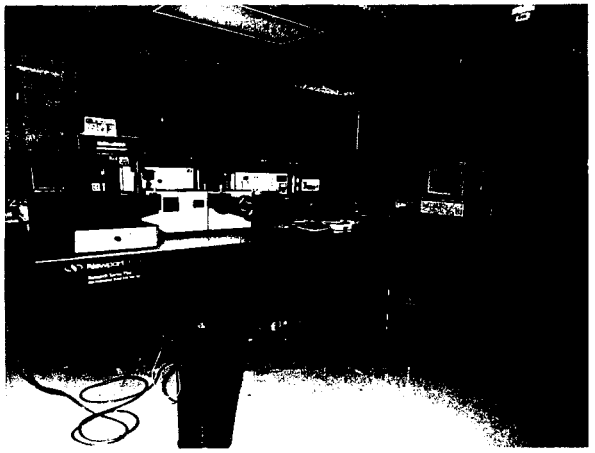
AUTOMATIC TEST SYSTEM
CUSTOM MICROCIRCUITS



AUTOMATIC TEST SYSTEM
MEMORY MICROCIRCUITS



HIGHLY ACCELERATED STRESS CHAMBER
COMMERCIAL COMPONENTS



OPTICS TABLE
FIBER OPTIC COMPONENTS

Advanced Materials CSF

Electronic Packaging & Thermal Analysis Facility

Consists of computer data acquisition and analysis equipment, thermal shock exposure chambers and special equipment for performing cabinet level cooling assessments. Facility is used 15%for S&T work. 85% of work supports major surface and undersea acquisition programs.

ELECTRONIC PACKAGING & THERMAL ANALYSIS LAB
Performs component- to cabinet-level structural & thermal evaluation for electronics packaging designs.

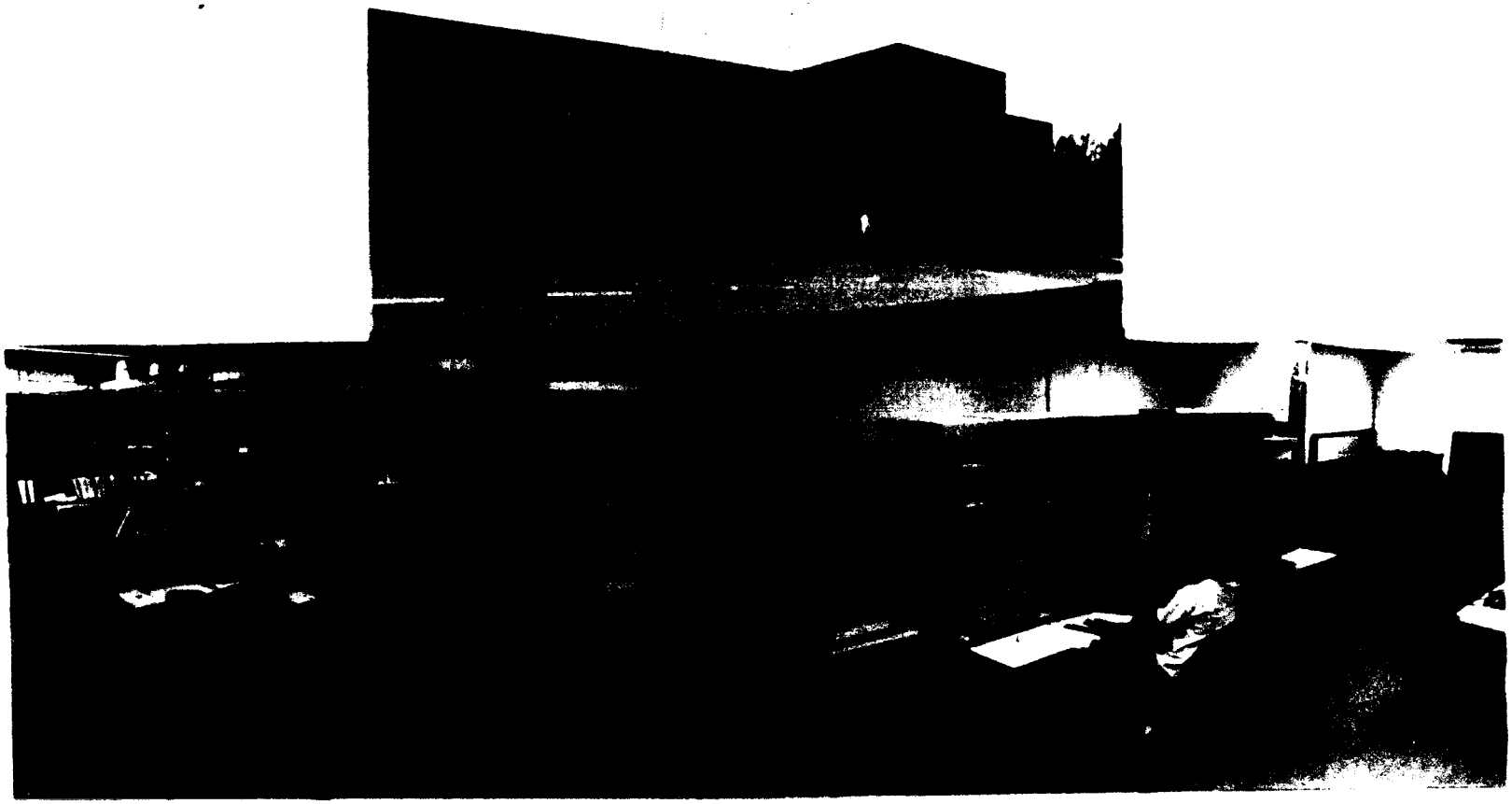
AIR DEVICES - AVIONICS

The Electronic Warfare (EW) facility houses specialized system test equipment fo the test, evaluation and repair of surface and airborne EW.

ALL

Electrochemical Power Systems Facility

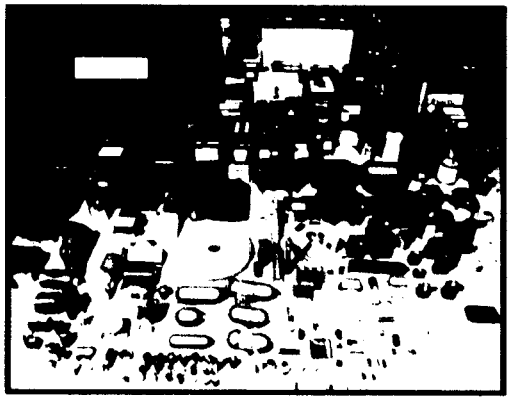
The NSWC Crane Division Electrochemical Power Systems Facility is a unique national asset providing *full spectrum* support for electrochemical power systems (batteries) throughout a system's life cycle beginning with RDT&E and continuing through engineering, acquisition, deployment and concluding with system retirement. Services are provided for a wide variety of batteries used in *Navy, Air Force, Army, Marine Corps, NASA, DOE, SOCOM, FAA, FMS* systems & platforms including the Common Support Functions of Air Vehicles, Weapons, Space Systems and C4I. A listing of the systems and platforms supported is provided in the attached Table. This facility is the DoD's largest (101,000 sq ft) and most modern electrochemical power systems complex. The facility includes a $12.5 million plant, and over $23.1 million of *state-of-the-art* test and evaluation equipment, *all dedicated to batteries*. Integrated within the facility is over 150 pieces of specialized equipment. *Unique in all the world* is a 26,400 sq ft High-Energy Battery Evaluation and Abuse Facility for test and evaluation of the latest technology batteries in a safe and ecologically suitable manner. Batteries are *essential* to all DoD mission areas and are *critical* components of most military systems. The mission of the Electrochemical Power Systems Facility is to assure affordable, safe, and reliable batteries meeting *current and future* performance requirements in all operational environments. Personnel at this facility are *recognized experts* in the field of electrochemical power systems. This expertise allows the government to *buy smart*, avoid technological surprises, advance standardization, assess progress in the battery industry, encourage competition and work with the private sector while preserving *inherently governmental* decision-making functions.



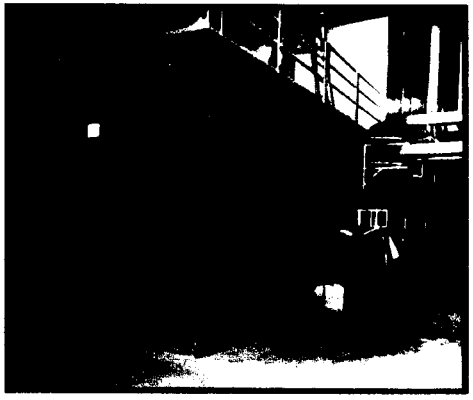
ELECTROCHEMICAL POWER SYSTEMS FACILITY

FAILURE ANALYSIS

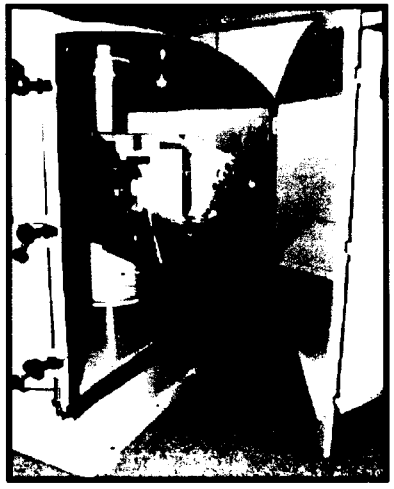
FAMILY OF BATTERIES

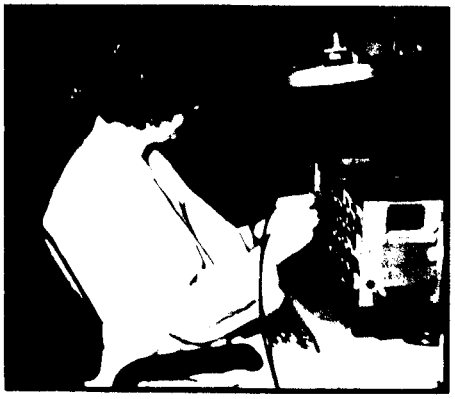


TEST CELLS

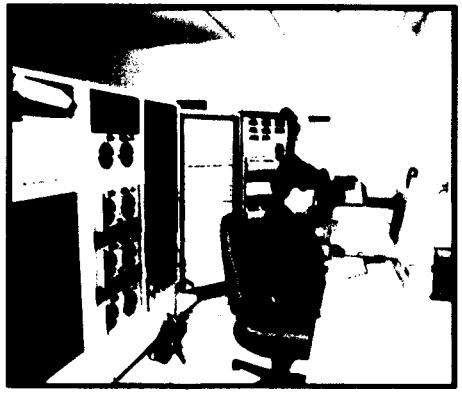


ENVIRONMENTAL



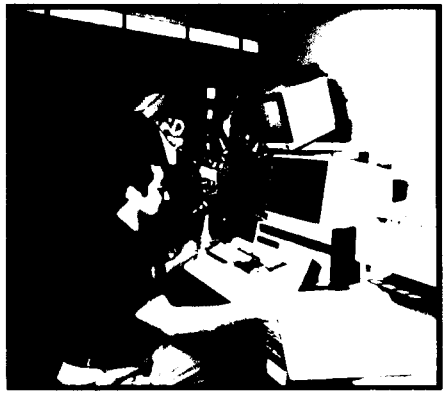


PROTOTYPE



PERFORMANCE EVALUATION

SAFETY EVALUATION



MATERIAL ANALYSIS

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
Weapons	Bldg 2521	Technical	25.6	25.6	0
Weapons	Bldg 2524	Admin	.5	.5	.5
Weapons	Bldg 2911	Technical	2.0	2.0	0
Weapons	Bldg 366	Technical	10.2	10.2	0
Weapons	Bldg 3087	Technical	.9	.9	0
Weapons	Bldg 2707	Tecnical	9.1	9.1	0
Weapons	Bldg2947	Technical	2.3	2.3	2.3
Weapons	Bldg 2670	Technical	.3	.3	0
Weapons	Bldg 2888	Technical	0.1	0.1	0
Weapons	Bldg 2945	Technical	1.0	1.0	0
Weapons	Bldg 2963	Technical	1.0	1.0	0
Weapons	Bldg 2995	Technical	1.0	1.0	0
Weapons	Tower 3086	Technical	N/A	N/A	N/A
Weapons	Bldg 3107	Storage	1.0	1.0	0
Weapons	Bldg 2923	Technical	1.0	1.0	0
Weapons	Bldg 2925	Technical	0.1	0.1	0
Weapons	Bldg 143	Technical	23.3	23.3	0
Weapons	Bldg 142	Technical	15.6	15.6	0
Weapons	Bldg 365	Technical	10.2	10.2	0
Weapons	Bldg 363	Technical	10.2	10.2	0
Weapons	Bldg 364	Technical	10.7	10.2	0

* Administrative, Technical, Storage, Utility

Common Support Function	Facility or Equipment Description	Type of Space*	Space Capacity (KSF)		
			Current	Used	Excess
Weapons	Bldg 2987	Technical	6.1	6.1	0
Weapons	Bldg 2986	Technical	1.0	1.0	0
Weapons	Bldg 2964	Technical	7.7	7.7	7.7
Weapons	Bldg 2951	Technical	2.0	2.0	2.0
Weapons	Bldg 2921	Technical	5.9	5.9	5.9
Weapons	Bldg 3007	Technical	2.0	2.0	2.0
Weapons	Bldg 108	Technical	10.2	10.2	0
Weapons	Bldg 109	Technical	10.2	10.2	0
Weapons	Bldg 3115	Technical	2.1	2.1	0
Weapons	Bldg 180	Technical	3.0	3.0	3.0
Weapons	Bldg 99	Storage	.4	.4	0
Weapons	Bldg 684	Storage	2.1	2.1	0
Weapons	Bldg 881	Storage	2.1	2.1	0
Weapons	Bldg2418	Storage	5.4	5.4	0
Weapons	Bldg 3076	Storage	0.1	0.1	0
Weapons	Bldg 3077	Storage	0.1	0.1	0
Weapons	Bldg 3082	Storage	0.1	0.1	0
Weapons	Bldg 2084	Technical	1.6	1.6	0

* Administrative, Technical, Storage, Utility

Common Support Function	Facility or Equipment Description	Type of Space*	Space Capacity (KSF)		
			Current	Used	Excess
Electronic Devices	Bldg 2044	Technical	2.7	2.7	0
Electronic Devices	Bldg 2917	Technical	2.5	2.5	0
Electronic Devices	Bldg 2931	Technical	8.5	8.5	0
Electronic Devices	Bldg 2940W	Technical	3.5	3.5	0
Electronic Devices	Bldg 2035	Technical	1.7	1.7	0
Electronic Devices	Bldg 3059	Technical	11.9	11.9	0
Electronic Devices	Bldge 2088	Technical	2.5	2.5	0

* Administrative, Technical, Storage, Utility

Common Support Function	Facility or Equipment Description	Type of Space*	Space Capacity (KSF)		
			Current	Used	Excess
Multiple Support	Bldg 34	Technical	33.6	33.6	0
Multiple Support	Bldg 38	Technical	18.1	18.1	0
Multiple Support	Bldg 3235	Technical	27.4	27.4	0
Multiple Support	Bldg 369	Storage	5.4	5.4	0
Multiple Support	Bldg 2919	Technical	3.8	3.8	0
Multiple Support	Bldg 2949	Technical	5.1	5.1	0
Multiple Support	Bldg 355	Storage	.7	.7	0
Multiple support	Bldg 650	Storage	.6	.6	0
Multiple support	Bldg 652	Storage	.6	.6	.6
Multiple Support	Bldg 916	Storage	1.1	1.1	0
Multiple support	Bldg 917	Storage	1.1	1.1	1.1
Multiple Support	Bldg 157	Storage	2.1	2.1	0
Multiple Support	Bldg 181	Technical	1.7	1.7	1.7
Multiple Support	Bldg 301	Storage	5.4	5.4	0

* Administrative, Technical, Storage, Utility

Common Support Function	Facility or Equipment Description	Type of Space*	Space Capacity (KSF)		
			Current	Used	Excess
Air Vehicle/Fixed /Avionics	Bldg 41	Technical	19.2	19.2	0
Air Vehicle/Fixed /Avionics	Bldg 40	Technical	3.7	3.7	3.7

* 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)

Electrochemical Power Sources - The Electrochemical Power Sources facility has a flexible facility to allow for considerable workload expansion. These include state-of-the-art equipments designed with the foresight to accommodate a wide variety of batteries, capable of multiple use, and easily upgradable. Also available are environmental equipments capable of simulating field conditions and material analysis capabilities required by each of the three services.

Small Arms - The Small Arms Weapons Facility has the potential to absorb additional workyears in the Weapons Common Support Function, with minor to no modifications to the facility. This increase in workload could be realized with administrative, technical and testing work space.

Facility Master Plan - The Crane Division has a Master Facility Plan for mothballing facilities as the DOD downsizing affects our workload. The following table indicates the planned availability of space in the buildings utilized for work associated with these CSF's.

Constrained Class 2 Space Available for Expansion at NAVSURFWARCENDIV CRANE
(UIC N00164)

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		
2/217	22	22	143	13' 9"	200
2/441	4	4	23	13' 9"	50
36/217	3			9'	
37/217	35			9'	
41/217	28			26'	
54/219	17	17	110	19'	350
64/441	53	53	355	19'	1,000
64/217	21			19'	
64/610	28			8'	
121/217	23			8'	
180/216	3			11'	
180/217	5			11'	
190/216	2			9'	
353/217	3	3	21	15' 4"	200
353/441	8	8	50	15' 4'	300
354/441	10	10	67	15' 4"	500

Constrained Class 2 Space Available for Expansion at NAVSURFWARCENDIV CRANE (cont)
(UIC N00164)

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		
355/217	4	4	33	15'44"	250
355/441	5	5	33	15'4"	250
472/441	10	10	67	15'4"	250
2069/441	10	10	67	15' 4"	500
2070/441	10	10	67	15' 4"	500
2071/441	10	10	67	15' 4"	500
2072/441	10	10	67	15' 4"	500
2073/441	10	10	67	15' 4	500
2521/217	4			10'	
2540/216	13			8'	
2921/216	6			12' 8"	
2932/216	4			10'	
2935/216	4			12'	
2947/216	2			7'	
2951/216	2			13' 4"	
2964/216	8			15'	

Constrained Class 2 Space Available for Expansion at NAVSURFWARCENDIV CRANE (cont)
(UIC N00164)

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		
Totals	379	186	1,225		6,100

* Space requiring modification

3.5.1.2 If there is capacity to absorb additional workyears, how many additional workyears can be supported? (BRAC Criteria III)

Electrochemical Power Sources - Electrochemical Power Sources can easily accomodate 40 additional workyears in any combination across the four common support functions.

Small Arms - Approximately nine (9) workyears of additional work could be absorbed with the existing facility.

Crane Division Master Facility Plan - As indicated in the previous table, 186,000 square feet of space applicable to these CSF's will become available as the DOD downsizing occurs.

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)

The activity has one military Construction project in the Fy95 Presidential Budget Submission. Military Construction Project P-283 T, Rechargeable Battery Evaluation facility, will construct a 26,500 square foot facility to accommodate laboratory work transitioning from Mare Island Naval Shipyard to Naval Surface Warfare Center (NSWC) Crane Division as a result of the FY93 Base Realignment and Closure process. Relocation of this function to NSWC Crane will consolidate all Navy rechargeable battery test and evaluation work to one activity. This facility provides the Navy with a state-of-the-art battery facility with all the necessary environmental protection features required for battery test and evaluation functions.

3.5.2 **Land Use:** Provide number of buildable acres for additional laboratory/administrative support construction at your installation. (BRAC Criteria II)

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	78.7	78.7	0	0
Operational Non-Ordnance	722.5	305.0	10.6	406.9
Operational Ordnance	1266.7	768.2	0	* 498.5
Training	13.4	6.2	0	* 7.2
R & D	0	0	0	0
Supply & Storage Ordnance	23734.0	17485.6	0	6248.4
Supply & storage Non-Ordnance	1055.9	863.2	0	192.7
Admin	84.1	76.2	0	* 7.9
Housing	170.7	45.1	0	125.6
Recreational	675	257	0	418
Navy Forestry Program	** 48,563	0	** 44,723	** 3,840
Navy Agricultural Outlease Program	0	0	0	0
Hunting/Fishing Programs	** 56,290	0	**52,450	**3,840
Other (Submerged)	900	0	900	0
TOTAL	*** 62467			

* Recommended "Best Use" but could support all uses marked with an asterisk.

** Overlapping concurrent land use

*** Total actual acres. Sum of column greater due to overlapping land use.

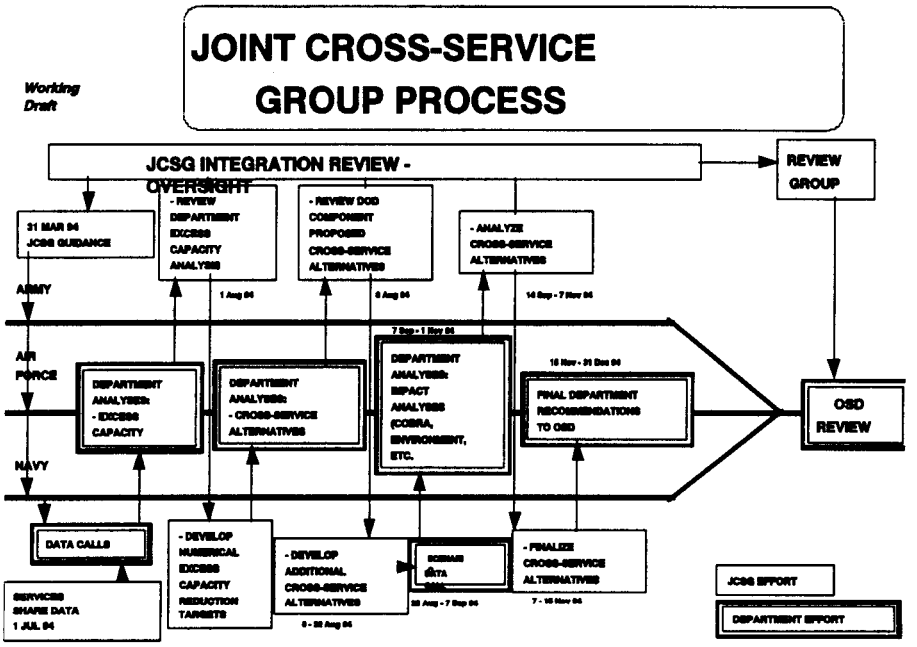
3.5.3 **Utilities:** Provide an estimate of your installation's capability to expand or procure additional utility services (electric, gas, water). Estimates should be provided in appropriate units -- e.g. KWH of electricity. (BRAC Criteria II)

	On Base Capacity	Off Base Long Term Contract	Normal Steady State Load	Peak Demand
Electrical Supply (KWH)	66600KVA Transmission capability	unlimited supply	16127.7KVA	19149.5KVA
Natural Gas (CFH)	3000M Transmission capability	Unlimited supply	55585	101864
Sewage (GPD)	1.2M Process Capability	None	475000	673000
Potable Water (GPD)	2.1M Production Capability	50000 Contract Supply	572000	789000
Steam (PSI & lbm/Hr)	487340 lb/Hr @ 110 PSI Production Capability	None	25000 lb/hr @ 110 PSI	365000 lb/hr @ 110 PSI
Long Term Parking	0	0	0	0
Short Term Parking (Square Yard)	188,303	0	19,224	60,000

SECTION IV: APPENDICES

A. Macro Process/Schedule
B. List of Activities
C. Common Support Functions

APPENDIX A



APPENDIX B

LIST OF ACTIVITIES

AIR FORCE

1. Armstrong Lab, Brooks AFB
2. Armstrong Lab, Tyndall AFB
3. Armstrong Lab, Wright-Patterson AFB
4. Armstrong Lab, Williams AFB
5. Human Systems Center, Brooks AFB
6. Wright Lab, Wright-Patterson AFB
7. Wright Lab, Eglin AFB
8. Aeronautical Systems Center, Wright-Patterson AFB
9. Aeronautical Systems Center, Eglin AFB
10. Oklahoma City Air Logistics Center, Tinker AFB (In-service engineering)
11. Ogden Air Logistics Center, Hill AFB (In-service engineering)
12. San Antonio Air Logistics Center, Kelly AFB (In-service engineering)
13. Sacramento Air Logistics Center, McClellan AFB (In-service engineering)
14. Warner-Robins Air Logistics Center, Robins AFB (In-service engineering)
15. Phillips Lab, Kirtland AFB
16. Phillips Lab, Hanscom AFB
17. Phillips Lab, Edwards AFB
18. Space & Missile Center, Los Angeles AFB
19. Space & Missile Center, Norton AFB
20. Sacramento Air Logistics Center, Peterson AFB
21. Rome Lab, Griffiss AFB
22. Rome Lab, Hanscom AFB
23. Electronic Systems Center, Hanscom AFB
24. Sacramento Air Logistics Center, Peterson AFB (In-service engineering)

ARMY

1. Army Research Lab (ARL), Adelphi, MD
2. ARL, Aberdeen Proving Grounds (APG), MD
3. ARL, White Sands Missile Range, NM
4. ARL, NASA Langley, VA
5. ARL, NASA Lewis, OH
6. Natick Research, Development and Engineering Center, Natick, MA
7. Aviation Research, Development and Engineering Center, St Louis, MO
8. Aviation Troop Command, Aeroflight Dynamics Directorate, Moffitt Field, CA
9. Aviation Troop Command, Aviation Applied Technology Directorate, Fort Eustis, VA
10. Edgewood Research, Development and Engineering Center, Aberdeen Proving Ground, MD
11. Communications Electronics Command Research, Development and Engineering Center, Ft Mammoth, NJ
12. Communication Electronics Command Research, Development and Engineering Center - Night Vision EO Directorate, Ft Belvoir, VA
13. Missile Research, Development and Engineering Center, Redstone Arsenal, AL
14. Armaments Research, Development and Engineering Center, Picatinny Arsenal, NJ
15. Armaments Research, Development and Engineering Center, Benet Labs, Watervliet Arsenal, NY
16. Tank-Automotive Command Research, Development and Engineering Center, Warren, MI
17. USA Research Institute of Infectious Diseases, Ft Detrick, MD

18. Walter Reed Army Institute of Research, Washington D.C.

19. USA Institute of Surgical Research, Ft Sam Houston, TX
20. USA Aeromedical Research Lab, Ft Rucker, AL
21. Medical Research Institute of Chemical Defense Aberdeen Proving Grounds, MD
22. USA Research Institute of Environmental Medicine, Natick, MA
23. Construction Engineering Research Laboratory, Champaign, IL
24. Cold Regions Research and Engineering Lab, Hanover, NH
25. Topographic Engineering Center, Alexandria, VA
26. Waterways Experiment Station, Vicksburg, MS
27. USA Research Institute for Behavioral & Social Sciences, Alexandria, VA
28. Simulation, Training and Instrumentation Command (STRICOM), Orlando, FL

NAVY

1. Naval Air Warfare Center, Weapons Division, China Lake
2. Naval Air Warfare Center, Weapons Division, Point Mugu
3. Naval Air Warfare Center, Aircraft Division, Patuxent River
4. Naval Air Warfare Center, Aircraft Division, Indianapolis
5. Naval Air Warfare Center, Aircraft Division, Lakehurst
6. Naval Research Lab, Washington D.C.
7. Naval Research Lab Detachment, Bay St Louis
8. Naval Surface Warfare Center, Carderock Division, Bethesda
9. Naval Surface Warfare Center, Carderock Detachment, Annapolis
10. Naval Surface Warfare Center, Crane Division
11. Naval Surface Warfare Center, Crane Detachment, Louisville
12. Naval Surface Warfare Center, Dahlgren Division
13. Naval Surface Warfare Center, Dahlgren Detachment, Panama City
14. Naval Surface Warfare Center, Indian Head Division
15. Naval Surface Warfare Center, Port Hueneme Division
16. Naval Command, Control, and Ocean Surveillance Center, RDT&E Division, San Diego
17. Naval Command, Control, and Ocean Surveillance Center, In-Service Engineering, West Coast Division, San Diego
18. Naval Command, Control, and Ocean Surveillance Center, In-Service Engineering Division, Charleston
19. Naval Aerospace Medical Research Center, Pensacola
20. Naval Biodynamics Lab, New Orleans
21. Naval Dental Research Lab, Great Lakes
22. Naval Health Research Center, San Diego
23. Naval Medical Research Institute, Bethesda
24. Naval Undersea Warfare Center, Keyport Division, WA
25. Naval Surface Warfare Center, Carderock, Philadelphia Detachment
26. Naval Undersea Warfare Center, Newport, RI
27. Naval Undersea Warfare Center (Newport), New London, CT
28. Naval Personnel Research and Development Center, San Diego, CA

DEPARTMENT OF DEFENSE

1. Armed Forces Radiobiology Research Institute (AFRRI), Bethesda, MD

APPENDIX C

COMMON SUPPORT FUNCTIONS (DEFINITIONS LISTED FOLLOWING PAGES)

Product Functions

1. Air Vehicles
   - Fixed
     -- Structure
     -- Propulsion
     -- Avionics
     -- Flight Subsystems
   - Rotary
     -- Structure
     -- Propulsion
     -- Avionics
     -- Flight Subsystems

2. Weapons
   - ICBMs/SLBMs
   - Conventional Missiles/Rockets
   - Cruise Missiles
   - Guided Projectiles
   - Bombs
   - Guns and Ammunition
   - Directed Energy
   - Chemical/Biological

3. Space Systems
   - Launch Vehicles
   - Satellites
   - Ground Control Systems

4. C4I Systems
   - Airborne C4I
   - Fixed Ground-Based C4I
   - Ground Mobile C4I

Pervasive Functions

1. Electronic Devices

2. Environmental Sciences

3. Infectious Diseases

4. Human Systems

5. Manpower and Personnel

6. Training Systems

7. Environmental Quality

8. Advanced Materials

DEFINITIONS

COMMON SUPPORT FUNCTIONS

Product Functions

1. Air Vehicles. Air vehicles are broken out into common support functions for fixed wing and rotary wing. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of air vehicles. Included are all air vehicles including their application as UAV's and targets.

- Structures. Includes but not limited to all air vehicles structure technology, engineering and production efforts. Include technology and engineering practices which advance structural design and analysis; advanced structural concepts and fabrication techniques; and structural integrity.

- Propulsion. Includes but not limited to all technology, engineering and production efforts associated with air vehicle propulsion such as turbine engine, rotorcraft power drive, and hypersonic propulsion components. Such components include compressors, inlets and nozzles, turbines, mechanical systems and control, gears, bearings, shafts, and clutches. In addition, include associated subsystems activities such as turborocket, turboramjet and rotorcraft transmissions; and supporting technical and engineering disciplines.

- Avionics. Includes but not limited to all technology, engineering and production efforts associated with the air platform's integrated avionics system. The avionics suite includes but is not limited to weapon delivery systems, electronic warfare, navigation, communications, radar, electro-optic sensors, signal/data processing and associated software system and support. Includes efforts associated with developing the integrated avionics system (i.e. optimizing functional partitioning, distribution and integration of avionics/related functions).

- Flight Subsystems. Includes but not limited to all technology, engineering and production efforts for air vehicle support systems such as landing gear; transparent crew enclosures; egress systems; mechanical equipment integrity; electrical component integrity;

subsystem integration; and aircraft power, pressurization, and temperature control systems.

2. Weapons. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of ICBMs/SLBMs, conventional missiles and rockets, cruise missiles, guided projectiles, bombs, guns and ammunition, directed energy and chemical/biological munitions. Include with each weapon as appropriate, all related technology, engineering and production activities such as fusing/safe and arm, missile propulsion, warheads and explosives, and guidance and control.

3. Space. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of launch vehicles, satellites and associated ground control systems (satellite control only; ground systems for telemetry of data included in C4I). Include under satellites, all technology, engineering and production activities associated with space communications and space-based surveillance (and associated sensors) and space-based C4I.

4. C4I. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of airborne, fixed ground-based and mobile ground based C4I systems. Include all technology, engineering and production activities associated with communications networks, radios and links, distributed information systems, data fusion, decision aids, and associated computer architectures.

Pervasive Functions (6.1, 6.2, and 6.3)

1. Electronic Devices. Includes but not limited to all science and technology activities supporting development of semiconductor and superconductor materials for optoelectronic, acoustic and microwave devices. Include all associated electronic materials/device fabrication and processing.

2. Environmental Sciences. Includes but not limited to all science and technology activities to improve measurement, characterization and modeling of the earth atmosphere and space environment. Examples include global prediction systems, space effects, and celestial backgrounds/astronomical reference sources.

3. Infectious Diseases. Includes but not limited to all science and technology activities which preserve manpower and performance by the prevention and treatment of militarily important infectious diseases that occur naturally worldwide.

4. Human Systems. Includes but not limited to all science and technology activities to enable, protect, sustain and enhance human effectiveness in DOD operations. The focus of this pervasive, multi-disciplinary area is the human and therefore impacts all DOD systems and operations. This area includes: (1) human performance definition, assessment, and aiding; (2) physiologic bioeffects of toxic hazards, ionizing and non-ionizing radiation, biodynamic (bio-mechanical) stress, and extreme environments; (3) military operational medicine; and (4) generic, human-centered design standards/methodologies for crew station subsystems, information management and display, and life support.

5. Manpower and Personnel. Includes but not limited to all science and technology activities which support four broad areas: (1) selection and classification of DOD personnel (including pilots); (2) identification of operational tasks performed and requirements for skills, knowledge, and aptitudes; (3) matching the right people with the jobs they are best suited for according to the needs of DOD, (4) and developing techniques for measuring and enhancing the productivity of the operational force.

6. Training Systems. Includes but not limited to all science and technology which support training of personnel, including training strategies, devices and simulators, and computer aided intelligent tutoring systems.

7. Environmental Quality. Includes but not limited to all science and technology activities which support the development of technologies to reduce the environmental costs of DOD operations while ensuring mission accomplishment is not jeopardized by adverse environmental impacts. Specifically, this area encompasses technologies to: (1) identify and cleanup sites contaminated with hazardous materials as a result of DOD operations (cleanup); (2) ensure DOD compliance with current and anticipated local, national, and international

environmental laws and treaties (compliance); (3) minimize DOD use of hazardous materials and reduce DOD hazardous waste generation (pollution prevention); and (4) provide for protection of natural resources under DOD stewardship (conservation).

8. Advanced Materials. Includes but not limited to all science and technology activities related to structural, high temperature, electromagnetic protection, electronic, magnetic, optical, and biomolecular materials. Note: excludes materials areas which were included in DDR&E decision of 18 Mar 94 related to the Army's Materials Research Facility at Aberdeen Proving Ground and the Navy's Materials Facility at Carderock.

NSWC Div Crane

DATA CALL #12

JL
SEA 09X
5/12/94

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

NEXT ECHELON LEVEL (if applicable)

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

5/11/94
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. STERNER
NAME (Please type or print

Signature

Commander
Title Naval Sea Systems Command

5-13-94
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

27 May 1994
Date

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 May 94
Date

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
Activity

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
(NAVSURFWARCENDIV)
CRANE, INDIANA

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

T&E JOINT CROSS-SERVICE GROUP

SECTION 1: GUIDANCE, STANDARDS, AND ASSUMPTIONS

The Military Departments will use the following information for data collection on each facility that has performed T&E and is still capable of performing T&E within the three functional areas of air vehicles, electronic combat, and armaments/weapons for any component (hardware or software), subsystem, system, or platform. Guidance is provided on conducting a cross-service analysis.

1.1 GUIDANCE

1.1.A Guidance for Identification of Test and Evaluation (T&E) Facilities / Capabilities

1.1.A.1 Scope

All DoD installations will be examined to identify facilities that have and are still capable of performing T&E within the three functional areas of air vehicles, electronic combat, and armaments/weapons.

All facilities (tenant and host on the installation) owned by DoD are within scope of this examination.

The Military Departments and Defense Agencies are responsible for submitting the data.

The scope of this examination will include T&E facilities that are funded from any funding source and appropriation (RDT&E, procurement, O&M, training, etc.).

1.1.A.2 T&E Facilities / Capabilities

The definition of a T&E facility/capability to be used for purposes of data collection will be a set of DoD-owned or controlled property (air/land/sea space) or any collection of equipment, platforms, ADPE or instrumentation that can conduct a T&E operation and provide a deliverable T&E product.

The T&E facility can support T&E of components through systems platforms or missions in the following functional areas: air, land, sea, space, C4I, armaments/weapons, electronic combat, nuclear effects, chem/bio, propulsion, environmental effects, guidance, and materials.

The T&E facilities will be grouped under one of the following test facility categories: modeling and simulation, measurement, integration laboratory, hardware-in-the-loop, installed systems, or open air (See Appendix A for definitions). It will typically consist of all of the following components: data collection sensors and instrumentation, data reception and storage, data processing, and data display and reporting.

The scope will include T&E operations from all funding sources (RDT&E, procurement, O&M, training, etc.).

1.1.B Guidance for Military Department Data Collection

The Military Departments will use the T&E facility/capability definitions included within this data call package. In your descriptions of facility technical capabilities include programmed investments/upgrades in Military Department or Defense Agency 1995 Future Years Defense Plan (FY95 FYDP) in support of the President's Budget (PB95). When calculating capacity data, use the guidelines/definitions included in this package.

Data will be collected on all facilities/capabilities that are within the scope defined in section 1.1.A. Data will be collected using Appendix A, Data Forms and Instructions

1.1.C Guidance for Military Department Data Analysis

The Military Departments will use the 95 FYDP as the baseline to calculate costs and savings. Address closure/realignment opportunities at the functional T&E and facility levels. Retain essential technical capabilities for core competencies and technologies. Consider consolidation of subfunctions such as centralized maintenance of common platforms, instrumentation, data processing. Consider retention of difficult-to-replace essential geographic assets (e.g. airspace, ground/terrain, climates, seaports) without regard to "ownership". Recognize adaptability to future technologies. Do not consider environmental cleanup costs/difficulties for closure or downsizing a facility/capability.

1.2 ASSUMPTIONS

Cross-service analyses will use the following assumptions:

1.2.A T&E workload is not a direct function of force structure, but is related to the RDT&E budget and acquisition funding.

1.2.B The FYDP is considered certified data. Information from non-DoD activities will not be used as a basis for analyses.

1.2.C At least one test facility/capability will be required to address any technology in use or nearing maturation. Geographic assets (airspace, ground space, sea space, terrain, climate, physical security) must be adequate. Closure or realignments of laboratories, maintenance depots, and training activities could necessitate consolidation with T&E facilities/capabilities.

1.2.D Evaluation of developing technologies and systems will follow a process that involves a progression of test facilities/capabilities ranging from modeling and simulation, measurements, through hardware-in-the-loop, system integration laboratories, installed-systems, to open air/range testing.

1.2.E Potential for internetting facilities/capabilities can be considered in workload projections if investments to provide internetting capability are programmed.

1.2.F With regard to outsourcing, it will be assumed that work currently performed in-house will remain in-house and that work currently outsourced will remain outsourced.

1.2.G With regard to foreign military sales (FMS), it will be assumed that the FMS workload will continue at FY93 levels into the future (straight-lined).

1.3 FUNCTIONAL AREAS

Three functional areas of T&E facilities/capabilities were selected for specific emphasis during cross-service analyses following analysis of the T&E Reliance study areas. These three areas -- air vehicles, electronic combat, and armament/weapons -- show the greatest potential for cross-service consolidation opportunities; others are predominately or nearly Military Department unique.

Over-arching measures of merit have been developed that are applicable to many T&E facilities/capabilities across the three functional areas. These measures generally relate to the overall demographics of the facility/capability at an installation and are important to evaluating a facility/capability for: overall condition; potential to support current or future contingency, mobilization and future missions; additional workload; and overall Mission 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.

NOTE: As reported in BRAC95, Data Call 1, the technical program at the Crane Division is managed in terms of seventeen Technical Capabilities (TCs) recognized by the Naval Surface Warfare Center. Response to this data call will be by the following three Technical Capabilities:

Electronic Warfare
Conventional Ammunition
Pyrotechnics

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.

Electronic Warfare Technical Capability. NA

-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?

	FY 92	FY 93
Electronic Combat	5.0	4.5
Armament/weapons	141.0	134.0

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?

Unconstrained Capability is limited only by limited equipment and space.

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.

Electronic Warfare Technical Capability. Yes

Armaments/Weapons. No R

-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?

Electronic Warfare Technical Capability. Yes, Electronic Countermeasures.

Armaments/Weapons. Yes R

-2.3.B.1 On the test mission of any other activity?

Electronic Warfare Technical Capability. Yes

Armaments/Weapons. No R

-2.3.B.2 On any other mission deemed critical to the operational effectiveness of the armed forces of the United States?

Electronic Warfare Technical Capability. Yes

Armaments/Weapons. No R

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.

Electronic Warfare Technical Capability. Yes

-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?

Electronic Warfare Technical Capability. Yes, Electronic Countermeasures.

-2.3.B.1 On the test mission of any other activity?

Electronic Warfare Technical Capability. Yes

-2.3.B.2 On any other mission deemed critical to the operational effectiveness of the armed forces of the United States?

Electronic Warfare Technical Capability. Yes

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. None

-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. No

3.1.B Facility Condition (MV II) - Measure of merit: *Current and planned status of the T&E facilities for supporting assigned test missions.*
Fill out the Facility Condition Form in Appendix A in accordance with the instructions.

3.1.C Environmental and Encroachment Carrying Capacity (MV II) - Measure of Merit: *Extent of current and future potential environmental and encroachment impacts on air, land, and sea space for testing.*

- 3.1.C.1 Do you have limiting (current or future) environmental and/or encroachment characteristics associated with the installation/facility? Yes/no. If yes, explain. No

- 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.

Workload could be increased by over 100%

- 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.

We are not currently operating under any type of temporary permits or voluntary agreement.

- 3.1.C.4 What is the total population within a 50 mile radius? 100 mile radius? 150 mile radius? 200 mile radius?

50 mile radius population = 546,700
100 mile radius population = 4,098,700
150 mile radius population = 9,388,400
200 mile radius population = 15,118,700

- 3.1.C.5 Identify the commercial air/land/sea traffic routes, public use of air/land/sea space, and frequency of use for each that affects or could affect mission accomplishment in your air, land, or sea space. None

- 3.1.C.5.A How many test missions per year are canceled due to commercial or public use? None

- 3.1.C.6 What is the number of test missions that have been canceled due to encroachment in each of the last two years? None

3.1.D Specialized Test Support Facilities and Targets (MV I) - Measure of Merit: *Extent to which specialized test support facilities and targets are available.*

-3.1.D.1 Do you have specialized facilities are required to support you in conducting your test operations at your facility (e.g. Aerial delivery load build-up facilities; parachute drying towers/packing facilities; paratroop support facilities; specialized fuel storage and delivery systems; mission planning facilities; corrosion control, painting, washing facilities; and specialized maintenance facilities such as avionics intermediate shops)? Yes/no. If yes, please describe.

Electronic Warfare Technical Capability. The Crane Division creates a synergism by sharing of facilities and technology between various product areas. For example, the Crane Division is recognized by the Naval Surface Warfare Center as having special Technical Competencies (TCs) in Microwave Components, Radar, Night Vision, Electrochemical Power Systems, Microelectronics Technology, Pyrotechnics and Electronic Module Test and Repair. All of these TCs are extensively utilized in support of the various Electronic Warfare programs.

Costly test and repair facilities that are shared include corrosion control, RF test range, RF anechoic test chambers, solid state devices, microwave tubes and printed circuit card manufacture. Microwave tubes are today, and will continue to be for the foreseeable future, the source of high power microwave energy used in electronic warfare systems. The Crane Division is recognized as possessing the DOD microwave tube expertise, a basic technology which is vital in providing total support to electronic warfare systems.

-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.

Electronic Warfare Technical Capability. The Crane Division creates a synergism by sharing of facilities and technology between various product areas. For example, the Crane Division is recognized by the Naval Surface Warfare Center as having special Technical Competencies (TCs) in Microwave Components, Radar, Night Vision, Electrochemical Power Systems, Microelectronics Technology, Pyrotechnics and Electronic Module Test and Repair. All of these TCs are extensively utilized in support of the various Electronic Warfare programs.

Costly test and repair facilities that are shared include corrosion control, RF test range, RF anechoic test chambers, solid state devices, microwave tubes and printed circuit card manufacture. Microwave tubes are today, and will continue to be for the foreseeable future, the source of high power microwave energy used in electronic warfare systems. The Crane Division is recognized as possessing the DOD microwave tube expertise, a basic technology which is vital in providing total support to electronic warfare systems.

-3.1.D.2 Are specialized targets required to support this facility? Yes/no. If yes, explain.

Electronic Warfare Technical Capability. No

-3.1.D.2.A Have the specialized targets been validated? Yes/no. If yes, by whom?

Electronic Warfare Technical Capability. NA

Armaments/Weapons. Specialized facilities associated with the Conventional Ammunition and Pyrotechnics Technical Capabilities include the Ordnance Test Area, the Ordnance Prototype Manufacturing Facility, the Transient Velocity Windstream Apparatus, the Automated Infrared Test Facility, the Ordnance Material Characterization Laboratory, the Ordnance Environmental Test and Radiographic Facility, the Missile Fuze Test Laboratory, the Ordnance Components Test Laboratory and the Lake Glendora Underwater Explosive Test Facility. The Environmental Test and Radiographic Facility also supports the Electrochemical Power Sources and Acoustic Sensors Technical Capabilities. Complete Technical descriptions are contained in Attachments B and C. R

-3.1.D.2 Are specialized targets required to support this facility? Yes/no. If yes, explain.

Electronic Warfare Technical Capability. No

-3.1.D.2.A Have the specialized targets been validated? Yes/no. If yes, by whom?

Electronic Warfare Technical Capability. NA

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.*

Electronic Warfare Technical Capability. 20% additional workload could be accepted without additional facilities.

-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. No

-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.

Electronic Warfare Technical Capability. Yes, any electronics.

-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.

The Crane site is located in the rolling hills of southwestern Indiana and has no encroachment issues now or in the foreseeable future. The Crane boundary has expansion potential of several thousand acres in all directions. The boundary is surrounded by forest, cropland, or pasture and is estimated to have a market value of approximately $250 per acre. There are only two small communities that are located adjacent to the Crane boundary. In addition to the expansion potential beyond the boundaries of the activity, Crane has approximately 7,500 acres of expansion potential within its boundaries. The following table provides a breakdown of these acres:

Class 1 Resources of NAVSURFWARCENDIV CRANE (UIC:00164)
Site Location: Crane, Indiana

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Maintenance	78.7	78.7	0	0
Operational Non-ordnance	722.5	305.0	10.6	406.9
Operational Ordnance	1266.7	768.2	0	*498.5
Training	13.4	6.2	0	*7.2
R & D	0	0	0	0
Supply & Storage Ordnance	23734.0	17485.6	0	6248.4
Supply & Storage Non-ordnance	1055.9	863.2	0	192.7
Admin	84.1	76.2	0	*7.9
Housing	170.7	45.1	0	125.6
Recreational	675	257	0	418
Navy Forestry Program	**48,563	0	**44,723	**3,840
Navy Agricultural Outlease Program	0	0	0	0

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Navy Agricultural Outlease Program	0	0	0	0
Hunting/Fishing Programs	**56,290	0	**52,450	**3,840
Other (Submerged)	900	0	900	0
Total:	***62,467			

NOTE: All restrictions are due to ESQD arcs.

* Recommended "Best" use but could support all uses marked with an asterisk.

** Overlapping, concurrent land use.

*** Total actual acres. The sum of this column will be larger than the actual acres due to overlapping, concurrent land use.

Of the total Unrestricted Acres reported above, 7,500 acres have existing roads and/or utilities that could support expansion efforts.

-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)?

Electronic Warfare Technical Capability. Yes, Special Access Required.

Armaments/Weapons. Yes, Secret.

R

Land Use	Total Acres	Developed Acreage	Available for Development	
			Restricted	Unrestricted
Hunting/Fishing Programs	**56,290	0	**52,450	**3,840
Other (Submerged)	900	0	900	0
Total:	***62,467			

NOTE: All restrictions are due to ESQD arcs.

* Recommended "Best" use but could support all uses marked with an asterisk.

** Overlapping, concurrent land use.

*** Total actual acres. The sum of this column will be larger than the actual acres due to overlapping, concurrent land use.

Of the total Unrestricted Acres reported above, 7,500 acres have existing roads and/or utilities that could support expansion efforts.

-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)?

Electronic Warfare Technical Capability. Yes, 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.

Military Construction Project P-266, which was funded in FY 92, is currently under construction with an estimated completion of August 1995. This state-of-the-art, 72,000 square foot facility will accommodate functions associated with the reliability and performance testing, engineering life cycle support and analysis, repair, alignment , calibration, upgrade and logistic support of the AN/SLQ-32 (V) Electronic Countermeasures Weapon System. The facility will be a permanent, two-story, steel-frame structure with reinforced concrete floors and foundation and concrete tilt-up exterior walls. Interior functional areas are included for test, development, maintenance, repair and overhaul; an anechoic chamber; shipping, receiving, storage and staging areas; computer-aided drafting/design and automated data processing areas; technical library; secured strong room, receiving dock and bay. The cost of the facility is $7,465,000.

3.1.F Uniqueness (MV I) - Measure of Merit: *Extent to which the facility is one-of-a kind.*

-3.1.F.1 Is this a one-of-a-kind facility within the DoD? Yes/no. If yes, describe.

Electronic Warfare Technical Capability. DOD has electronic warfare capabilities throughout the Services. However, no one activity has the breadth of systems and technologies, equipment, facilities and corporate expertise as that contained within the Crane Division. Crane Division covers the spectrum of targeting and acquisition radars and communication systems. Only the Crane Division has the corporate expertise required to support Navy electronic warfare systems and their operating environments, e.g., high shock loads associated with landing and take-off for Navy airborne electronic warfare systems or the corrosive effects of a continuous salt atmosphere aboard ship.

-3.1.F.1.A Within the US Government? Yes/no. If yes, describe. No

-3.1.F.1.B Within the US? Yes/no. If yes, describe. No

-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.

Electronic Warfare Technical Capability. No.

3.1.G Available Air, Land, and Sea Space (MV II) - Measure of Merit: *Extent to which controlled test ranges satisfy weapon system test requirements.*

-3.1.G.1 How many square miles of air, land, and sea space are available to support test operations?

Electronic Warfare Technical Capability and Armaments/Weapons. The Crane property is 100 square miles in rural southern Indiana, 88 acres (0.14 sq mi) are used for ordnance and pyro testing. The airspace is potentially available. R

-3.1.G.2 Who owns and or controls the land under the restricted airspace you use?

Electronic Warfare Technical Capability and Armaments/Weapons. NA, the air space is not used. R

-3.1.G.3 How much of this is Restricted Airspace, and what altitude limits are associated with the restricted areas?

Electronic Warfare Technical Capability and Armaments/Weapons. NA, the air space is not used. R

-3.1.F.1.A Within the US Government? Yes/no. If yes, describe. No

-3.1.F.1.B Within the US? Yes/no. If yes, describe. No

-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.

Electronic Warfare Technical Capability. No.

3.1.G Available Air, Land, and Sea Space (MV II) - Measure of Merit: *Extent to which controlled test ranges satisfy weapon system test requirements.*

-3.1.G.1 How many square miles of air, land, and sea space are available to support test operations?

Electronic Warfare Technical Capability. 100 square miles.

-3.1.G.2 Who owns and or controls the land under the restricted airspace you use?

Electronic Warfare Technical Capability. NA, the air space is not used.

-3.1.G.3 How much of this is Restricted Airspace, and what altitude limits are associated with the restricted areas?

Electronic Warfare Technical Capability. NA

-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.

Electronic Warfare Technical Capability. NA

-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.

Electronic Warfare Technical Capability and Armaments/Weapons. NA, the airspace is not used. R

-3.1.G.5 Is the airspace over land or water? List the number of square miles over each.

Electronic Warfare Technical Capability and Armaments/Weapons. Although not used, the airspace is over 100 square miles of land. R

-3.1.G.6 Identify known or projected airspace problems that may prevent accomplishing your mission.

Electronic Warfare Technical Capability and Armaments/Weapons. None R

-3.1.G.7 What is the maximum straight line segment in your airspace in nautical miles?

Electronic Warfare Technical Capability and Armaments/Weapons. Although the airspace is not used, the maximum straight line segment is 15 nautical miles. R

-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.

Electronic Warfare Technical Capability and Armaments/Weapons. Not used. R

-3.1.G.5 Is the airspace over land or water? List the number of square miles over each.

Electronic Warfare Technical Capability. NA

-3.1.G.6 Identify known or projected airspace problems that may prevent accomplishing your mission.

Electronic Warfare Technical Capability. NA

-3.1.G.7 What is the maximum straight line segment in your airspace in nautical miles?

Electronic Warfare Technical Capability. NA

-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.

Electronic Warfare Technical Capability. NA

3.1.H Geographic/Climatological Features (MV II) - Measure of Merit: *Extent to which types of climatic/geographic conditions represent world-wide operational conditions.*

-3.1.H.1 Describe the topography and ground cover/vegetation within your test airspace (include nap-of-the-earth capability). Identify all of the following that apply: mountains, forest/jungle, cultivated lowland, swamp/riverine, desert, and sea. State the area of each in square miles.

The Crane Division covers almost 100 square miles and has a predominantly rural landscape with few zoning requirements. Crane is situated within the Crawford Upland, the most rugged and highly dissected part of the State of Indiana. Deep drainage lines with steep, often rocky, walls are cut into every part of the upland, leaving divides with an average elevation of about 600 feet. Less than 15 percent of the region is in need of artificial drainage.

The upland varies greatly in form with many different geological formations exposed. For example, massive Mansfield sandstone is exposed throughout the central part of the region, soft shales of the "Coal Measures" cover the Mansfield sandstone in the western part of the area, and limestone outcrops occur in a few small areas.

Mineral exploration and production have been undertaken at various times in and around the Crane site. Crane is in an area of southwestern Indiana that has deposits of gypsum. The known deposits are at depths from 300 to 500 feet. No commercial gypsum deposits are known to exist within the boundaries of Crane.

Coal deposits have been mined in and around Crane. Twenty-two deposits one to two feet thick and ten deposits two to five feet thick are known at the Crane site. Several oil and gas fields have been discovered around the Crane site.

-3.1.H.2 Are there features of the local geology or soil conditions that enhance or inhibit any types of test? No

-3.1.H.3 Did you have to go to other geographical locations to satisfy test requirements? Yes/no and explain. If yes, provide as a percent of overall workload per year for the past 8 years. No

-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?

Crane Division is located in a temperate climate zone; temperatures usually range widely between summer and winter. Extremes of temperature from -30°F to 100°F are not uncommon. The average minimum temperature in January is 26°F; the average maximum temperature in July is 89°F.

-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%?

Average humidity ranges from 40 to 90 percent in summer and from 60 to 90 percent in the winter.

-3.1.H.6 What is the number of test missions per year (1985 - 1993) canceled due to weather? NA

-3.1.H.7 What is the number of test days per year (1985 - 1993) canceled due to weather? NA

-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? NA

-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. NA

-3.1.H.10 What percentage of the time are your test operations restricted due to weather? NA

3.2 AIR VEHICLES

This functional area includes facilities involved in the testing of all air vehicles/subsystems/components whether fixed wing or rotary wing and test of major subsystems (e.g., avionics, engines, and sensors). This includes flight testing and the testing involving pre- and post-flight preparation and processing of the air vehicle. Unmanned air vehicles and cruise missiles are included.

3.2.A Supersonic Airspace (MV II) - Measure of Merit: *Extent of range size to support weapon system requirements.*

-3.2.A.1 Do supersonic corridors or areas exist? Yes/no. NA

-3.2.A.2 Where are they located relative to your airfield? NA

-3.2.A.3 At what altitude (upper and lower altitude)? NA

-3.2.A.4 Over land or water? What size and shape (length and width)? NA

-3.2.A.5 Are there restrictions you must observe to use this space? Yes/no. If yes, explain. NA

-3.2.A.6 What is the maximum number of simultaneous users? NA

-3.2.B Airfield and Facility Characteristics (MV II) - Measure of Merit: *Extent of air vehicle infrastructure to support T&E operations.*

-3.2.B.1 Provide a brief description of your airfield and support facilities, to include the following: number and azimuth of runways, elevation, runway length (excluding overrun), overrun length, terminal and/or landing aids, arresting cable (yes/no, type), ramp area (in square feet), construction material (runway and ramps), load capability, and hangar space. NA

-3.2.B.2 How close and how many emergency runways or airfields are in your area of operation? NA

-3.2.B.3 Where is your airfield situated relative to working areas (airspace) for supporting test operations? NA

-3.2.B.4 What makes your airfield unique or at least suited for supporting test operations? NA

-3.2.B.5 Is there a size, weight, maintenance or mission limitation that would affect test operations? If so, describe the limitation(s). NA

-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? NA

-3.2.C Test Operations (MV II) - Measure of Merit: *Extent of T&E operations that the airspace can accommodate.*

-3.2.C.1 What types of air vehicle testing (fixed wing, rotary wing, unmanned vehicles, and cruise missiles) can be supported? (e.g. performance, handling qualities, fatigue life, static, wheels and brakes, physical integration with external stores or avionics) NA

-3.2.C.2 Do ground support facilities exist for pre-flight checkout or rehearsal of test missions? NA

-3.2.C.3 What kinds, numbers of aircraft and mix can be supported (manned and unmanned)? NA

-3.2.C.4 Does UAV and or rotary wing operations pose any limitation on other types of missions? If yes, explain. NA

-3.2.C.5 What sorts of missions (e.g. air-to-air, air-to-ground and refueling) can be flown within local airspace? NA

-3.2.C.6 What is the maximum number of simultaneous missions you can support that require telemetry? NA

-3.2.C.7 What is the largest number of simultaneous test missions you have supported in your airspace? NA

-3.2.C.8 Identify the number, types, and owners of aircraft at your installation. NA

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.

GENERAL INFORMATION. This section will describe the following capabilities:

Electronic Warfare Technical Capability.

Facility/Capability:	AN/ULQ-13 Signal Simulator/Trainer Van
Origin Date:	04/29/94
Military Department:	N
Organization/Activity:	Crane Division, Naval Surface Warfare Center
Location (2):	Norfolk, VA; San Diego, CA
UIC:	12255
T&E Functional Area:	Electronic Combat
T&E Test Facility Category:	Open Air Range (OAR)

Facility/Capability:	AN/ULM-4 Electronic Countermeasures Test Set
Origin Date:	04/29/94
Military Department:	N
Organization/Activity:	Crane Division, Naval Surface Warfare Center
Location (6):	Norfolk, VA; San Diego, CA; Mayport, FL; Puget Sound, WA; Barbers Point, Hawaii; Yokosuka, Japan
UIC:	12255
T&E Functional Area:	Electronic Combat
T&E Test Facility Category:	Open Air Range (OAR)

3.3.A Threat Environment (MV I) - Measure of Merit: *Extent to which the capability satisfies weapon system requirements.*

-3.3.A.1 What is the number of threats simulated?

Electronic Warfare Technical Capability. The AN/ULQ-13 Signal Simulator/Trainer Portable Van is capable of simulating over 100 threats, including Surface Search Radars, and Anti-ship missiles launched from both Surface and Air platforms.

The AN/ULM-4 Electronic Countermeasures Test Set is capable of simulating over 100 threats, including Surface Search Radars, and Anti-ship missiles launched from both Surface and Air platforms.

-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?

Electronic Warfare Technical Capability. The AN/ULQ-13 Signal Simulator/Trainer is capable of simulating 32 simultaneous threats. The available threat types are: Shipboard and land based Search Radars (Azimuth Scan, Spiral Scan, Conical Scan, Height Finder and Raster Scan) and both Surface and Air launched Anti-ship missiles. The signal density is 32 at a power level greater than 10 Kilowatts. The signals are C-Band, X-Band and Ku-Band. These signals are radiated (open air range).

The AN/ULM-4 Electronic Countermeasures Test Set is capable of simulating 2 simultaneous threats. The available threat types are: Shipboard and land based Search Radars (Azimuth Scan, Spiral Scan, Conical Scan, Height Finder and Raster Scan) and both Surface and Air launched Anti-ship missiles. The signal density is 2 at a power level greater than 100 Megawatts. The signals are in X-Band and Ku-Band. These signals are radiated (open air range).

-3.3.A.3 Are the threat software models and simulators (software/hardware) validated? Yes/no. If yes, by whom?

Electronic Warfare Technical Capability. No, this hardware is made up of commercial equipment which the internal technical staff validate.

-3.3.A.4 Do you conduct open loop testing? Reactive? Closed loop? Yes/no for each.

Electronic Warfare Technical Capability. All three types--open loop, reactive, and closed loop--of testing are conducted.

-3.3.A.5 What is the threat representation (fidelity) and density?

Electronic Warfare Technical Capability. Unknown.

-3.3.A.6 Are you capable of simulating land threats? Sea threats? Combined land/sea threats? Yes/no. If yes, describe.

Electronic Warfare Technical Capability. Capable of simulating all three types of threats. The available threat types are: Shipboard and land based Search Radars (Azimuth Scan, Spiral Scan, Conical Scan, Height Finder and Raster Scan) and both Surface and Air launched Anti-ship missiles.

-3.3.A.7 What geographic dispersion can be simulated?

None

-3.3.A.7.A Threat lay down?

Electronic Warfare Technical Capability. Unknown

-3.3.A.7.B Representative distance?

Electronic Warfare Technical Capability. 0 to 20 nautical miles.

-3.3.A.8 Are the threats moveable (i.e.dynamic) within a test scenario? relocatable to new scenarios? yes/no

Electronic Warfare Technical Capability. The ULM-4 sites are fixed, land based sites. The AN/ULQ-13 is a fully portable, reprogrammable, self-contained van.

-3.3.A.9 Is the facility interlinked with off-site threats? Yes/no. If yes, how are you linked?

Electronic Warfare Technical Capability. No.

-3.3.A.10 Is there a limit on simultaneous users? Yes/no. If no, explain.

Electronic Warfare Technical Capability. Yes

3.3.B Test Article Support (MV II) - Measure of Merit: *Extent to which test support satisfies weapon system test requirements.*

-3.3.B.1 Is there a size, weight, or other limitation on test operations the facility can support? Yes/no. If so, identify the limits and measures to remove them.

Electronic Warfare Technical Capability. No.

-3.3.B.2 What is the number of simultaneous countermeasures that can be evaluated?

Electronic Warfare Technical Capability. The simultaneous Electronic Countermeasures engagements from deployed Surface Electronic Warfare Systems can be evaluated.

-3.3.B.3 What range of spectra can be tested and evaluated?

Electronic Warfare Technical Capability. The range is 6 to 18 Gigahertz (GHz).

-3.3.B.4 What are the available spectra?

Electronic Warfare Technical Capability. The available spectra is 0 Hertz (hz) to 33 Gigahertz (GHz).

-3.3.B.5 Do you have a scene generation capability? Yes/no. If yes, describe.

Electronic Warfare Technical Capability. No.

3.4 ARMAMENTS / WEAPONS

This functional area includes facilities involved in the testing of the weapons portion of a weapon system. In those cases where the weapon system is composed almost exclusively of the weapon, it may include system-level and platform integration testing. In other cases, it addresses just the weapon subsystem (e.g., guidance and control, propulsion, warheads, and airframe), while the testing of the weapon system's vehicle is in another functional area.

3.4.A Directed Energy (MV II) - Measure of Merit: *Extent to which the facility satisfies directed energy weapon system test requirements.*

This includes testing of all types of directed energy weapons.

-3.4.A.1 Do you currently test directed energy weapon systems? Yes/no. No

If yes, explain. Describe the power source(s) you have available. What is your maximum downrange distance?

3.4.B Rocket / Missile / Bomb Systems (MV II) - Measure of Merit: *Extent capability satisfies weapon system test requirements.*

This includes the testing of all types of rocket, missile, and bomb systems at the system/subsystem/component level, both stand alone and integrated into the launch platform. This includes testing of air-to-air, air-to-surface, and surface-to-air missiles.

-3.4.B.1 Ground Space

-3.4.B.1.A What is the area in square miles of the land and water space which you can use to conduct tests of live rocket, missile, or bomb systems? NA

-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. NA

-3.4.B.1.C What are the maximum ranges (nautical miles) you can test, by type weapon? NA

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: NA

--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. NA

-3.4.B.2.C If no missions were scheduled in a category, give the reason(s). NA

-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. NA

ATTACHMENT A

ELECTRONIC WARFARE TECHNICAL CAPABILITY

FACILITY CONDITION

Includes all or portion of space in following buildings:
Buildings 2, 41, 121, 2068, 3168, 3224

HISTORICAL WORKLOAD

DETERMINATION OF UNCONSTRAINED CAPACITY

GENERAL INFORMATION

TECHNICAL INFORMATION

ADDITIONAL INFORMATION

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Electronic Warfare Facility

AGE: 20 years REPLACEMENT VALUE: $96 Million

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1994

NATURE OF LAST UPGRADE: Test Bed Installation
Purpose: Electronic Countermeasure Engineering Support
Capability: System Testing
Available: May 1994

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: MILCON P-266

   TOTAL PROGRAMMED AMOUNT: $8 Million
   SUMMARY DESCRIPTION: Electronic Warfare Facility

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2 - Microwave Systems & Components

AGE: 51 years REPLACEMENT VALUE: $190,400

MAINTENANCE AND REPAIR BACKLOG: $27,000

DATE OF LAST UPGRADE: None

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 41 - Electronics T & E

AGE: 51 years REPLACEMENT VALUE: $1,702,500

MAINTENANCE AND REPAIR BACKLOG: $132,400

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Installed medium weight shock machine

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: MILCON P-266, Electronic Countermeasures Center

   TOTAL PROGRAMMED AMOUNT: $10,000,000
   SUMMARY DESCRIPTION: Construct 72,000 SF for SLQ-32 Test and evaluation.

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 121- Electronics T & E

AGE: 52 years REPLACEMENT VALUE: $578,300

MAINTENANCE AND REPAIR BACKLOG: $14,600

DATE OF LAST UPGRADE: None

NATURE OF LAST UPGRADE:
MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2068 - Ram Air Turbine Generator

AGE: 38 years REPLACEMENT VALUE: $431,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1991

NATURE OF LAST UPGRADE: Installation of Ram Air Turbine Generator facility in the building. Electrical upgrade and air intake installed.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3168 - Fleet Microwave Support Center

AGE: 5 years REPLACEMENT VALUE: $85,200

MAINTENANCE AND REPAIR BACKLOG: $1,665

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Installation of data communications cable, installed water deionization unit, installed light weight shock machine, installed loading dock leveler and installed wall for isolation of file server.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3224 - Radar Components Building

AGE: 2 years REPLACEMENT VALUE: $186,000

MAINTENANCE AND REPAIR BACKLOG: None

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:

Rev.

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Electronic Warfare Facility

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR	8122	8122	12071	10537	11642	13177	18005	16471
	TEST HOURS	4061	4061	5235	5268	5821	6588	9002	8235
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE: Direct Labor and Test hours are associated with T& E function only.

R

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Electronic Warfare Facility

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR	8122	8122	12,071	10,537	11,642	13,177	18,005	16,471
	TEST HOURS	4061	4061	5235	5268	5821	6588	9002	8235
	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: Electronic Warfare Facility

ANNUAL HOURS OF DOWNTIME	1	576
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	1.58
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	22.42

TEST TYPES	TESTS AT ONE TIME	WORKLOAD PER TEST PER FACILITY HOUR	WORKLOAD PER FACILITY HOUR	UNCONSTRAINED ANNUAL CAPACITY PER DAY (LINE 3 X TOTAL Σ)	ANNUAL UNCONSTRAINED CAPACITY
4	5	6	7	8	9
Compatibility	1	4	4	515.7	188,230
Verification	1	2	2		
Failure Analysis	1	2	2		
TWT	2	2	4		
RAT GEN	1	5	5		
Elect. Components	1	2	2		
ATP	1	2	2		

"TYPICAL"	1	2	2

TOTAL Σ 23

GENERAL INFORMATION

Facility/Capability Title: Electronic Warfare Facility

Origin Date: 25 April 1994

Service: N	Organization/Activity: NSWCCD			Location: Crane Indiana			
T&E Functional Area: Electronic Combat				UIC = N00164			
T&E Test Facility Category: MF							
	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
Percentage Use:	70	0	5	15	10	0	100
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/Weapons							
EC	70	0	5	15	10	0	100
Other							
Total in Breakout Must Equal "Percentage Use" On First Line							

TECHNICAL INFORMATION

Facility/Capability Title: ELECTRONIC WARFARE FACILITY

Facility Description; Including mission statement: Provides test and evaluation facilities for performing engineering and logistic support, maintenance, alteration, repair and fabrication of electronic warfare and surveillance systems, subsystems, and components.
Interconnectivity/Mulit-Use of T&E Facility: NA
Type of Test Supported: System capatibility testing and component acceptance testing.
Summary of Technical Capabilities: 1. Anechoic chamber for Electromagnetic Interference testing, Engineering, and antenna pattern measurements. 2. Electronic Countermeasures System for system improvement evaluation (ECPs) and failure analysis. 3. High power testing and evaluation of microwave components, e.g. TWTs. 4. RAM Air Turbine Generator (RAT GEN)Test and Evaluation (Wind Tunnel - 320 Knots)
Keywords: Anechoic Chamber, RAM Air Turbine Generator (Wind Tunnel), High Power TWT Tester, Failure Analysis, ECP Development and Review.

ADDITIONAL INFORMATION

Facility/Capability Title: Electronic Warfare Center

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted	0	2	2	2	2	2	2
Civilian	12	11	8	8	8	8	8
Contractor	2	2	0	0	0	0	0
Total	14	15	10	10	10	10	10

Total Square Footage: 49,500

Test Area Square Footage: 29,500

Office Space Square Footage: 20,000

Tonnage of Equipment: 665 Tons

Volume of Equipment: 219,000 cu. ft.

Annual Maintenance Cost: $205,000

Estimated Moving Cost: $1,000K

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$150K	$65K	$700K	$350K	$350K	$350K	$350K

ATTACHMENT B

CONVENTIONAL AMMUNITION TECHNICAL CAPABILITY

FACILITY CONDITION

Includes all or portion of space in following buildings: Buildings 363, 364, 684, 881, 3115, 2986, 2987, 108, 142, 365, 3076, 3077, 99, 109, 143, 2418, 180, 2921, 2951, 2964, 3007, 3082

HISTORICAL WORKLOAD

DETERMINATION OF UNCONSTRAINED CAPACITY

GENERAL INFORMATION

TECHNICAL INFORMATION

ADDITIONAL INFORMATION

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: CONVENTIONAL AMMUNITION FACILITY (SUMMARY)

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: _____

NOTE: Pages 1 - 8 of Attachment B describe the sum total of the Conventional Ammunition Facility Complex. This includes the Missile Fuze Test Facility, the Ordnance Radiographic Facility, the Ordnance and Component Evaluation Facility, the FBM Ordnance Components Test Facility and the Ordnance Environmental Test Facility.

R

FACILITY CONDITION

Facility/Capability Title: CONVENTIONAL AMMUNITION FACILITY (SUMMARY)

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: CONVENTIONAL AMMUNITION FACILITY (SUMMARY)

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	205.5	205.6	220.6	213.7	218.3	226.0	230.4	220.3
	TEST HOURS	70.2	69.8	77.5	76.2	78.3	80.8	78.5	77.1
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE:DIRECT LABOR AND TEST HOURS ARE ASSOCIATED WITH T&E FUNCTION ONLY.

R

HISTORICAL WORKLOAD

Facility/Capability Title: CONVENTIONAL AMMUNITION FACILITY (SUMMARY)

		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	205.5	205.6	220.6	213.7	218.3	226.0	230.4	220.3
	TEST HOURS	70.2	69.8	77.5	76.2	78.3	80.8	78.5	77.1
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

Facility/Capability Title: CONVENTIONAL AMMUNITION FACILITY (SUMMARY)

ANNUAL HOURS OF DOWNTIME	1 SEE INDIVIDUAL
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2 FACILITY SHEETS AND
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3 THE NOTE BELOW

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
				ANNUAL UNCONSTRAINED CAPACITY
				9
				NOTE: The Unconstrained Capacity of either the Ordnance Radiographic Facility or the Ordnance Environmental Test Facility limits the Unconstrained capacities of the other facilities.
"TYPICAL"				
		TOTAL Σ		

GENERAL INFORMATION

Facility/Capability Title: CONVENTIONAL AMMUNITION FACILITY (SUMMARY)

Origin Date: 04/30/94

Service: Navy	Organization/Activity: Naval Surface Warfare Center Crane Division	Location: Crane, IN
T&E Functional Area: Armament/Weapons	UIC = N00164	
T&E Test Facility Category: Hardware-In-The-Loop		

	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
Percentage Use:	100						
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/ Weapons	100						
EC							
Other							
Total in Breakout Must Equal "Percentage Use" on First Line							

TECHNICAL INFORMATION

Facility/Capability Title: CONVENTIONAL AMMUNITION FACILITY (SUMMARY)

Facility Description; Including mission statement: NSWC Crane Conventional Ammunition Test and Evaluation work is housed in 15 test buildings with a total of 100,000 square feet. In addition there are 78 explosive storage magazines (including CAT I & II) with 167,000 square feet of space. Crane also has 88 acres of unencumbered ordnance testing area with access to another 140 acres for ordnance disposal and reclamation efforts co-located with the Crane Army Ammunition Activity. These state of the art facilities are fully operational and designed to meet future projected needs. The mission is to provide life cycle test and evaluation capability for Navy conventional ammunition.
Interconnectivity/Multi-Use of T&E Facility: The Conventional Ammunition facilities are integral parts of many of the technical capabilities of the Division. In particular, the Ordnance Radiographic Facility and the Environmental Test facility are utilized by the Pyrotechnics, Electrochemical Power Sources and Acoustic Sensors T.C.'s as well as the Crane Army Ammunition Activity. The Conventional Ammunition TC also utilizes the facilities of other TC's, especially the Ordnance Test Area and the Ordnance Materials Analysis Laboratory.
Type of Test Supported: Lot Acceptance Testing; Surveillance Testing; Development Testing (limited); Failure Analysis and Special Tests
Summary of Technical Capabilities: See Attached Sheets
Keywords: Ordnance Testing; Fully Operational; Future Needs

SUMMARY OF TECHNICAL CAPABILITIES
CONVENTIONAL AMMUNITION FACILITY

The Ordnance Environmental Test and Radiographic facilities provide the capability for all required testing to certify ordnance items safe and reliable for Fleet use; vibration, shock, temperature, humidity, altitude, jolt, jumble, sunshine, rain, sand, dust, and salt spray testing are available in the facility. The radiographic facility provides up to 10 MEV beam strength and real time X-ray facilities. This is a dual use facility with the pyrotechnics technical capability.

The Missile Fuze Test Laboratory provides the necessary facilities for testing a wide variety of missile fuzing components (warhead section components). Equipment used includes centrifuge, burn rate/velocity tester, active optical test ranges, leak detectors and many specialized pieces of equipment. This test equipment supports production acceptance, surveillance, and maintenance of these fuzing components. Approximately 25 missiles are supported. This effort supports the Navy as well as joint programs with the Air Force, Army, Foreign Military Sales and private parties.

The Lake Glendora Underwater Explosive Test Facility is a Navy owned lake covering 330 acres, with a depth of 120 feet. This test facility is an extremely valuable addition to the other facilities used in the development and testing of special purpose munitions and demolition devices used by the EOD and Navy Seal Teams. It has demonstrated cost savings of 50% for the same type of efforts at other Government and contractor facilities. This site also offers the potential of training for the Navy Seal teams.

The Proximity Fuze Free Space Facility (10,000 ft reflectivity plane) is the certified Navy Standard used to establish the electronic values of Radio Frequency Fuze Standard Monitors. These Standard Monitors are used for correlation of systems used in production and testing of Proximity Fuzes by both the private and public sectors. Radio Frequency Proximity Fuzes are used on all the major caliber ammunition in the Navy stockpile.

The Ordnance Components Test Laboratory provides the facilities for lot acceptance and surveillance testing of numerous ordnance components and sub-assemblies as well as small explosives devices. The facility has test cells which provide capability for controlled and monitored function testing of components. Test cells are also equipped for failure analysis. Ordnance items tested in the facilities include demolition devices, fuzes, linear explosives, detonators and offboard countermeasures.

Fleet Ballistic Missile, Ordnance Components Test Laboratory provides support to the Fleet Ballistic Missile Strategic Weapons system ordnance evaluation programs throughout the life cycle of the Trident I and II Missiles. This is accomplished through the design manufacture of ordnance test systems and the test and evaluation of missile ordnance components utilized in the Launch, Missile Body and Reentry Systems. This facility is unique in respect to its design, construction and safety site approval which allows ordnance components and assemblies to be destructively tested safely. This building allows explosive operations and still meet the quantity-distance requirements of NAVSEA OP-5.

Ordnance Ready Magazine Storage in Support of Ordnance Engineering Directorate provides ordnance receiving, shipping, and storage for the various programs of the Directorate. The facilities are used to receive a wide variety of ammunition and explosives for the Directorate.

After receipt, the ordnance is either forwarded immediately to the user or placed in storage magazines temporarily until ready for evaluation. Total number of magazines is 37 with 57,400 sq ft of storage space.

ADDITIONAL INFORMATION

Facility/Capability Title: CONVENTIONAL AMMUNITION FACILITY (SUMMARY)

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	110	103	96	90	88	87	86
Contractor	5	6	4	4	4	4	4
Total	115	109	100	94	92	92	92

Total Square Footage: 100,788

Test Area Square Footage: 89,260 Office Space Square Footage: 11,528

Tonnage of Equipment: 267.1 Volume of Equipment: 151,636

Annual Maintenance Cost: $1,080,000 Estimated Moving Cost: $2,286,000

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$965,000	$841,000	$1,817,000	$994,000	$1,255,000	$710,000	$550,000

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 363 - Guided Missile Fuse Components Test and Evaluation

AGE: 52 years REPLACEMENT VALUE: $780,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1992

NATURE OF LAST UPGRADE: Major interior renovation for testing operations. Installation of explosive test cells.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 364 - AO Life Cycle Maintenance

AGE: 52 years REPLACEMENT VALUE: $562,000

MAINTENANCE AND REPAIR BACKLOG: $1,311

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Major interior renovation for testing and evaluation operations and addition of restrooms.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 684 - HI-X Magazine

AGE: 52 years REPLACEMENT VALUE: $109,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

NATURE OF LAST UPGRADE:
MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 881 - HI-X Magazine

AGE: 52 years REPLACEMENT VALUE: $109,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

NATURE OF LAST UPGRADE:
MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3115 - Branch Engineering Offices

AGE: 9 years REPLACEMENT VALUE: $147,000

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: MISSILE FUZE TEST FACILITY

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	35	42	49	52	49	56	56	57
	TEST HOURS	7	8.4	10	10	10	11	11	11
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE:DIRECT LABOR AND TEST HOURS ARE ASSOCIATED WITH T&E FUNCTION ONLY.

R

HISTORICAL WORKLOAD

Facility/Capability Title: Missile Fuze Test Facility

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	35	42	49	52	49	56	56	57
	TEST HOURS	7	8.4	10	10	10	11	11	11
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

Facility/Capability Title: Missile Fuze Test Facility

ANNUAL HOURS OF DOWNTIME	1	708
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	1.94
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	22.06

TEST TYPES	TESTS AT ONE TIME	WORKLOAD PER TEST PER FACILITY HOUR	WORKLOAD PER FACILITY HOUR	UNCONSTRAINED CAPACITY PER DAY
4	5	6	7	(LINE 3 X TOTAL Σ) 8

Missile Fuze Lot Acceptance tests are contract specific and vary significantly in the quantity of items tests, the tests performed, and the length of time required to complete the testing sequence (30 to 60 days). Surveillance projects are individually tailored (item specific) to evaluate performance parameters of concern. Additionally the type and number of tests at one time are dependent on the net explosive weight of the item(s) under test, the classification of the explosives, and the compatibility of the explosives. Therefore the annual unconstrained capacity was determined by comparison of the work efforts of a five day, one shift operation for FY 93:

ANNUAL UNCONSTRAINED CAPACITY

number of days / number of days X hours available/day / 8 hrs/shift X 1 / FY93 Utilization rate =

$$\frac{7}{5} \times \frac{22.06}{8} \times \frac{1}{.55} = 7.02 \times \text{FY93 Workload}$$

FY93 Workload = 50 Lot Acceptance Tests and 8 Surveillance Projects

Unconstrained Capacity = 7.02 X 50 = 351 Lot Acceptance Tests and
7.02 X 8 = 56 Surveillance Projects

GENERAL INFORMATION

Facility/Capability Title: Missile Fuze Test Facility

Origin Date: 04/29/94

Service: Navy	Organization/Activity: Naval Surface Warfare Center Crane Division	Location: Crane, IN
T&E Functional Area: Armament/Weapons	UIC = N00164	
T&E Test Facility Category: Hardware-In-The-Loop		

	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
Percentage Use:	100						
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/ Weapons	100						
EC							
Other							
Total in Breakout Must Equal "Percentage Use" on First Line							

TECHNICAL INFORMATION

Facility/Capability Title: Missile Fuze Test Facility

Facility Description; Including mission statement: Perform Acceptance Evaluation on new Production Missile Fuzes and Life Cycle Surveillance Evaluation on existing stockpile of Missile Fuzes to assure safe and highly reliable ordnance is available for use. The Missile Fuze Test Laboratory provides the necessary facilities for evaluating explosive and non-explosive Missile Fuzing components. Approximately 25 missile systems are supported. This effort supports the Navy as well as joint programs with the Air Force, Army, Foreign Military Sales and Private Parties.
Interconnectivity/Multi-Use of T&E Facility: This facility is supported by the resources of the Ordnance Environmental Test Facility, Ordnance Radiographic Facility and the Ordnance Materials Analysis Laboratory. The facility is also supported by the Ordnance Storage Capability.
Type of Test Supported: Production Lot Acceptance Testing; Life Cycle Surveillance Testing
Summary of Technical Capabilities: See Attached Sheet
Keywords: Acceptance Evaluation; Joint Programs; Private Parties; AOTD (Active Optical Target Detector)

SUMMARY OF TECHNICAL CAPABILITIES
MISSILE FUZE TEST FACILITY

The laboratory consists of two side by side (10,000 square foot each) masonry buildings and a 40' by 40' equipment enclosure which is located inside another building.

TEST CAPABILITY	EQUIPMENT AVAILABLE
Leak Detection	3 Leak Detectors
Electrical	Electrical Console
Thermal Transient	Test Console
Arming	Various Consoles & Centrifuge
Burn Rate/Velocity	Test Console and Chamber
Output Functioning	Chambers and various functioning boxes
Failure Analysis	Various
Solder/Desolder	Induction Solderer
AOTD Test Ranges	Test Consoles and Ranges
Painting	Spray booth
Dry Room for assembly	Dry Room

The facility utilizes lightning protection and ordnance grounding to provide operators protection from accidental explosion of items under test. Facility meets OP-5 "Quantity Distance" requirements for explosive operations. One area meets requirements for leaving classified hardware out at all times (items under test).

ADDITIONAL INFORMATION

Facility/Capability Title: Missile Fuze 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	29	29	23	23	23	23	23
Contractor	4	4	2	2	2	2	2
Total	33	33	25	25	25	25	25

Total Square Footage: 23,600

Test Area Square Footage: 20,600 Office Space Square Footage: 3,000

Tonnage of Equipment: 32.9 Volume of Equipment: 48,405 cu ft

Annual Maintenance Cost: $125,000 Estimated Moving Cost: $364,000

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$611,000	$85,000	$505,000	$190,000	$80,000	$200,000	$150,000

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2986 - Sample Preparation Building

AGE: 20 years REPLACEMENT VALUE: $115,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Installation of fire protection and grounding.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2987 - X-ray Building

AGE: 19 years REPLACEMENT VALUE: $1,020,000

MAINTENANCE AND REPAIR BACKLOG: $81,000

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Installation of security fencing around the entire facility.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: ORDANCE RADIOGRAPHIC FACILITY

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	8.8	8.8	8.8	8.8	8.8	8.8	8.8	10.6
	TEST HOURS	7	7	6.5	7	7	7.5	7.9	8.8
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE:DIRECT LABOR AND TEST HOURS ARE ASSOCIATED WITH T&E FUNCTION ONLY.

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HISTORICAL WORKLOAD

Facility/Capability Title: Ordnance Radiographic Facility

T&E FUNCTIONAL AREA		FISCAL YEAR							
		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	8.8	8.8	8.8	8.8	8.8	8.8	8.8	10.6
	TEST HOURS	7.0	7.0	6.5	7.0	7.0	7.5	7.9	8.8
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

Facility/Capability Title: Ordnance Radiographic Facility

ANNUAL HOURS OF DOWNTIME	1 488	R
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2 1.34	R
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3 22.66	R

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

Radiography tests are requestor specific and vary significantly in the quantity of exposures required. Additionally, the type and number of tests at one time are dependent on the net explosive weight of the item(s) under test, the classification of the explosives, and the compatibility of the explosives. Therefore the annual unconstrained capacity was determined by comparison of the work efforts of a five day, one shift operation for FY 93:

ANNUAL UNCONSTRAINED CAPACITY

$$\frac{\text{number of days}}{\text{number of days}} \times \frac{\text{hours available/day}}{\text{8 hrs/shift}} \times \frac{1}{\text{FY93 Utilization rate}} =$$

$$\frac{7}{5} \times \frac{22.66}{8} \times \frac{1}{.95} = 4.17 \times \text{FY93 Workload}$$

FY93 Workload = 22679 Exposures

Unconstrained Capacity = 4.17 X 22679 = 94571 Exposures

Revised pg

DETERMINATION OF UNCONSTRAINED CAPACITY

Facility/Capability Title: Ordnance Environmental Test Facility

ANNUAL HOURS OF DOWNTIME	1	1008	R
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	2.76	R
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	21.24	R

TEST TYPES	TESTS AT ONE TIME	WORKLOAD PER TEST PER FACILITY HOUR	WORKLOAD PER FACILITY HOUR	UNCONSTRAINED CAPACITY PER DAY
4	5	6	7	(LINE 3 X TOTAL Σ) 8

Ordnance Environmental Tests are requestor specific and vary significantly in the quantity of items tests, the tests performed, and the length of time required to complete the testing sequence (30 to 60 days). Additionally, the type and number of tests at one time are dependent on the net explosive weight of the item(s) under test, the classification of the explosives, and the compatibility of the explosives. Therefore the annual unconstrained capacity was determined by comparison of the work efforts of a five day, one shift operation for FY 93:

ANNUAL UNCONSTRAINED CAPACITY

$$\frac{\text{number of days}}{\text{number of days}} \times \frac{\text{hours available/day}}{\text{8 hrs/shift}} \times \frac{1}{\text{FY93 Utilization rate}} =$$

$$\frac{7}{5} \times \frac{21.24}{8} \times \frac{1}{.75} = 4.96 \times \text{FY93 Workload}$$

FY93 Workload = 795 Test Requests

Unconstrained Capacity = 4.96 X 795 = 3943 Test Requests

DETERMINATION OF UNCONSTRAINED CAPACITY

Facility/Capability Title: Ordnance Radiographic Facility

ANNUAL HOURS OF DOWNTIME	1	708
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	1.94
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	22.06

TEST TYPES	TESTS AT ONE TIME	WORKLOAD PER TEST PER FACILITY HOUR	WORKLOAD PER FACILITY HOUR	UNCONSTRAINED CAPACITY PER DAY
4	5	6	7	(LINE 3 X TOTAL Σ) 8

Radiography tests are requestor specific and vary significantly in the quantity of exposures required. Additionally, the type and number of tests at one time are dependent on the net explosive weight of the item(s) under test, the classification of the explosives, and the compatibility of the explosives. Therefore the annual unconstrained capacity was determined by comparison of the work efforts of a five day, one shift operation for FY 93:

ANNUAL UNCONSTRAINED CAPACITY

number of days X hours available/day X 1 =
number of days 8 hrs/shift FY93 Utilization rate

$\frac{7}{5} \times \frac{22.66}{8} \times \frac{1}{.95}$ = 4.17 X FY93 Workload

FY93 Workload = 22679 Exposures

Unconstrained Capacity = 4.17 X 22679 = 94571 Exposures

GENERAL INFORMATION

Facility/Capability Title: Ordnance Radiographic Facility

Origin Date: 4/29/94

Service: Navy	Organization/Activity: Naval Surface Warfare Center Crane Division	Location: Crane, IN
T&E Functional Area: Armament/Weapons	UIC = N00164	
T&E Test Facility Category: Hardware-In-The-Loop		

	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
Percentage Use:	100						
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/ Weapons	100						
EC							
Other							
Total in Breakout Must Equal "Percentage Use" on First Line							

TECHNICAL INFORMATION

Facility/Capability Title: Ordnance Radiographic Facility

Facility Description; Including mission statement: The radiography facility is a 7000 square foot reinforced concrete structure. It's remote location complies with quantity-distance requirements allowing the testing of explosive loaded ordnance systems and components. The mission of the facility is to perform X-ray of ordnance items and components, the majority of which contain explosives. The purpose is to assure that a safe, reliable and high quality product is available for use. Both lot acceptance of new products and life cycle surveillance items are subject to X-ray examination. This can be done independently or in conjunction with other test (such as Environmental testing) to establish a base line and to determine any change after test.
Interconnectivity/Multi-Use of T&E Facility: This facility is a dual use facility for both conventional ammunition and pyrotechnics. Additionally, support is provided to the Crane Army Ammunition Activity as requested.
Type of Test Supported: Lot Acceptance Tests; Life Cycle Surveillance; Special Tests
Summary of Technical Capabilities: See Attached Sheet
Keywords: X-Ray; Explosive Loaded Ordnance; Safe; Baseline

SUMMARY OF TECHNICAL CAPABILITIES
ORDNANCE RADIOGRAPHIC FACILITY

The Radiographic Facility utilizes the following systems to support its mission:

EQUIPMENT AVAILABLE
1 Real Time System (75-160 kv)
3 Mid Energy Systems (80-420 kv)
1 High Energy Linatron 2000 accelerator with power ranges of 5.5, 8 and 10 mev.
Film Viewers, film processors, etc., cranes, hoist, etc.

The equipment of the facility is shielded to provide operators protection from radiation. Siting 15 DDESB approved for net explosive weight stored and handled; Individual operations are isolated and separated by substantial dividing walls to reduce the potential for personal injury or death in an explosive incident. The building has a lightning protection system, a static ground system and an ordnance ground system.

ADDITIONAL INFORMATION

Facility/Capability Title: Ordnance Radiographic 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	5	6	5	5	5	5	5
Contractor	1	1	1	1	1	1	1
Total	6	7	6	6	6	6	6

Total Square Footage: 7,000

Test Area Square Footage: 6,800 Office Space Square Footage: 200

Tonnage of Equipment: 13.5 Volume of Equipment: 10,500 cu ft

Annual Maintenance Cost: $160,000 Estimated Moving Cost: $190,000

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$145,000	$342,000	$895,000	$115,000	$100,000	$55,000	$85,000

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 108 - Operations Building

AGE: 52 years REPLACEMENT VALUE: $704,000

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: 1983

NATURE OF LAST UPGRADE: Interior renovations for the upgrade of operations within the building.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 142 - Test and Evaluation Building

AGE: 51 years REPLACEMENT VALUE: $1,539,400

MAINTENANCE AND REPAIR BACKLOG: $29,420

DATE OF LAST UPGRADE: 1989

NATURE OF LAST UPGRADE: Addition to building for shipping and receiving test materials. Initial inspection of incoming materials. Installation of fire detection system.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 365 - Countermeasures/Gun Ammo T & E

AGE: 52 years REPLACEMENT VALUE: $556,000

MAINTENANCE AND REPAIR BACKLOG: $20,000

DATE OF LAST UPGRADE: 1990

NATURE OF LAST UPGRADE: Major renovations of building for testing operations. Installatin of explosive test cells.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3076 - Ready Magazine

AGE: 13 years REPLACEMENT VALUE: $15,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

NATURE OF LAST UPGRADE:
MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3077 - Ready Magazine

AGE: 13 years REPLACEMENT VALUE: $15,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

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: ORDANCE AND COMPONENT EVALUATION FACILITY (OCEE)

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	37.0	38.7	37.0	37.8	47.0	48.6	51.9	47.5
	TEST HOURS	17.6	17.6	17.6	17.6	21.1	22.9	24.6	22.9
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE:DIRECT LABOR AND TEST HOURS ARE ASSOCIATED WITH T&E FUNCTION ONLY.

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HISTORICAL WORKLOAD

Facility/Capability Title: Ordnance and Component Evaluation Facility (OCEF)

		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	37.0	38.7	37.0	37.8	47.0	48.6	51.9	47.5
	TEST HOURS	17.6	17.6	17.6	17.6	21.1	22.9	24.6	22.9
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

Facility/Capability Title: Ordnance and Component Evaluation Facility (OCEF)

ANNUAL HOURS OF DOWNTIME	1 708
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2 1.94
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3 22.06

TEST TYPES	TESTS AT ONE TIME	WORKLOAD PER TEST PER FACILITY HOUR	WORKLOAD PER FACILITY HOUR	UNCONSTRAINED CAPACITY PER DAY
4	5	6	7	(LINE 3 X TOTAL Σ) 8

Conventional Ammunition Lot Acceptance tests are contract specific and vary significantly in the quantity of items tests, the tests performed, and the length of time required to complete the testing sequence (30 to 60 days). Surveillance projects are individually tailored (item specific) to evaluate performance parameters of concern. Additionally the type and number of tests at one time are dependent on the net explosive weight of the item(s) under test, the classification of the explosives, and the compatibility of the explosives. Therefore the annual unconstrained capacity was determined by comparison of the work efforts of a five day, one shift operation for FY 93:

ANNUAL UNCONSTRAINED CAPACITY

$$\frac{\text{number of days}}{\text{number of days}} \times \frac{\text{hours available/day}}{8 \text{ hrs/shift}} \times \frac{1}{\text{FY93 Utilization rate}} =$$

$$\frac{7}{5} \times \frac{22.06}{8} \times \frac{1}{.80} = 4.83 \times \text{FY93 Workload}$$

FY93 Workload = 64 Lot Acceptance Tests and 16 Surveillance Projects

Unconstrained Capacity = 4.83 X 64 = 309 Lot Acceptance Tests and
4.83 X 16 = 77 Surveillance Projects

GENERAL INFORMATION

Facility/Capability Title: Ordnance and Component Evaluation Facility (OCEF)

Origin Date: 04/30/94

Service: Navy		Organization/Activity: Naval Surface Warfare Center Crane Division		Location: Crane, IN			
T&E Functional Area: Armament/Weapons				UIC = N00164			
T&E Test Facility Category: Hardware-In-The-Loop							
Percentage Use:	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
	100						
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/ Weapons	100						
EC							
Other							
Total in Breakout Must Equal "Percentage Use" on First Line							

TECHNICAL INFORMATION

Facility/Capability Title: Ordnance and Component Evaluation Facility (OCEF)

Facility Description; Including mission statement: The OCEF is comprised of two reinforced concrete buildings with 12 individual test cells, a Free Space Facility and an office area. The mission of the facility is to perform Acceptance Evaluation on new Production Ordnance and Life Cycle Surveillance Evaluation on existing stockpile ordnance to assure safe and highly reliable ordnance is available for use. The remote and isolated facility is used to evaluate and/or function explosive and non-explosive components for gun ammunition, small arms, demolition materials, munitions, bomb fuzes, mine fuzes (land), and offboard countermeasures.
Interconnectivity/Multi-Use of T&E Facility: This facility is dependent upon the resources of the Ordnance Environmental Test Facility, the Radiographic Facility, the Materials Analysis Facility, the Ordnance Test Area, and the Ordnance storage capability of the Division to perform its function. Additionally, each of the OCEF buildings (and equipment) is often used by other technical capabilities of the Division to perform appropriate functions.
Type of Test Supported: Lot Acceptance Tests; Surveillance Tests; Failure Analysis Tests
Summary of Technical Capabilities: See Attached Sheets
Keywords: Remote; Isolated; Explosive Test Cells; Navy Certified Standard

SUMMARY OF TECHNICAL CAPABILITIES
ORDNANCE AND COMPONENT EVALUATION FACILITY
(OCEF)

The OCEF technical capabilities include:

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Examples of Test Systems

TEST CAPABILITY	EQUIPMENT
Fuzes Test Systems	2 Safe & Arming Spin System 1 Deboostering Machine 1 Optical Comparator
Function System: Gun Fuzes, Primers All Types, Demolition Items	4 Function Test Chambers 3 Gun Fuze Arm/Spin function Systems 1 Delay function System 50 Caliber Blank System MK 48 Test System M1134 Test System 3 Primer Test System MK 24 Test System MK 22 Test System 1 MT Fuze Torque Machine 1 MK 339 Test System 1 Aux. Det. Drilling Machine 6 Test Cells
Temperature Chambers	5 Chambers
Pressure (under water) for all types of Small Ordnance	2 Pressure Pots
Leak Test System	1 Vacuum Test System
Proximity/Variable Time	2 IR Test System 2 O.A. Test System 2 Battery Test System 3 Rear Fitting Test System
Miscellaneous Electronic and Mechanical Support Test Equipment	

Free Space Test Facility B-2985 and B-2989

The Free Space Test Facility is a certified Navy standard used for the testing of Solid State VT Fuze Monitors. Transfer Standards are created at the beginning of VT Fuze new acquisition contracts, shipped to Crane and tested at the Free Space Test Facility. The Transfer Standards and the data obtained are used to correlate the Contractor's and Crane's VT Fuze test chambers.

TEST CAPABILITY	EQUIPMENT AVAILABLE
Solid State VT Fuze Monitors	Electronic Console, special design
Tube Type VT Fuze Monitors	

Facility Description: The ground plane is 100 ft by 100 ft. It consists of three inches of crushed stone under six inches of concrete. The pad is covered with steel panels electrically connected at the corners. There are three wooden poles 100 ft long each, 10 ft of which is buried in the ground. A metal building approx 12 ft by 12 ft houses the electronic equipment.

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Examples of Test Systems

TEST CAPABILITY	EQUIPMENT AVAILABLE
Function Test: Components From Fuzes, Safe Arming Devices Primers, Detonation, etc.	6 Test Cells 2 Function Chambers 1 Close Bomb Test System 2 Hi-Speed Video Systems
Temperature Component Evaluation	2 Temperature Chambers 1 Optical Comparator 1 Coordinate measuring machine
Leak Test	1 Water Immersion
Miscellaneous Electronic and Mechanical Support Equipment	

ADDITIONAL INFORMATION

Facility/Capability Title: Ordnance and Component Evaluation Facility (OCEF)

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	27	24	26	20	19	19	19
Contractor	0	1	1	1	1	1	1
Total	27	25	27	21	20	20	20

Total Square Footage: 29,260

Test Area Square Footage: 26,144 Office Space Square Footage: 3,116

Tonnage of Equipment: 39.5 Volume of Equipment: 37,700 cu ft

Annual Maintenance Cost: $153,000 Estimated Moving Cost: $863,000

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$169,000	$271,000	$132,000	$155,000	$276,000	$45,000	$100,000

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 99 - Ready Magazine

AGE: 51 years REPLACEMENT VALUE: $33,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1984

NATURE OF LAST UPGRADE: Replaced roof or load dock.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 109 - Shipping and Receiving

AGE: 52 years REPLACEMENT VALUE: $573,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1984

NATURE OF LAST UPGRADE: Interior renovations for the modifications of the structure for small quantity ordnance shipping and receiving. Installed new intrusion detection system.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 143 - Ordnance Test Operations

AGE: 51 years REPLACEMENT VALUE: $5,873,000

MAINTENANCE AND REPAIR BACKLOG: $25,950

DATE OF LAST UPGRADE: 1987

NATURE OF LAST UPGRADE: Addition of 3,500 SF for engineering offices. Contract No. 90-7042.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2418 - Classified Composition Storage

AGE: 48 years REPLACEMENT VALUE: $222,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

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: FLEET BALLISTIC MISSILE ORDNANCE COMPONENTS TEST FACILTY

		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	87.8	79.2	87.1	76.4	74.8	73.9	75.0	70.0
	TEST HOURS	17.6	15.8	17.4	15.3	15.0	14.8	15.0	14.0
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE:DIRECT LABOR AND TEST HOURS ARE ASSOCIATED WITH T&E FUNCTION ONLY.

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HISTORICAL WORKLOAD

Facility/Capability Title: FLEET BALLISTIC MISSILE ORDNANCE COMPONENTS TEST FACILITY

		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	87.8	79.2	87.1	76.4	74.8	73.9	75.0	70.0
	TEST HOURS	17.6	15.8	17.4	15.3	15.0	14.8	15.0	14.0
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

Facility/Capability Title: FLEET BALLISTIC MISSILE ORDNANCE COMPONENTS TEST FACILITY

ANNUAL HOURS OF DOWNTIME	1 708
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2 1.94
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3 22.06

TEST TYPES	TESTS AT ONE TIME	WORKLOAD PER TEST PER FACILITY HOUR	WORKLOAD PER FACILITY HOUR	UNCONSTRAINED CAPACITY PER DAY
4	5	6	7	(LINE 3 X TOTAL Σ) 8

FBM Ordnance Components Lot Acceptance tests are contract specific and vary significantly in the quantity of items tests, the tests performed, and the length of time required to complete the testing sequence (30 to 60 days). Engineering investigations are individually tailored (item specific) to evaluate performance parameters of concern. Additionally the type and number of tests at one time are dependent on the net explosive weight of the item(s) under test, the classification of the explosives, and the compatibility of the explosives. Therefore the annual unconstrained capacity was determined by comparison of the work efforts of a five day, one shift operation for FY 93:

ANNUAL UNCONSTRAINED CAPACITY

number of days X hours available/day X 1 =
number of days 8 hrs/shift FY93 Utilization rate

$\frac{7}{5} \times \frac{22.06}{8} \times \frac{1}{.85}$ = 4.54 X FY93 Workload

FY93 Workload = 51 Lot Acceptance Tests and 64 Engineering Investigations

Unconstrained Capacity = 4.54 X 51 = 232 Lot Acceptance Tests and
4.54 X 64 = 291 Engineering Investigations

GENERAL INFORMATION

Facility/Capability Title: FLEET BALLISTIC MISSILE ORDNANCE COMPONENTS TEST FACILITY

Origin Date: 04/29/94

Service: Navy		Organization/Activity: Naval Surface Warfare Center Crane Division		Location: Crane, IN			
T&E Functional Area: Armament/Weapons			UIC = N00164				
T&E Test Facility Category: Hardware-In-The-Loop							
Percentage Use:	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
	100						
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/ Weapons	100						
EC							
Other							
Total in Breakout Must Equal "Percentage Use" on First Line							

TECHNICAL INFORMATION

Facility/Capability Title: FLEET BALLISTIC MISSILE ORDNANCE COMPONENTS TEST FACILITY

Facility Description; Including mission statement: Provide support to the Fleet Ballistic Missile Strategic Weapons System ordnance evaluation programs throughout the life cycle of the Trident I and II Missiles. This is accomplished through the design and manufacture of ordnance test systems and the test and evaluation of missile ordnance components utilized in the Launch, Missile Body and Reentry Systems.
Interconnectivity/Multi-Use of T&E Facility: This facility is supported by the personnel, equipment and facilities of the Ordnance Environmental Test Facility, Ordnance Radiographic Facility, and the Ordnance Materials Analysis Laboratory. The facility is also reliant on an Ordnance Storage Capability (magazines).
Type of Test Supported: The facility performs functional tests of ordnance components throughout the life cycle of Trident I and Trident II Missiles including development tests, lot acceptance tests, and surveillance testing of components in the inventory.
Summary of Technical Capabilities: The FBM facility is unique in respect to its design, construction and safety site approval which allows ordnance components and assemblies to be destructively tested safely. This facility allows explosive operations and still meets the quantity-distance requirements of NAVSEA OP-5. (Continued on attached sheet).
Keywords: Fleet Ballistic Missile; Trident; Strategic Weapon System

Additionally, the facility requires both a static grounding system and a lightning protection ground system. Facility siting is Department of Defense Explosive Safety Board approved.

Representative Test Systems Include:

Trident II High Voltage Detonator Test Systems
Trident II Reentry Body Test Systems
Trident II Linear Ordnance Test Systems
Trident I Detonator Test Systems
Trident I Linear Ordnance Test System

This facility also designed, developed and maintains equipment configuration control for the test systems listed above.

ADDITIONAL INFORMATION

Facility/Capability Title: FLEET BALLISTIC MISSILE ORDNANCE COMPONENTS 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	29	25	23	23	22R	21	20
Contractor	0	0	0	0	0	0	0
Total	29	25	23	23	22	21	20

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Total Square Footage: 23,928

Test Area Square Footage: 20,616 Office Space Square Footage: 3,312

Tonnage of Equipment: 95 Volume of Equipment: 11,243 cu. ft.

Annual Maintenance Cost: $310,000 Estimated Moving Cost: $469,000

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$40,000	$40,000	$40,000	$45,000	$45,000	$50,000	$50,000

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ADDITIONAL INFORMATION

Facility/Capability Title: FLEET BALLISTIC MISSILE ORDNANCE COMPONENTS 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	29	25	23	23	2	21	20
Contractor	0	0	0	0	0	0	0
Total	29	25	23	23	22	21	20

Total Square Footage: 23,928

Test Area Square Footage: 20,616 Office Space Square Footage: 3,312

Tonnage of Equipment: 95 Volume of Equipment: 11,243 cu. ft.

Annual Maintenance Cost: $310,000 Estimated Moving Cost: $469,000

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$40,000	$40,000	$40,000	$45,000	$45,000	$50,000	$50,000

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 180 - Environmental Test/Engineering Branch

AGE: 50 years REPLACEMENT VALUE: $324,300

MAINTENANCE AND REPAIR BACKLOG: $8,000

DATE OF LAST UPGRADE: 1986

NATURE OF LAST UPGRADE: Interior renovations for improved operations. Renovated restrooms, installed seperation walls, and general cleanup. Installed new windows.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2921 - Environmental Test Facility

AGE: 23 years REPLACEMENT VALUE: $574,000

MAINTENANCE AND REPAIR BACKLOG: $2,500

DATE OF LAST UPGRADE: 1991

NATURE OF LAST UPGRADE: Addition for the installation of new air compressor.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: MILCON P-278, Ordnance Environmental Test Facility

TOTAL PROGRAMMED AMOUNT: $9,600,000
SUMMARY DESCRIPTION: P-278 will construct a 29,389 SF, three structure comples for the test and evaluation of various ordnance items. Building 2921 will be vacated upon completion of P-278

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2951 - Environmental Test Facility

AGE: 20 years REPLACEMENT VALUE: $160,000

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE:

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: MILCON P-278, Ordnance Environmental Test Facility

TOTAL PROGRAMMED AMOUNT: $9,600,000
SUMMARY DESCRIPTION: P-278 will construct a 29,389 SF, three structure comples for the test and evaluation of various ordnance items. Building 2951 will be vacated upon completion of P-278

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2964 - Environmental Test Facility

AGE: 20 years REPLACEMENT VALUE: $632,000

MAINTENANCE AND REPAIR BACKLOG: $15,000

DATE OF LAST UPGRADE: 1980

NATURE OF LAST UPGRADE: Renovation to test cells.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: MILCON P-278, Ordnance Environmental Test Facility

TOTAL PROGRAMMED AMOUNT: $9,600,000
SUMMARY DESCRIPTION: P-278 will construct a 29,389 SF, three structure comples for the test and evaluation of various ordnance items. Building 2964 will be vacated upon completion of P-278

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3007 - Environmental Test Facility

AGE: 16 years REPLACEMENT VALUE: $64,000

MAINTENANCE AND REPAIR BACKLOG: $15,000

DATE OF LAST UPGRADE: 1979

NATURE OF LAST UPGRADE: Installed new insulation and heating.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: MILCON P-278, Ordnance Environmental Test Facility

TOTAL PROGRAMMED AMOUNT: $9,600,000
SUMMARY DESCRIPTION: P-278 will construct a 29,389 SF, three structure comples for the test and evaluation of various ordnance items. Building 3007 will be vacated upon completion of P-278

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3082 - Ready Magazine

AGE: 14 years REPLACEMENT VALUE: $12,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

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: ORDANCE ENVIRONMENTAL TEST FACILITY

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	36.9	36.9	38.7	38.7	38.7	38.7	38.7	35.2
	TEST HOURS	21.0	21.0	26.0	26.3	25.2	24.6	20.0	20.4
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE:DIRECT LABOR AND TEST HOURS ARE ASSOCIATED WITH T&E FUNCTION ONLY.

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HISTORICAL WORKLOAD

Facility/Capability Title: Ordnance Environmental Test Facility

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	36.9	36.9	38.7	38.7	38.7	38.7	38.7	35.2
	TEST HOURS	21.0	21.0	26.0	26.3	25.2	24.6	20.0	20.4
	MISSIONS	NA	NA	NA	NA	NA	NA	NA	NA
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

Facility/Capability Title: Ordnance Environmental Test Facility

ANNUAL HOURS OF DOWNTIME	1 708
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2 1.94
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3 22.06

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

Ordnance Environmental Tests are requestor specific and vary significantly in the quantity of items tests, the tests performed, and the length of time required to complete the testing sequence (30 to 60 days). Additionally, the type and number of tests at one time are dependent on the net explosive weight of the item(s) under test, the classification of the explosives, and the compatibility of the explosives. Therefore the annual unconstrained capacity was determined by comparison of the work efforts of a five day, one shift operation for FY 93:

ANNUAL UNCONSTRAINED CAPACITY

number of days / number of days X hours available/day / 8 hrs/shift X 1 / FY93 Utilization rate =

$\frac{7}{5} \times \frac{21.24}{8} \times \frac{1}{.75} = 4.96 \times$ FY93 Workload

FY93 Workload = 795 Test Requests

Unconstrained Capacity = 4.96 X 795 = 3943 Test Requests

GENERAL INFORMATION

Facility/Capability Title: Ordnance Environmental Test Facility

Origin Date: 04/29/94

Service: Navy	Organization/Activity: Naval Surface Warfare Center Crane Division	Location: Crane, IN
T&E Functional Area: Armament/Weapons	UIC = N00164	
T&E Test Facility Category: Hardware-In-The-Loop		

	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
Percentage Use:	100						
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/ Weapons	100						
EC							
Other							
Total in Breakout Must Equal "Percentage Use" on First Line							

TECHNICAL INFORMATION

Facility/Capability Title: Ordnance Environmental Test Facility

Facility Description; Including mission statement: This facility provides equipment to simulate the environmental conditions armament/weapons may encounter during the life cycle of the item. Environmental testing is conducted for lot acceptance testing of new products as well as life cycle surveillance items. Engineering support services are provided for fixture design and fabrication. The remote and isolated facilities are used to test and condition explosive, pyrotechnic and other hazardous materials as well as inert items.
Interconnectivity/Multi-Use of T&E Facility: This facility provides support to many technical capabilities at NSWC Crane including conventional ammunition and pyrotechnics.
Type of Test Supported: Production Lot Acceptance Testing; Surveillance Testing; Development Testing (limited); Special Tests to replicate failure events.
Summary of Technical Capabilities: See Attached Sheet
Keywords: Simulation; Isolated Facilities; Explosive

SUMMARY OF TECHNICAL CAPABILITIES
ORDNANCE ENVIRONMENTAL TEST FACILITY

The Ordnance Environmental Test Facility utilizes 17,000 sq. ft. of space in four buildings including two reinforced concrete structures. The facility is protected by an intrusion detection system for unattended storage (e.g., overnight); siting is DDESB approved for net explosive weight stored and handled; Individual operations are isolated and separated by substantial dividing walls to reduce the potential for personal injury or death in the event of an explosive incident.

The facility is outfitted with a wide range of special utilities that provide flexibility and adaptability for the test scenarios required. The utilities include: Cooling tower(s) with a capacity of 350 tons; Electrical power 440 3PH, 220 3PH, 220 1PH, 477/208 3PH, 208/120 3PH; Lightning protection system; Ordnance and static ground systems; Low pressure dry air; CO2 piped to each test cell.

TEST CAPABILITY	EQUIPMENT AVAILABLE
Vibration Sine, Random SRS	7 Electrodynamic Vib systems from 7500 to 40000 force pounds
Shock Impact Classical	3 Impact shock 1 Lightweight ship shock
Temperature Humidity-Altitude Simultaneously or separately	30 T & H Chambers 2 TH & A Chambers
Sunshine and Rain	1 Chamber
Sand and Dust	1 Chamber
Salt Spray	2 Chambers
Jolt	2 Machines
Jumble	2 Machines

ADDITIONAL INFORMATION

Facility/Capability Title: Ordnance Environmental Test Facility

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	20	19	19	19	19	19	19
Contractor	0	0	0	0	0	0	0
Total	20	19	19	19	19	19	19

Total Square Footage: 17,000

Test Area Square Footage: 15,100 Office Space Square Footage: 1,900

Tonnage of Equipment: 86.2 Volume of Equipment: 43,787 cu. ft.

Annual Maintenance Cost: $340,000 Estimated Moving Cost: $400,000

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
0	$103,000	$245,000	$489,000	$754,000	$360,000	$165,000

ATTACHMENT C

PYROTECHNICS TECHNICAL CAPABILITY

FACILITY CONDITION

Includes all or portion of space in following buildings: Buildings 198, 633, 1029, 1043, 1163, 2084, 2670, 2693, 2995, 2707, 2888, 2923, 2925, 2945, 3079, 3080, 3081, 3086, 3107, 366, 3087

HISTORICAL WORKLOAD

DETERMINATION OF UNCONSTRAINED CAPACITY

GENERAL INFORMATION

TECHNICAL INFORMATION

ADDITIONAL INFORMATION

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 198 - Pyrotechnic Operations

AGE: 50 years REPLACEMENT VALUE: $6,123,000

MAINTENANCE AND REPAIR BACKLOG: $47,250

DATE OF LAST UPGRADE: 1989

NATURE OF LAST UPGRADE: Construction of additional space for model shop operations, storage of inert materials and equipment.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 633 - Magazine

AGE: 52 years REPLACEMENT VALUE: $39,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 1029 - HI-X Magazine

AGE: 52 years REPLACEMENT VALUE: $109,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1984

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 1043 - HI-X Magazine

AGE: 52 years REPLACEMENT VALUE: $109,000

MAINTENANCE AND REPAIR BACKLOG: None

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:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 1163 - Magazine

AGE: 52 years REPLACEMENT VALUE: $39,000

MAINTENANCE AND REPAIR BACKLOG: None

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:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2084 - Inert Production/Storage

AGE: 48 years REPLACEMENT VALUE: $503,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Interior renovation for maintenance of missile fuzes.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2670 - Control Room

AGE: 42 years REPLACEMENT VALUE: $71,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2693 - Test & Evaluation Operations

AGE: 21 years REPLACEMENT VALUE: $31,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1983

NATURE OF LAST UPGRADE: Major alterations to the building for test upgrade.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2995 - Remote Breakdown Area

AGE: 19 years REPLACEMENT VALUE: $283,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1979

NATURE OF LAST UPGRADE: Installation of substantial dividing walls and operator cell.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2707 - Explosive Science Lab

AGE: 42 years REPLACEMENT VALUE: $809,000

MAINTENANCE AND REPAIR BACKLOG: $12,000

DATE OF LAST UPGRADE: 1993

NATURE OF LAST UPGRADE: Addition of space (1950 SF) for new test and evaluation equipment in the lab. Work included renovation to the existing spaces.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: Construct loading dock.

   TOTAL PROGRAMMED AMOUNT: $70,000
   SUMMARY DESCRIPTION: Construct a new dock for loading and unloading.

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2888 - Operational Control Building

AGE: 27 years REPLACEMENT VALUE: $16,000

MAINTENANCE AND REPAIR BACKLOG: $778

DATE OF LAST UPGRADE: 1987

NATURE OF LAST UPGRADE: Installed new heating and air conditioning.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2923 - OTA Annex Control Room

AGE: 23 years REPLACEMENT VALUE: $91,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2925 - OTA Annex Control Room

AGE: 23 years REPLACEMENT VALUE: $21,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: None

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 2945 - Test & Evaluation Operations

AGE: 22 years REPLACEMENT VALUE: $45,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1991

NATURE OF LAST UPGRADE: Installed restroom facilities. Installed air compressor addition.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3079 - Magazine

AGE: 13 years REPLACEMENT VALUE: $15,000

MAINTENANCE AND REPAIR BACKLOG: None

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:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3080 - Ready Magazine

AGE: 13 years REPLACEMENT VALUE: $15,000

MAINTENANCE AND REPAIR BACKLOG: None

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:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3081 - Ready Magazine

AGE: 13 years REPLACEMENT VALUE: $15,000

MAINTENANCE AND REPAIR BACKLOG: None

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:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3086 - Test Tower

AGE: 13 years REPLACEMENT VALUE: $20,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1988

NATURE OF LAST UPGRADE: Renovated electrical system.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3107 - Hazardous Material Storage

AGE: 10 years REPLACEMENT VALUE: $23,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1991

NATURE OF LAST UPGRADE: Installed new heating system.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Ordnance Test Area

T&E FUNCTIONAL AREA		FISCAL YEAR							
		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	12000	12000	13000	13000	12000	12000	11000	11000
	TEST HOURS	1600	1600	1500	1400	1360	1360	1280	1280
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE: Direct Labor and Test hours are associated with all T& E functional areas (T&E, S&T, D&E, IE, T&D).

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: ORDNANCE TEST AREA

T&E FUNCTIONAL AREA		FISCAL YEAR							
		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	12000	12000	13000	13000	12000	12000	11000	11000
	TEST HOURS	1600	1600	1500	1400	1360	1360	1280	1280
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: ORDNANCE TEST AREA

ANNUAL HOURS OF DOWNTIME	1 5618
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2 15.4
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3 8.6

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 67
Practice Bomb Signals	1	2.3	2.3	
Markers	1	2.3	2.3	ANNUAL UNCONSTRAINED CAPACITY
Insensitive Munitions	1	3.2	3.2	9 24455
"TYPICAL "				
		TOTAL	7.8	

GENERAL INFORMATION

Facility/Capability Title: ORDNANCE TEST AREA

Origin Date: 04/30/94

Service: Navy			Organization/Activity: Naval Surface Warfare Center Crane Division		Location: Crane, IN		
T&E Functional Area: Armament/Weapons				UIC = N00164			
T&E Test Facility Category: Measurement Facility							
	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
Percentage Use:	80	5	10	5			
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/ Weapons	80	5	10	5			
EC							
Other							
Total in Breakout Must Equal "Percentage Use" on First Line							

TECHNICAL INFORMATION

Facility/Capability Title: ORDNANCE TEST AREA

Facility Description: Including mission statement: The Ordnance Test Area provides ranges and facilities for first article, lot acceptance, surveillance, qualification and safety testing of pyrotechnic, demolition and conventional ammunition items. The test areas have a total of 88 unencumbered acres and are supported by eleven buildings (7800 sq.ft.). In addition to normal function testing the facility also supports Insensitive Munitions testing on All-Up-Rounds. Specialized equipment includes a Remote Ammunition Breakdown Facility, a Rockeye Bomblet Drop and Air Launch Facility, a Forty Foot Drop Tower, a Grenade Launch Range and 100 and 300 foot towers for suspension and testing of Aircraft Parachute Flares, Practice Bombs, Infrared Decoy Flares and Obscurants.
Interconnectivity/Mulit-Use of T&E Facility: NONE
Type of Test Supported: This facility is used for function testing of numerous types of pyrotechnics and explosives. Testing includes lot acceptance, quality assessment and insensitive munitions. Data recorded include burn times and output characteristics.
Summary of Technical Capabilities: See attached sheet.
Keywords: Ordnance Testing, Pyrotechnics, Ammunition

Summary of Technical Capabilities

This facility has surveyed theodolite sites to allow the measurement of the altitude of aerial signals and flares. A full range of insensitive munitions testing can be done including fast and slow cookoff, bullet impact and sympathetic detonation. The facility has a launcher site for measuring the function of hand grenades. There is a 40 foot instrumented drop tower to evaluate the effects of a large drop on ordnance for safety information. There are 100 foot and 300 foot towers for suspending flares to allow the measurement of illumination on the surface and to provide a launch point for infrared decoys for temperature and area measurements. There are numerous firing chambers and test site setups with appropriate shielding to allow the testing of marine location markers, practice bomb signals, submarine signals, off-board ship decoys and Rockeye bomblets.

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 366 - Infrared (IR) Test Facility

AGE: 52 years REPLACEMENT VALUE: $628,000

MAINTENANCE AND REPAIR BACKLOG: $14,500

DATE OF LAST UPGRADE: 1988

NATURE OF LAST UPGRADE: Modification and addition to the facility to the IR Flare Test Operations. Installed equipment for automated testing of flares.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Automated Infrared Test Facility

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR						3000	2400	1050
	TEST HOURS						100	80	450
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE: Direct Labor and Test hours are associated with all T& E functional areas (T&E, S&T, D&E, IE, T&D).

R

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: AUTOMATED INFRARED TEST FACILITY

T&E FUNCTIONAL AREA		FISCAL YEAR							
		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR						3000	2400	1050
	TEST HOURS						100	80	450
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: AUTOMATED INFRARED TEST FACILITY

ANNUAL HOURS OF DOWNTIME	1 768
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2 2 1
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3 21 9

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	
IR Measurement	1	2.3	2.3	850.4
-				
"TYPICAL"				
			TOTAL Σ	

ANNUAL UNCONSTRAINED CAPACITY

9 18396

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Attachment C
PG 29 of 36

GENERAL INFORMATION

Facility/Capability Title: AUTOMATED INFRARED TEST FACILITY

Origin Date: _____

Service: Navy		Organization/Activity: NSWC Crane Division			Location: Crane, IN		
T&E Functional Area: Armament/Weapons				UIC = N00164			
T&E Test Facility Category: Measurement Facility							
	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
Percentage Use:	80%	2%	18%				
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/Weapons	100						
EC							
Other							
Total in Breakout Must Equal "Percentage Use" On First Line							

TECHNICAL INFORMATION

Facility/Capability Title: AUTOMATED INFRARED TEST FACILITY

Facility Description; The **Automated Infrared Test Facility** is identified as the Navy Standard for the measurement of infrared decoy flare intensity performance. The facility is contained in Building 366 and consists of a burning chamber capable of burning decoy flares up to 1000 grams, a 70 meter measurement tunnel with an environmentally controlled measurement room and several support rooms adjacent to the tunnel. The facility is used for development, first article, lot acceptance, surveillance and qualification testing of infrared decoy flares in both static and simulated air stream launch conditions. The facility also provides for robotic loading of the pyrotechnic devices - the most hazardous operation in the testing.

Interconnectivity/Mulit-Use of T&E Facility: N/A

Type of Test Supported: This facility is used for measuring the radiant intensity and spectral radiant intensity from burning decoy flares under controlled conditions.

Summary of Technical Capabilities: Measurements in the facility are made using pyroelectric radiometers equipped with appropriate bandpass filters to select infrared band of interest. The radiometers are maintained in an environmentally controlled room. Radiometer calibrations are performed in place with NIST traceable blackbodies. Fourier transform interferometers and thermal imagers can be utilized in the facility during developmental testing to provide spectral and thermal mapping data. Data are collected and processed in real time to minimize time between tests.

Measurements in the facility have been correlated with actual air to air measurements of the intensity and effectiveness of infrared decoys thus providing a baseline for all future development efforts. This baseline allows us to be able to minimize the amount of costly air to air testing required during the development of new devices.

The facility provides a controllable air stream profile. In this facility we can change the air stream profile to simulate different flare launch conditions and different profiles for our more advanced flares.

In addition to providing operator safety during loading of the decoy flares in the test apparatus the robotic loading capability provides an extra measure of safety for the operator in that he/she is not exposed to the combustion products of the flare burnings.

Keywords: Infrared decoy measurements, flare measurement tunnel

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: Building 3087 - Windstream Test Facility

AGE: 11 years REPLACEMENT VALUE: $369,000

MAINTENANCE AND REPAIR BACKLOG: None

DATE OF LAST UPGRADE: 1989

NATURE OF LAST UPGRADE: Installed new air compressor.

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Transient Velocity Windstream Apparatus

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	120	240	240	1200	1200	1200	4000	3000
	TEST HOURS	40	60	60	400	400	300	800	600
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

NOTE: Direct Labor and Test hours are associated with all T& E functional areas (T&E, S&T, D&E, IE, T&D).

R

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: Transient Velocity Windstream Apparatus

T&E FUNCTIONAL AREA		FISCAL YEAR 86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR	120	240	240	1200	1200	1200	4000	3000
	TEST HOURS	40	60	60	400	400	300	800	600
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: Transient Velocity Windstream Apparatus

ANNUAL HOURS OF DOWNTIME	1	1968
AVERAGE DOWNTIME PER DAY (LINE 1÷ 365)	2	5.4
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	18.6

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 93
IR Measurement	1	5.0	5.0	
				ANNUAL UNCONSTRAINED CAPACITY
				9 33945
"TYPICAL"				
			Σ TOTAL	

GENERAL INFORMATION

Facility/Capability Title: Transient Velocity Windstream Apparatus

Origin Date: _____

Service: Navy		Organization/Activity: NSWC Crane Division			Location: Crane, IN		
T&E Functional Area: Armament/Weapons				UIC = N00164			
T&E Test Facility Category: Measurement Facility							
	T&E	S&T	D&E	IE	T&D	OTHER	= 100%
Percentage Use:	50%	10%	40%				
Breakout by T&E Functional Area (%)							
Air Vehicles							
Armament/Weapons	100						
EC							
Other							
Total in Breakout Must Equal "Percentage Use" On First Line							

TECHNICAL INFORMATION

Facility/Capability Title: Transient Velocity Windstream Apparatus

Facility Description; Including mission statement: The **Transient Velocity Windstream Apparatus** is a free jet expansion windstream apparatus designed to provide adjustable air velocity versus time profiles to simulate the launch of decoy flares from a moving aircraft. The outdoor apparatus consists of several air compressors, a bank of air storage tanks, a computer controlled valve to control air flow and a nozzle and can produce air flows from 0.1 to 0.9 Mach at either a constant velocity or, under computer control, a variable velocity versus time profile to simulate the observed velocity versus time behavior experienced by a decoy flare when ejected from an aircraft. Radiant and spectral radiant intensity are measured at distances of 30, 80 and 500 meters and at angles from 10 - 300 degrees around the device. The facility is also equpped to measure thrust and drag from next generation flares which might have some kinematic or aerodynamic design properties.
Interconnectivity/Mulit-Use of T&E Facility: N/A
Type of Test Supported: This facility is used for measuring the radiant intensity and spectral radiant intensity from burning decoy flares under controlled conditions. The facility can simultaneously measure the thrust and drag on special flares as required.

Summary of Technical Capabilities: Measurements in the facility are made using pyroelectric radiometers equipped with appropriate bandpass filters to select infrared band of interest, Fourier transform spectrometers, visible radiometers and spectral radiometers, circular variable filter spectrometers and thermal imagers. Radiometer and spectrometer calibrations are performed with a selection of NIST traceable blackbodies.

Measurements in the facility have been correlated with actual air to air measurements of the intensity and effectiveness of infrared decoys thus providing a baseline for all future development efforts. This baseline allows us to be able to minimize the amount of costly air to air testing required during the development of new devices. The facility utilizes identical equipment for measuring in this controlled environment and in ground to air and air to air testing thus eliminating instrument variation in the measurements. The use of identical equipment requires a minimum measurement path length of 500 meters.

The facility provides a controllable air stream profile. In this facility we can change the air stream profile to simulate different flare launch conditions and different profiles for our more advanced flares. Launch conditions from 0.1 to 0.9 Mach can be simulated. It is also possible to produce constant velocity versus time profiles to simulate flares that have some propulsion mechanism during their operation.

The facility has sufficient ground area that flares producing plume lengths up to 30 meters can be safely tested and measured.

Keywords: Infrared decoy measurements, windstream measurements

ADDITIONAL INFORMATION

Facility/Capability Title: TRANSIENT VELOCITY WINDSTREAM APPARATUS

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: 900

Test Area Square Footage: 900 Office Space Square Footage:

Tonnage of Equipment: 5000 pounds Volume of Equipment: 1200 cu. ft.

Annual Maintenance Cost: $6,000
Estimated Moving Cost: $200,000

CAPITAL EQUIPMENT INVESTMENT

FY93	FY94	FY95	FY96	FY97	FY98	FY99
$20,000	$20,000	$20,000	$20,000	$20,000	$20,000	$20,000

Global 202 R

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T&E JCSG CLARIFICATION - FORM #1
Electronic Combat (MF, HITL, ISTF & OAR)

Activity Title: NAVSURFWARCEN CRANE, CRANE SITE **UIC:** N00164

Facility/Capability Title: Electronic Warfare

T&E Test Facility Category: MF
(MF, HITL, ISTF, or OAR)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)		X
Infrared (IR)	X	
Millimeter Wave (MMW)	X	
Ultra Violet (UV)		X
Laser		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes ___ No X.

R

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T&E JCSG CLARIFICATION - FORM #2
Armament/Weapons (HITL & ISTF)

Activity Title: NAVSURFWARCEN CRANE, CRANE SITE **UIC:** N00164

Facility/Capability Title: Conventional Ammunition

T&E Test Facility Category: HITL
(HITL or ISTF)

Utilize the following table to indicate which of the indicated spectra are available to test against with this Facility/Capability.

Spectra	Yes	No
Radio Frequency (RF)	X	
Electro-Optical (EO)	X	
Infrared (IR)	X	
Millimeter Wave (MMW)		X
Ultra Violet (UV)	X	
Laser	X	
Midcourse Inertial /GPS (HITL only)		X

MLP NSWC 033 9/13/94

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X **No** ___.

R

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T&E JCSG CLARIFICATION - FORM #3
Armament/Weapons (MF)

Activity Title: NAVSURFWARCEN CRANE DIV, CRANE SITE **UIC:** N00164

Facility/Capability Title: Pyrotechnics

T&E Test Facility Category: Measurement Facility (MF)

Utilize the following table to indicate which of the indicated T&E testing can be conducted by this Measurement Facility.

Spectra	Yes	No
Environmental T&E	X	
Safety T&E	X	
Warhead Performance T&E	X	
Fuze T&E	X	
Seeker, sensor and guidance/control performance and target/background signature characterization		X
Propulsion Performance T&E		X
Airframe/aerodynamic/aerothermal performance T&E across subsonic, transonic, and hypersonic regimes		X
Gun Performance T&E		X
Electromagnetic Environmental Effects		X
Directed Energy		X

Is this Facility/Capability equipped to support Top Secret or Special Access required work? Yes X No ___.

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DATA CALL #13
CRANE 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)~~

~~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

9/14/94
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

9-22-94
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

Signature

Title

9/29/94
Date

NAVAL SURFACE WARFARE CENTER
CRANE DIVISION
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 purpose 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 the 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

J. M. CARNEY
NAME (Please type or print)

Signature

COMMANDER
Title

9/9/94
Date

CRANE DIVISION, NSWC
Activity

1. In regards to the BSAT request for clarification dated 8 September 94, additional information is provided to indicate the capabilities of the Electronics Combat and Armaments/Weapons facilities previously reported in BRAC95 data call #13.

****

BRAC-95 DATA CALL SUBMISSION TO BSAT CHECKLIST
(THIS DOCUMENT IS A MANAGEMENT TOOL ONLY)

****

Data Call # 14

MC NAVSEA

OPNAV _____

DATE	SIGNATURE	CODE	
			1. ✓ Certification complete up to Major Claimant.
			2. ✓ Certification complete by Major Claimant.
			3. No missing pages.
			4. All questions answered (or explained if not).
NA			5. Copy of data call reviewed by N44E, if applicable (logged out of N44. Due back to N44: _____).
19 May 94	Susan Waldron	N441	6. Copy of data call delivered to OPNAV Sponsor POC/logged out of N44. Due back to N44: COB 20MAY94.
			7. Review by OPNAV Sponsor POC completed/logged back to N44.

☐ Package reviewed, no omissions or errors noted.

☐ Package reviewed, omissions/errors provided to Major Claimant (annotate/flag data call copy with brief description and details of error).

_____
(OPNAV Sponsor POC

Signature/Code/Date)

			8. N4 Certification complete.
			9. Copy filed in _____ (box/safe number).

19 May 94 Susan Waldron N441

NSWC CRANE DIV

DATA CALL #13

JL
SEA-09X
5/12/94

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

NEXT ECHELON LEVEL (if applicable)

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

5/11/94
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. STERNER
NAME (Please type or print

Signature

Title

5-13-94
Date

Commander
Naval Sea Systems Command
Activity

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

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

J.B. Greene, Jr.
NAME (Please type of print

Signature

Acting
Title

27 May 1994
Date

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 May 94
Date

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
Activity

202 DATA CALL #13
CRANE 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)

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 8/17/94
Title 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

E. S. McGINLEY, II
Rear Admiral, U.S. Navy _____
NAME (Please type or print Signature

ACTING 8/21/94
Title Commander Date
Naval Sea Systems Command
Activity

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

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

W. A. EARNER _____
NAME (Please type of print Signature

8/25/94
Title Date

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
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

8/12/94
Date

CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
Activity

1. Attachment B - Page 23 of 61 - (line 1) 708 should be 488, (line 2) 1.94 should be 1.34, (line 3) 22.06 should be 22.66.

2. Attachment B - Page 57 of 61 - (line 1) 708 should be 1008, (line 2) 1.94 should be 2.76, (line 3) 22.06 should be 21.24.

DATA CALL #13
CRANE SITE

202 1

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

~~NEXT ECHELON LEVEL (if applicable)~~

~~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

9/7/94
Date

Naval Surface Warfare Center
Activity

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

MAJOR CLAIMANT LEVEL

NAME (Please type or print
G. R. STERNER
Commander
Naval Sea Systems Command

Signature

9-9-94
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

14 SEP 1994
Date

NAVAL SURFACE WARFARE CENTER
CRANE DIVISION
DATA CALL #13

BRAC-95 CERTIFICATION

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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. M. CARNEY
NAME (Please type or print)

J M Carney
Signature

9/2/94
Date

COMMANDER
Title

CRANE DIVISION, NSWC
Activity

The following is additional information submitted in response to the BSAT request for clarification dated 1 Sept. 94.

1. BSAT Control Number: A/W 030 - Information is provided on page 9 for the Armaments/Weapons functional area.

2. BSAT Control Number: A/W 031 - Information is provided on page 13 for facilities utilized in the Armaments/Weapons functional area.

3. BSAT Control Number: A/W 032 - Information is provided on page 16 for facilities utilized in the Armaments/Weapons functional area.

4. BSAT Control Number: A/W 033 - The questions on page 18/19 are answered for the Armaments/Weapons functional area.

5. BSAT Control Number: A/W 034 - The information in the Historal Workload tables of Attachments A, B and C is clarified.

6. BSAT Control Number: A/W 035 - The information on the Conventional Ammunition Facility (Summary) is a sum total of all facilities within this complex as clarified on page 1 of Attachment B.

DATA CALL #13
CRANE 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)

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

9/14/94
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

G. R. STERNER
Commander

9-22-94
Date

Naval Sea Systems Command
Activity

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

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)
W. A. EARNER

NAME (Please type of print

Signature

Title

9/29/94
Date

NAVAL SURFACE WARFARE CENTER
CRANE DIVISION
DATA CALL #13

BRAC-95 CERTIFICATION

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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. M. CARNEY
NAME (Please type or print)

Signature

COMMANDER
Title

9/12/94
Date

CRANE DIVISION, NSWC
Activity

Attachment B, Page 49R. The number of civilian personnel for FY97 corrected.